

# OUTLINE OF SUBJECTS

These subjects are listed in subject code order. As a cross-reference to codes, subjects are listed in alphabetical order by name in the list of subjects at the end of this section.



### ■ ACB110 ACCOUNTING I

This subject covers introduction to accounting, recording business transactions, adjustments, preparing financial statements, merchandising operations, accounting systems, specialised journals, cash, internal control, non-current assets, receivables, payables, inventories, sources and applications of funds, analysis and interpretation of financial statements.

**Credit Points:** 12    **Contact Hours:** 6 per week

### ■ ACB111 ACCOUNTING II

The aim of the subject is to give students a sound procedural and conceptual knowledge of basic accounting topics as a grounding for future studies. It covers partnerships, cash flow statements, introduction to company accounting, introduction to tax effect accounting, preparation of financial statements, alteration of share capital, issue and redemption of debentures, funds statements, investments, introduction to consolidations, analysis and interpretation of financial statements.

**Prerequisite:** ACB110    **Credit Points:** 12

### ■ ACB140 BUSINESS LAW

This unit is designed to introduce students to the impact of law on business. To do this, the unit deals with the components of the Australian legal systems and with the judicial process - the way legal decisions are made. The bulk of the unit involves a study of contract law which is the most important area of law in commerce.

**Credit Points:** 12    **Contact Hours:** 4 per week

### ■ ACB180 ACCOUNTING FOR MANAGERS

This subject covers introduction to recording business transactions, preparation of financial statements, accounting for inventory control accounts and subsidiary ledgers, structure of organisations and company accounts, analysis and interpretation of financial statements, the managerial accounting costing process, cost accounting systems, standard costing and variance analysis, managerial accounting and decision making.

**Credit Points:** 12    **Contact Hours:** 3 per week

### ■ ACB181 ACCOUNTING INFORMATION SYSTEMS I

This subject introduces the functions, activities and structure of organisations and the basic concepts of information and decision-making; examines the nature and role of the two general accounting systems which are found in an organisation - the Financial Accounting Information System (F.A.I.S.) and the Managerial Accounting Information System (M.A.I.S.); and analyses the procedures and techniques involved in the F.A.I.S. and the management planning and control system.

**Credit Points:** 9    **Contact Hours:** 3 per week

### ■ ACB210 COMPANY ACCOUNTING

This subject is designed to examine certain issues in financial accounting, particularly related to companies. Both practical and theoretical aspects will be considered: company formation, accounting for company income tax (tax-effect accounting); liquidation; acquisition of assets (including companies); consolidated financial statements; equity accounting; and disclosure in company financial statements.

**Prerequisite:** ACB111

**Credit Points:** 12    **Contact Hours:** 4 per week

### ■ ACB220 COST ACCOUNTING

This subject is designed to provide an understanding of cost accounting terminology and concepts and to

expose the student to costing systems and cost estimation techniques. The subject should provide a solid grounding for application in managerial accounting.

**Prerequisite:** ACB110

**Credit Points:** 12    **Contact Hours:** 4 per week

### ■ ACB230 FINANCIAL MANAGEMENT I

This subject introduces the topic of financial management. Particular emphasis is placed on establishing a theoretical framework that forms the basis for all the finance subjects offered in the degree. It encompasses certainty model; valuation; financial mathematics; capital budgeting; CAPM (Capital Asset Pricing Model); WACC (Weighted Average Cost of Capital); and introduction to the concept of risk: portfolio theory.

**Prerequisite:** ACB111

**Credit Points:** 12    **Contact Hours:** 4 per week

### ■ ACB231 AUSTRALIAN CAPITAL MARKETS

This subject is designed to provide the student with a thorough understanding of Australian Capital Markets; its institutions and its behaviour. On completion of this subject, students should be familiar with all parts of the Australian Capital Market place. In addition, financial market mathematical skills will have been developed.

**Prerequisite:** MNB232

**Credit Points:** 12    **Contact Hours:** 3 per week

### ■ ACB240 LAW OF BUSINESS ASSOCIATIONS

This subject examines the law relating to the establishment, operation, and dissolution of business associations. The forms of business associations studied include partnerships, joint ventures, trusts, companies and voluntary associations. On completion of this subject students should be able to identify and apply the basic principles of law in so far as they relate to the formation, control and winding down of the various business entities.

**Prerequisite:** ACB140

**Credit Points:** 12    **Contact Hours:** 4 per week

### ■ ACB280 HEALTH ADMINISTRATION FINANCE

The subject covers fund/accrual accounting, financial administration in Commonwealth and State Government, financial management in the health industry, financial analysis, planning and budgeting, working capital management in the health industry, health care performance and evaluation.

**Prerequisite:** ACB110

**Credit Points:** 12    **Contact Hours:** 3 per week

### ■ ACB281 BUILDING FINANCIAL MANAGEMENT I

This subject intends to develop an awareness of the accounting process and accounting systems in the Building Industry and to equip the student to make financial decisions using accounting data. It includes the nature of accounts, liabilities, and proprietorship; the accounting equation and balance sheet, ledger accounts and the double entry system, the accounting period concept, and profit determination. Different forms of ownership and the basic nature of taxation are considered. A coverage of budgeting follows.

**Credit Points:** 4    **Contact Hours:** 2 per week

### ■ ACB310 ACCOUNTING THEORY & PRACTICE

This subject is designed to introduce students to the nature and development of accounting theory, and to

develop students' understanding of Accounting Standards and their implications for practice. It includes the evolution of accounting theory; profits (determination and disclosure, revenue and expense recognition); assets (definition, recognition, measurement and classification); extractive industries; liabilities (definition, recognition, measurement and classification); leases; foreign currency translation; and joint ventures.

**Prerequisite:** ACB210

**Credit Points:** 12    **Contact Hours:** 4 per week

#### ■ ACB311 AUDITING

Content: the audit environment; legal liability of auditors; professional ethics; study and evaluation of audit planning and programming, evidence, internal control theory and review techniques; audit program applications; revenue, receivables, cash, inventory; audit in EDP environment and evaluation of EDP controls; computer-assisted audit techniques, computer fraud, completion and review; the audit report.

**Prerequisite:** ACB210

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ ACB312 AUDITING & PROFESSIONAL PRACTICE

The audit approach; planning an audit; audit working papers; verification of the balance sheet and profit and loss statement trade debtors, inventory, non-current assets, cash, investments, taxation, capital and retained profits; audit sampling theory techniques and applications; and other issues of current professional interest.

**Prerequisite:** ACB311

**Credit Points:** 12    **Contact Hours:** 4 per week

#### ■ ACB320 GOVERNMENT ACCOUNTING

Scope and approach; institutional framework, objectives, concepts and principles of government accounting, accountability, management control, budgeting; revenue and expenditure accounting; illustration of government accounting systems at all levels of government, comparative government budgeting and accounting systems; accounting information systems, internal audit and efficiency audit.

**Prerequisite:** ACB110

**Credit Points:** 12    **Contact Hours:** 4 per week

#### ■ ACB321 MANAGERIAL ACCOUNTING

Development of budgets, responsibility accounting, special decision making, transfer pricing, VP Planner, case study exercises, variance analysis, investigation of variances, inventory planning and control, project planning and control and strategic management, agency theory.

**Prerequisites:** ACB220, ACB230

**Credit Points:** 12    **Contact Hours:** 4 per week

#### ■ ACB330 GOVERNMENT FINANCE

The subject covers an introduction to government finance, sources of public income, public expenditures, investment and debt. Taxation objectives principles and Australian practices. Instrumentalities of economic accountability, intergovernmental financial relations, government finance and economic policy, new financial legislation and institutions.

**Prerequisites:** Government Accounting AND Managerial Economics

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ ACB331 FINANCIAL MANAGEMENT II

This subject is designed to build further upon the work in Financial Management I, particularly looking at the

financial management of the firm. Topics covered include firm decisions regarding dividends, capital structure, working capital and leasing. Further topics include market efficiency, portfolio management, the nature and applications of options, takeovers and international finance.

**Prerequisite:** ACB230

**Credit Points:** 12    **Contact Hours:** 4 per week

#### ■ ACB332 PORTFOLIO & SECURITY ANALYSIS

This subject is designed to make students aware of how Australia's financial markets operate. Both theory and empirical evidence are examined. The subject gives the students hands-on experience using Stock Exchange data, to calculate betas and form investment portfolios.

**Prerequisite:** ACB230

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ ACB335 INSURANCE RISK MANAGEMENT

This subject is designed to introduce students to the management of insurable risks. Content includes risk classification, measurement and analyses of risk, types of insurance policies available and the evaluations of an insurance program.

**Prerequisites:** ACB110, ACB230

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ ACB336 INTERNATIONAL FINANCE

This subject is designed to foster an understanding of both how a multinational firm operates and how international financial markets function. It covers international trade theory, international financial markets, overseas finance, exchange rate, risk management, international investment, legislation.

**Prerequisite:** ACB230

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ ACB340 TAXATION LAW AND PRACTICE

This subject deals with the elements that determine the income upon which a taxpayer is required to pay income tax pursuant to the provisions of the Australian Income Tax Assessment Act. The steps involved in the calculation of tax are also covered. Brief consideration is given to employers' liability to fringe benefits tax pursuant to the Fringe Benefits Tax Assessment Act.

**Prerequisite:** ACB240

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ ACB341 COMMERCIAL & SECURITIES LAW

In Business Law, students have a detailed exposure to basic contract law. In this unit such law is extended to specific types of contract which are commonly encountered in the business world, such as sale of goods, hire purchase, agency. In addition, other areas of law relevant to commerce are studied, such as bailment and negligent mis-statements.

**Prerequisite:** ACB140

**Credit Points:** 12    **Contact Hours:** 4 per week

#### ■ ACB342 COMPANY LAW & PRACTICE

This subject is designed to flesh out and apply the conceptual principles of company law studied in ACB240 Law of Business Associations. Particular emphasis is laid upon the practical implementation of the accounting, auditing, meeting and managerial requirements of the Companies Code; the outworking of the law relating to insolvent and financially troubled companies; and the peculiar difficulties of

the takeover provisions and the protection of minority interests.

**Prerequisite:** ACB240

**Credit Points:** 12 **Contact Hours:** 4 per week

#### ■ ACB343 TAXATION OF BUSINESS ENTITIES

This subject examines in depth the income tax treatment of the various business entities and classes of taxpayer, and introduces the principles governing the taxation of international transactions, the administration of taxation legislation, and the imposition of non-income business taxes.

**Prerequisite:** ACB340 Taxation Law & Practice

**Credit Points:** 12 **Contact Hours:** 4 per week

#### ■ ACB344 TAXATION & PROFESSIONAL PRACTICE

This subject is designed to prepare students for a career in a professional accounting practice or assist students already engaged in same. There are two distinct modules of study - indirect and related business taxes, and tax planning and client relationships. Content includes sales tax, stamp duty, payroll tax, workers compensation and land tax, tax planning, and client relationships.

**Prerequisite:** ACB340 **Co-requisite:** ACB343

**Credit Points:** 12 **Contact Hours:** 4 per week

#### ■ ACB345 FINANCIAL INSTITUTIONS - LAW

This subject is designed to provide students with a basic knowledge of law relevant to the finance industry. It encompasses legal structures of banks and non-banks, banks customer relationship, Cheque Act, negligent advice, Credit Act.

**Prerequisite:** ACB140

**Credit Points:** 12 **Contact Hours:** 3 per week

#### ■ ACB350 FINANCIAL INSTITUTIONS - LENDING

This subject is designed to introduce students to the principles and practice of lending. On completion of this subject, students should be able to understand how loans are analysed in a banking environment, as well as having an appreciation for the legal relationship between financial institutions and their customers.

**Prerequisite:** ACB110

**Credit Points:** 12 **Contact Hours:** 3 per week

#### ■ ACB351 FINANCIAL INSTITUTIONS - MANAGEMENT

This subject is designed to introduce students to the main decision areas in the management of finance institutions.

Content covers strategic planning, managing interest rate risk, liquidity, capital structure costing services, performance measurement, responsibility accounting and motivation, management of funding decision, management of the loan portfolio and liquidity, differential cost analysis and transfer pricing.

**Prerequisites:** ACB230, ACB220

**Credit Points:** 12 **Contact Hours:** 4 per week

#### ■ ACB352 COMPARATIVE FINANCIAL SYSTEMS

This subject introduces analysis for the operations of important overseas capital markets. On completion of this subject, students should be able to understand how the capital markets of our major trading partners operate.

**Prerequisites:** ACB231, ACB230

**Credit Points:** 12 **Contact Hours:** 3 per week

#### ■ ACB360 COMPUTER SECURITY & AUDIT

This subject is designed to give an understanding of EDP Controls appropriate in a computerised accounting system, the process of auditing such systems, and the use of computer-assisted auditing techniques. The subject covers the impact of EDP on controls and auditing, general EDP controls, EDP application controls, generalised audit software, static and dynamic computer-assisted auditing techniques, special EDP environments and computer fraud.

**Prerequisite:** ACB311 **Co-requisite:** ACB311

**Credit Points:** 12 **Contact Hours:** 3 per week

#### ■ ACB380 LAW & COMMUNICATION

The subject covers the institutions of the law, ordering the law - public and private. The fashioning of law - cases, precedent, legislation, delegated legislation interpretation, facts and the law, legal reasoning, the law library, limits on freedom of expression - torts and crimes - defamation, obscenity, laws and regulations affecting advertising - broadcasting, television and press, contempt of court.

**Credit Points:** 12 **Contact Hours:** 3 per week

#### ■ ACB381 PUBLIC ADMINISTRATIVE LAW

The aim of this subject is to ensure the student gains an understanding of the range of controls exercisable by common or statute law over governmental decision making processes, where the validity of such processes is not dependent on special constitutional considerations and where it does not involve a question of mere liability under the existing categories of tort or contract law.

**Prerequisites:** MNB181, MNB183

**Credit Points:** 12 **Contact Hours:** 3 per week

#### ■ ACB382 INTRODUCTORY ACCOUNTING

The subject covers the accounting equation and the double entry principle, recording business transactions, end of period adjustments, financial statements and closing entries, accounting for merchandising operations, specialised journals and subsidiary ledgers, cash controls, accounting for partnerships, accounting for companies, interpretation of financial statements, setting up an accounting system for a legal practice.

**Credit Points:** 12 **Contact Hours:** 3 per week

#### ■ ACB383 ACCOUNTANCY FOR ADMINISTRATORS

On completion of this subject, students should be able to read and extract information from published financial reports and maintain records for a small organisation. The subject covers double entry accounting, general journal, ledgers, trial balance, overview of financial statements, worksheet preparation, accounting for merchandising operations, specialised journals and subsidiary ledgers and cash controls.

**Credit Points:** 12 **Contact Hours:** 3 per week

#### ■ ACB384 INTRODUCTORY LEGAL STUDIES

The subject covers introduction to law, its nature, sources, development and institutions. The law of contract and its impact on business. Various areas of specialist contracts, e.g. sale of goods, agency and employment. Corporations. Restrictive trade practices and consumer affairs.

**Credit Points:** 12 **Contact Hours:** 3 per week

#### ■ ACB480 PERSONAL & CORPORATE FINANCE

The Australian financial environment from both a personal and corporate point of view. The aim is to equip students with information and analytical techniques which will assist them in investment and financing decision making in their business and personal lives. The subject covers goals and functions of finance, methods of project evaluation, evaluation and selection of investment projects, management of working capital, leverage, cash forecasting and cash management, financial statement analysis.

**Credit Points:** 4      **Contact Hours:** 3 per week

#### ■ ACB481 FINANCIAL MANAGEMENT FOR ENGINEERS

The subject aims to introduce engineering students to the theory and practice of financial management in Australia. It covers the nature of business finance and firm objectives, business structures and the organisation of the Australian capital markets, sources of long term and short term finance, the investment of firm funds in working capital and fixed assets, portfolio management theory.

**Credit Points:** 6      **Contact Hours:** 3 per week

#### ■ ACB482 ACCOUNTING PRINCIPLES C

The subject aims to provide students with a comprehension of accountancy terminology and procedures to use as tools in their professional planning and budgeting activities. It covers the development of the rules and skills to prepare financial statements, the G.A.A.P. concepts for use in measurement of asset and liability values, depreciation and the relevant rates for use in decision making.

**Credit Points:** 2

#### ■ ACB659 FINANCIAL MODELING

Content encompasses supply and demand for financial information cross sectional and time series analysis, bankruptcy prediction, empirical issues and evidence, debt ratings and financial information, financial analysis models, distress analysis and loan decisions. An IFPS project is also included in the course.

**Prerequisite:** ACB230

**Credit Points:** 12      **Contact Hours:** 3 per week

#### ■ ACN110 PROFESSIONAL YEAR MODULE - ACCOUNTS

Content see ACN126 Financial Reporting, and ACN112 Advanced Company Accounting  
ACN111 Financial Accounting Honours

The subject aims to provide students with an understanding of the nature and development of accounting theory. Students will be exposed to a broad coverage of the accounting literature and will be expected to develop an understanding of the nature of research in accounting. Topics covered include the nature, methodology and development of accounting theory, incentive problems and contracting solutions associated with the issue of debt and equity, contracting explanations for external financial reporting, accounting policy choice and the value of the firm, and accounting and the political process.

**Credit Points:** 12

#### ■ ACN112 ADVANCED COMPANY ACCOUNTING

This subject is primarily concerned with the accounting for intercompany investments. It involves an analysis of relevant Australian and overseas accounting standards - in particular, standards involving goodwill, business combinations, investments, con-

solidation, equity accounting and accounting for joint ventures. Furthermore, the consolidation method will be discussed in detail with particular reference to topics such as changes in ownership of shares, mutual shareholdings, foreign subsidiaries, different classes of shares and funds statements.

**Credit Points:** 12

#### ■ ACN114 ACCOUNTING RESEARCH

The subject overviews the research methodology used in the field of accounting, and considers at a pragmatic level the use of certain research techniques in order to assist students in their research dissertation and preparation of research papers. The subject aims to develop a capacity to analyze and evaluate the literature in accounting research publications, and skills in research methodologies for undertaking individual research in accounting. This subject is a prerequisite for ACN950 Dissertation and should, therefore, normally be attempted immediately prior to enrolment in ACN950 Dissertation.

**Credit Points:** 12

#### ■ ACN118 INTERNATIONAL ACCOUNTING

Examination of accounting and auditing functions in the context of multinational corporations. Discussion of environmental influences on accounting practices, accounting for changing prices, taxation, foreign currency translation, multinational transfer pricing and performance evaluation. Role and impact of international accounting standards and auditing guidelines from IFAC and relationship to Australian accounting and auditing standards. Financial reporting and the analysis of foreign financial statements are also included.

**Credit Points:** 12

#### ■ ACN119 COMPANY SECRETARIAL PRACTICE

The purpose of this course is to examine particular aspects of company law which are of practical relevance to persons who act as company secretaries or as advisers to such persons. The role, obligations and liabilities of the company secretary are covered in detail, as are the different methods of raising public funds and the listings requirements on the main and second board. Company charges with emphasis on statutory provisions and floating charges, and various aspects of insolvency, with an analysis of the role of provisional liquidators as well as schemes of arrangement are also covered.

**Credit Points:** 12

#### ■ ACN120 PROFESSIONAL YEAR MODULE - AUDIT & EDP

See ACN125 Auditing Standards & Practice, and ACN121 Computer Auditing

This subject introduces students to the fundamental principles of the practice of computer auditing. Topics covered include the auditor and the computer, the study and evaluation of internal control in a computerised application, an understanding of the general and application controls applicable to an accounting application, the audit trail in computer data processing and applicable computer audit tools and techniques. In discussing these topics consideration will be given to both mini and micro computer systems.

**Credit Points:** 12

#### ■ ACN122 AUDIT SAMPLING

This subject examines statistical sampling methods proposed for and employed in the performance of audits. Discussion centres on relevant statistical con-

cepts rather than on unique computational issues. Topics covered include the audit sampling process, auditor decisions and risk of error, attribute, variable and probability proportional-to-size sampling.  
**Credit Points: 12**

#### ■ ACN123 INTERNAL AUDITING

The subject aims at providing specialist training in the area of internal and operational auditing. Topics covered will include the techniques generally used by the internal auditor, the need for efficiency or value-for-money auditing and the role the internal auditor must play in large organisations (public and private).  
**Credit Points: 12**

#### ■ ACN124 AUDITING HONOURS

The subject is designed to familiarise students with current research in auditing and develop an awareness of research opportunities in auditing. It covers the nature of auditing research, the role of auditing, independence, reporting, liability, fraud detection, audit process, risk, materiality, internal control, analytical review, computer auditing, and auditing standards.  
**Credit Points: 12**

#### ■ ACN125 AUDITING STANDARDS & PRACTICE

An examination of relevant auditing standards and their implications for practice, development of an analytical approach and the ability to exercise professional judgement to audit problems.  
**Credit Points: 12**

#### ■ ACN126 FINANCIAL REPORTING

This subject aims to study in detail the requirements for the preparation and presentation of financial statements in accordance with various professional and statutory reporting requirements. In addition, analysis and interpretation of financial statements and the conceptual framework will be covered.  
**Credit Points: 12**

#### ■ ACN127 EXTERNAL REPORTING ISSUES

This subject involves the consideration of a number of contemporary issues in external reporting. Various practical accounting and reporting issues covered include accounting for extractive, long-term construction contracts, segment reports, foreign currency translation, leasing, tax-effect accounting, cash flow statements and accounting for off-balance sheet financing. Appropriate statements of accounting standards (both Australian and overseas), relevant discussion papers published by the Australian Accounting Research Foundation, recent accounting journal articles and case studies are used in analyzing these topics.  
**Credit Points: 12**

#### ■ ACN151 FINANCE HONOURS

An advanced coverage of the theory of financial management, building on work done in the undergraduate course with reference to empirical evidence where available. Topics covered include capital markets, consumption and investment, investment decisions, market equilibrium, the capital asset pricing model, arbitrage pricing theory, capital structure (theory and evidence), dividend policy (theory and evidence), efficient capital markets (theory and evidence). The subject provides a theoretical basis allowing for evaluating policy problems in the area of financial management, a necessary prerequisite for further specialisation in this area.  
**Credit Points: 12**

#### ■ ACN152 ADVANCED CAPITAL BUDGETING

The aim of the subject is to develop an in-depth understanding of the theory and practice underlying the firm's investment and financing decisions. This will be achieved by a series of case studies which require the student to apply theory to practical situations not covered in normal undergraduate courses. The subject covers the firm investment decision and its application in practice. Topics include capital investment analysis, adjusted present value, retirement decisions, unequal lives, cost of capital, estimating beta, capital rationing, valuation of new issues, mergers and takeovers.  
**Credit Points: 12**

#### ■ ACN153 INTERNATIONAL FINANCE

The finance function in the context of multi-national corporations and overseas financial markets. The subject will focus on the firm's financing, investing and dividend decisions in the international market place. Topics covered include foreign currency translations in a reporting and decision making context, multi-national transfer pricing, performance evaluation, an introduction to international financial markets, exchange risk exposure, multi-national diversification, remittance to parent companies (dividends, loan repayments), finance of export trade, host country legislation and its impact on multi-national companies.  
**Credit Points: 12**

#### ■ ACN155 FINANCIAL MODELLING

The subject will cover the techniques of financial modelling (forecasting, risk analysis, optimisation); model specification, model structure and programming the model; the use of the computer in cash management, financing and investment planning; sensitivity analysis and simulation. Particular emphasis will be placed on solving practical problems using computers, electronic spreadsheets, and modelling applications.  
**Credit Points: 12**

#### ■ ACN156 FINANCIAL RISK MANAGEMENT

This subject is designed as a complete unit in itself. Emphasis will be placed on how security prices are determined and on market behaviour. Equal emphasis will be placed on institutional detail and the valuation methods used in practice. Finally students will be introduced to applied research into share price behaviour. Topics covered include the efficient market hypothesis; portfolio theory; the capital asset pricing model; the valuation of fixed interest securities; the valuation of common shares; the valuation of options, warrants and convertible securities.  
**Credit Points: 12**

#### ■ ACN170 PROFESSIONAL YEAR MODULE - TAXATION

See ACN171 Advanced Taxation and ACN172 International Law

#### ■ ACN171 ADVANCED TAXATION

The objectives of this subject are to provide a conceptual analysis of the Australian income tax system in order to give perspective and meaning to the considerable body of technical law; the analysis proceeds under the broad headings of income and capital gains, deductions, tax accounting, entities, avoidance and administration; and to provide an in-depth treatment of some complex practical problems raised by the Income Tax Assessment Act and related legislation.  
**Credit Points: 12**

#### ■ ACN172 INTERNATIONAL LAW

This subject seeks to convey principles of Australian income tax law and practice as they apply to situations and transactions with an international element. The broad areas covered are: the root principles of jurisdiction, residence and source; substantive provisions -resident earning overseas income and non-resident earning Australian income; and tax planning arrangements and applicable anti-avoidance legislation.

**Credit Points:** 12

#### ■ ACN174 LIQUIDATIONS & RECEIVERSHIPS

This subject is designed to balance an advanced study of the legal rules and standards governing insolvency with a practical consideration of the role of liquidators and receivers. In particular, one aim of the subject is to inform students of the procedural and documentary steps involved in liquidations and receiverships. Prominent recent corporate insolvencies will be examined and students will be given the opportunity to participate in case study and technical seminars.

**Credit Points:** 12

#### ■ ACN175 COMMERCIAL LAW HONOURS

The objectives of the subject are: to give students the opportunity to obtain a detailed understanding of the rules governing local and foreign takeovers and mergers; to examine prominent takeovers that have recently occurred; to consider the managerial and taxation aspects of takeovers; and to participate in seminar presentations on relevant takeover issues.

**Credit Points:** 12

#### ■ ACN176 INDIRECT TAXATION

This subject considers taxes relevant to the conduct of a business other than taxes directly imposed on a taxpayer's income and capital gains. The taxes considered come under the general heading of indirect taxes as the burden of such taxes does not fall fully on the person who pays the tax, but is rather shifted to another person, e.g., the ultimate consumer of goods and services. Some of the taxes and duties considered may not always strictly fit within this definition but nevertheless come within the ambit of a study of this nature.

**Credit Points:** 12

#### ■ ACN177 TAXATION POLICY HONOURS

This subject examines the Australian taxation system as it has evolved under the policy making powers of the Australian Government. In the first place the system is analyzed in terms of its degree of concordance with traditionally recognised tax policy objectives. In the second place specific forms of taxation are appraised, and in the third place tax reform proposals are critically assessed.

**Credit Points:** 12

#### ■ ACN178 TAXATION & PROFESSIONAL PRACTICE

This subject applies technical expertise in income tax and other revenue laws to specific tax planning situations including employment, retirement, investment, business and professional practice. In addition, analysis is made of the various incentives offered by the Government under the Income Tax Assessment Act and by way of grants and other forms of assistance. Consideration is also given to the professional responsibilities of the tax practitioner, and judicial, statutory and professional responses to tax avoidance and evasion.

**Credit Points:** 12

#### ■ ACN231 MANAGERIAL ACCOUNTING HONOURS

An advanced coverage of the theory of management accounting, building on the work done at undergraduate level. The subject will introduce students to the current research in management accounting, with a view to developing and encouraging their own research expertise and endeavours. Topics include: cost estimation, behaviour and statistical techniques, advanced variance analysis and investigation, agency theory, contingency theory and cost allocation, advanced transfer pricing, structure of the firm and its impact on managerial accounting, contemporary developments.

**Credit Points:** 12

#### ■ ACN232 MANAGERIAL ACCOUNTING ISSUES A

An advanced managerial accounting subject that examines the theoretical issues associated with the design, operation and evaluation of management accounting systems. In particular, this subject will concentrate on issues surrounding the firm's planning and control decisions as well as introducing and analyzing some of the newer concepts and techniques currently available to contemporary management. The subject will consist of formal seminars, problem solving and case studies.

**Credit Points:** 12

#### ■ ACN233 MANAGERIAL ACCOUNTING ISSUES B

An advanced managerial accounting subject that examines the practical managerial accounting issues currently facing contemporary management. The subject will concentrate on analysing the implications of the issues raised, and attempting to apply these issues to a practical framework to assist in managerial decision making and control. The subject will consist of formal seminars and presentations by the students, problem analysis and solving, and case studies. Topics include: advanced budgeting techniques, program budgeting, and variance investigation.

#### ■ ACN813 ACCOUNTING PRINCIPLES

This introductory unit will include topics such as: accounting concepts and principles, development of the profit and loss account and balance sheet, reporting aspects of the balance sheet, asset and liability recognition and management, cost/volume/profit analysis, manufacturing costs, budgeting, and special managerial decision-making.

**Credit Points:** 12 **Contact Hours:** 3 per week

#### ■ ACN834 BUSINESS LAW & BUSINESS ETHICS

This subject will provide an introduction to business law and to morality in the business context. The course will cover such areas as interpretation of statutes, law of torts, contract law, industrial law and the utility of business structures. The course will also consider morality in the business community. It aims to prepare students for the pitfalls of moral propaganda, and to provide them with some insight into the power of moral persuasion, including who has such power and why, and the use of such power.

**Credit Points:** 12 **Contact Hours:** 4 per week

#### ■ ACN835 FINANCIAL MANAGEMENT

This subject provides a broad introduction to the world of finance and financial management. Emphasis will be given to developing a sound conceptual framework for dealing with the financial problems of business. Topics will include: the finance function,



the role of the financial manager, the Australian financial environment, sources of funds, present and future value, time value of money, financial mathematics, cost of funds, the firm investment decision, investment evaluation techniques, cash budgeting, working capital management, capital budgeting, dividend policy, and financial structure policy.

**Prerequisite:** Accounting Principles  
**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ ACN950 Dissertation

**Prerequisite:** ACN114

#### ■ ACPIII ACCOUNTING PRINCIPLES I

This subject aims to develop the students' ability to interpret and use corporate financial statements. The subject is concerned with both the preparation and the use of financial accounting data and emphasises the reconstruction of economic events from published accounting reports. The subject, although predominantly about accounting, is directed toward a management rather than an accounting viewpoint.

#### ■ ACP213 QUALITY COST ANALYSIS

The subject aims to be able to relate programs in quality assurance to an overall cost control strategy in order to achieve the goals of the business as expressed in its periodic budget, and be able to administer the cost of quality assurance as a part of a control and recovery program which is indicated by variances from budget and as part of a programme for increasing cost effectiveness. Students are introduced to the terminology used in accountancy and the accounting reporting cycle. Emphasis is given to understanding the nature of cost objectives, operational costing, CVP analysis and the variance analysis framework.

**Credit Points:** 6    **Contact Hours:** 3 per week

#### ■ ARB189 WRITING FOR DESIGNERS I

**Offered:** Autumn

The writing process: style, accuracy and simplicity in writing; the editing process. To develop students' ability to research, plan, write and present tertiary-standard written communications.

**Credit Points:** 4    **Contact Hours:** 2 per week

#### ■ ARB190 WRITING FOR DESIGNERS II

**Offered:** Spring

Writing for the design professional; review of organisation and mechanics; types, formats, styles and review of professional documents; problems of technical style, bibliographic conventions and use of graphics.

**Credit Points:** 4    **Contact Hours:** 2 per week

#### ■ ARB191 THE HUMAN ENVIRONMENT I

**Offered:** Autumn

The dimensions and movement of the human body, and its perceptual systems, as an essential preliminary to the design of all artefacts for human use. The course will consist of lectures and studio exercises. Lecture topics include: static and dynamic anthropometry; human sensory systems; introduction to ergonomics; applications of anthropometrics and ergonomics to design.

**Credit Points:** 4    **Contact Hours:** 2 per week

#### ■ ARB192 THE HUMAN ENVIRONMENT II

**Offered:** Spring

Human needs and the influence of selected interpersonal and physical variables on human behaviour. It encompasses the characteristics and dynamics of

group behaviour. Communication process, types, and networks. Concepts of power, leadership and conflict. Observation of behaviour: research methods, interpretation and presentation of research. Environmental stressors and their mediation by individual differences.

**Credit Points:** 4    **Contact Hours:** 2 per week

#### ■ ARB193 DESIGN I

#### ■ ARB194 DESIGN II

**Offered:** Autumn, Spring

Lectures and studio work focusing on design definition; perception; elements and principles of design; effects of colour, texture, contour, pattern; human dimensions; anthropometrics; elements of aesthetics. A series of exercises develop basic skills to apply basic design principles, and to solve simple design problems. Descriptive geometry; architectural graphics and rendering; freehand drawing and sketching.

**Credit Points:** 10 (both)

**Contact Hours:** 5 per week (both)

#### ■ ARB195 TECHNOLOGY I

#### ■ ARB196 TECHNOLOGY II

**Offered:** Autumn, Spring

Together, these subjects promote an understanding and develop a basic knowledge of materials, structures and construction in domestic scale buildings. Materials: The manufacture, supply, storage and application in buildings of timber and wood products, paints and clay products, concrete, ferrous and non-ferrous metals, plastics. Construction: Conventional construction of simple, single-storey buildings; footings and floors, wall and roof framing, load bearing masonry, roofing, cladding. Experimentation/Workshop: A series of experiments in heat, light and sound. Use of tools and machinery in wood and metals. Structural testing of materials.

**Credit Points:** 4 (both)

**Contact Hours:** 2 per week (both)

#### ■ ARB197 HISTORY OF THE BUILT ENVIRONMENT I

#### ■ ARB198 HISTORY OF THE BUILT ENVIRONMENT II

**Offered:** Autumn, Spring

The course reviews the development of man's artificial environment and its relationship to ideas, technology and the fine art from the earliest times to the present.

**Credit Points:** 2 (both)

**Contact Hours:** 1 per week (both)

#### ■ ARB288 DESIGN SCIENCE II

**Offered:** Spring

Continuation of the aims and principles as described in Design Science I.

**Credit Points:** 2    **Contact Hours:** 1 per week

#### ■ ARB289 DESIGN SCIENCE I

**Offered:** Autumn

A study of the principles of science and their implications on the design of buildings and spaces. The application of these principles in the conceptual stages of design allowed by laboratory tests and computer evaluations of design proposals. The subject is divided into a series of modules, each related to potential studio design exercises.

**Credit Points:** 2    **Contact Hours:** 1 per week

## ■ ARB290 INTRODUCTION TO COMPUTING II

Offered: Spring

Computers as tools for drafting. Line graphics, plotting, computer-aided drafting, symbol libraries, dimensioning, computer drafting and office organisation. Comparison of available software packages.

Credit Points: 2      Contact Hours: 1 per week

## ■ ARB291 THE HUMAN ENVIRONMENT III

Offered: Autumn

The social and cultural development of Australian urban environments, with particular reference to the local built environment. The study of human functioning in urban environments. Theory: privacy, personal space, territoriality, environmental meaning and cognition, cognitive maps and wayfinding, intercultural and intracultural differences. Application via examination and analysis of an urban environment with respect to its sociocultural function.

Credit Points: 4      Contact Hours: 2 per week

## ■ ARB292 THE HUMAN ENVIRONMENT IV

The interaction of formal organisations and institutions especially the organisation of work and government and the built environment. Small group theory and the effective group. Work and motivation. Management styles. Bureaucracy, its character and influence. Social analysis and social forecasting. Social interest groups in a pluralist society; mechanisms and processes of compromise. Australia's government system as relating to public policy and the electoral system. Modern society and the individual.

Credit Points: 4      Contact Hours: 2 per week

## ■ ARB293 DESIGN III

Offered: Autumn, Spring

The concepts of design process to develop a systematic methodology in architecture design. Scope of design; Reitman's State Transformation model; problem solving methods; precedence diagrams; testing; general design heuristic; the art of design. Planning objectives and techniques, privacy and convenience, intelligibility, forms and order, history of planning techniques, the vertical dimension, safety, external constraints.

Credit Points: 10      Contact Hours: 5 per week

## ■ ARB294 DESIGN IV

Offered: Autumn, Spring

A series of architectural projects of single storey to low rise buildings of domestic or semi-domestic nature. Use of media for presentation of architectural projects; use of colour, shade, shadow in architectural drawings; 3D presentation and modelling.

Credit Points: 8      Contact Hours: 4 per week

## ■ ARB295 BUILDING CONSTRUCTION I

## ■ ARB296 BUILDING CONSTRUCTION II

Offered: Autumn, Spring

Building construction of domestic and semi-domestic buildings with upper floors. Excavation, retaining walls, culverts. Site and soil investigations, footings, frames and load bearing, construction of low-rise buildings. Roofing of medium and large spans. Environmental factors, building defects and remedies.

Credit Points: 4 (both)  
Contact Hours: 2 per week (both)

## ■ ARB297 PRINCIPLES OF STRUCTURES I

Offered: Autumn

The basic principles of structures as applicable to elements of architecture, industrial design, interior design and landscape architecture. The study is qualitative and a minimum of mathematics is used. Emphasis is given to visual and conceptual appreciation of structures.

Credit Points: 2      Contact Hours: 1 per week

## ■ ARB298 PRINCIPLES OF STRUCTURES II

Offered: Spring

The principles and their application to building structures in timber and masonry. Priority is given to structural concepts, and structural design is limited to approximation of overall dimensions.

Credit Points: 4      Contact Hours: 2 per week

## ■ ARB299 INTRODUCTION TO COMPUTING I

Offered: Autumn

The computer as a tool. Introduction to micro-computer hardware and software, architectural application overview, specialised graphics hardware, files, computer access, and operating systems. Simple computer graphics production symbols, colour control, printer control, transformation and deformations.

Credit Points: 2      Contact Hours: 1 per week

## ■ ARB386 LAW OF THE BUILT ENVIRONMENT

Offered: Spring

Laws, regulations and their interpretation. A review of the Australian and Queensland Acts, local authority by-laws and regulations of statutory authorities as they affect the built environment. Legal aspects of land and land transfer. Introduction to professional liability, design registration, patents and copyrights.

Credit Points: 4      Contact Hours: 2 per week

## ■ ARB387 ENVIRONMENTAL IMPACT STUDIES

Offered: Autumn

Ecological impacts of built environment developments such as roads, railways, power lines, buildings. Impact of processes of developments upon natural resources, vegetation, soils, hydrology, air purity etc. Secondary effects of development such as fire, feral animals, weeds, added nutrients, tramping, etc. Rehabilitation of disturbed ecosystems. Maintaining urban habitats and wildlife. Field work will form part of this subject.

Credit Points: 2      Contact Hours: 1 per week

## ■ ARB388 DESIGN SCIENCE IV

Offered: Spring

Continuation of the aims and principles as described in Design Science III. Principles governing control of noise and aural conditions in buildings. Basic acoustic design and noise control in buildings. Artificial lighting of interiors, lamp characteristics, colour rendering, modelling, lighting quality, simplified lighting design methods, and external lighting.

Credit Points: 2      Contact Hours: 1 per week

## ■ ARB389 DESIGN SCIENCE III

Offered: Autumn

Thermal performance of buildings. Energy conservation and low energy design. Calculation of heat flow and indoor temperatures under steady state and fluctuating conditions. Quantitative monitoring of thermal performance of building elements.

Credit Points: 2      Contact Hours: 1 per week

### ■ ARB391 BUILDING SERVICES I

Offered: Autumn

This subject is designed to develop an understanding of domestic building services and their integration in the design and construction of small buildings. It covers supply, connection and reticulation of electricity, gas, water and telephone services and relevant outlets and appliances. Sewerage, sullage and stormwater drainage as applicable to domestic buildings. Domestic waste disposal.

Credit Points: 4      Contact Hours: 2 per week

### ■ ARB392 BUILDING SERVICES II

Offered: Spring

Mechanical electrical and hydraulic services and their integration in the design and construction of major buildings.

Credit Points: 4      Contact Hours: 2 per week

### ■ ARB393 BUILDING DESIGN V

### ■ ARB394 BUILDING DESIGN VI

Offered: Autumn, Spring

The building as object, surface, volume, space, and sequence. Expression of buildings. Criteria of good design in terms of style, function, form, structure, services, context, environment, society, and other relevant issues. Design ethics and values. A series of architectural projects of low to medium rise with emphasis on industry and commerce. Integration with architectural science. Flow charting. Building type analysis. Computers in design. Three dimensional modelling. Computer aided planning analysis and environmental control analysis, climate analysis, integration with design process.

Credit Points: 10 (ARB393); 8 (ARB394)

Contact Hours: 5 (ARB393); 4 (ARB394) per week

### ■ ARB395 CONSTRUCTION III

### ■ ARB396 CONSTRUCTION IV

Offered: Autumn, Spring

Contemporary construction, concentrating on non-domestic buildings and furthering the understanding of the links between structural theory, building science, construction and design.

Credit Points: 2 (both)      Contact Hours: 1 per week (both)

### ■ ARB397 PRINCIPLES OF STRUCTURES III

Offered: Autumn

The principles and their application to building structures in steel. Structural properties of mild steel and high tensile steel. Structural framing and connections. Structural systems in steel: beams and columns, portal frames, space frames, trusses, tensile structures, approximate sizing.

Credit Points: 4      Contact Hours: 2 per week

### ■ ARB398 PRINCIPLES OF STRUCTURES IV

Offered: Spring

The principles and their application to building structures in reinforced concrete. Structural behaviour of reinforced concrete. Basic theory of reinforced concrete beams and columns. Structural elements systems in reinforced concrete: post-and-beam, one and two-way slab, T and L-beam, waffle slab, flat slab, flat plate. Columns. Frames. Framing, walling and roofing in reinforced concrete. Approximate sizing.

Credit Points: 4      Contact Hours: 2 per week

### ■ ARB491 HISTORY OF ARCHITECTURE & ART III

Offered: Full year

Early colonial architecture. Victorian Australia. Gothic and Classical revival in Australia. The Australian house. Modern architecture in Australia. Conservation and preservation. Australian landscape and its influence in architecture.

Credit Points: 2      Contact Hours: 1 per week

### ■ ARB493 DESIGN VII

Offered: Full year

Masters of the 20th Century in Europe and the U.S.A. and their architectural styles, design philosophy and influence. Architects in Australia and their influence in Australasian architecture. Major design projects including brief, design, construction, services and landscape. Also a series of architectural projects of medium to high rise construction with emphasis in workability and compliance with codes, by-laws and regulations.

Credit Points: 10      Contact Hours: 5 per week

### ■ ARB495 PROFESSIONAL STUDIES I

Offered: Full year

The concepts and writing of building specifications. How to interpret and to apply the Standards Association of Australia Codes and other standards. Acquisition of the skills and knowledge to use computers as management tools. Estimating and Accounting: financial aspects of professional practice. Building Legislation: the law as a constraint in architectural practice. Computer Applications: the skills and knowledge to use computers as management tools.

Credit Points: 8      Contact Hours: 4 per week

### ■ ARB497 ADVANCED TECHNOLOGY

Offered: Full year

The aim of these subjects is to develop an initial understanding of mechanical, electrical, electronic and special services and the integration in the design and construction of major buildings and to understand the approximate sizing of service requirements. Subsequently to understand construction methods and specification of complex and high-rise buildings. Emphasis is on case studies.

Credit Points: 4      Contact Hours: 2 per week

### ■ ARB591 HISTORY OF ARCHITECTURE & ART IV

Offered: Full year

A global perspective of development of art and architecture of regional interest with particular emphasis on non-European traditions. Architectural development in Regions such as the Far East, South East Asia, the Pacific, and South America are offered and students are to select one region for study in each semester. The topics include planning of settlements, indigenous architecture, materials and techniques in building construction, social, cultural, economic, religious, and western influence. Modernisation, current architecture issues.

Credit Points: 2      Contact Hours: 1 per week

### ■ ARB593 DESIGN VIII

Offered: Full year

Architectural criticism. Main themes selected for design and their realisation, convenience, clarity, intelligibility, expression, technology, context form. Post-occupancy evaluation. Testing methodology, analysis and evaluation of building performance, user-oriented design. A series of architectural projects of medium to high rise buildings involving general

building briefs and programmes, environmental impact issues, and post-occupancy analysis.

**Credit Points:** 10    **Contact Hours:** 5 per week

#### ■ ARB595 PROFESSIONAL STUDIES II

**Offered:** Full year

**Building Economics:** the economics of buildings, building financing and feasibility; studies of building projects. **Practice Management:** methods of management in architectural practice. **Legal Studies:** the legal problems in architectural practice. **Contracts:** the nature of building contracts and their application.

**Credit Points:** 8    **Contact Hours:** 4 per week

#### ■ ARB597 ELECTIVE I

**Offered:** Full year

Students who wish to carry out further studies in architecture may choose from the prescribed fields of study, one for each semester. Students are directed by tutors to carry out surveys, experiments, or such work as required and are to present their findings in seminars and in written reports. Students may also substitute the requirements of this subject by an approved subject on campus, or offered at an approved institution.

**Credit Points:** 4    **Contact Hours:** 2 per week

#### ■ ARB693 DESIGN IX

**Offered:** Autumn

Contemporary architectural theories and ideas and their influence in architectural design and practice. The process of brief, functional and space programming of architectural design projects. An introduction to urban values, design principles and landscape/townscape, to acquire skills in civic and formal planning, and techniques to evaluate urban quality. A comprehensive project of groups of complex buildings is used as a design vehicle to develop planning skills, including brief formation and building programming, quality evaluation, planning, and presentation.

**Credit Points:** 18    **Contact Hours:** 9 per week

#### ■ ARB695 PROFESSIONAL STUDIES III

**Offered:** Full year

Alternative methods of building procurement with particular emphasis on management of all phases of the building project.

This subject is designed to assist students to reach a high level of professional competence and to prepare them for the Practice Examination set by the Board of Architects, Queensland under 'The Architects Act, 1962', and subsequent amendments.

**Credit Points:** 4    **Contact Hours:** 2 per week

#### ■ ARB697 ELECTIVE II

**Offered:** Full year

Students carry out studies on approved topics of their nomination to sufficient depth. The work shall demonstrate the student's ability to define and to logically analyse proposition, and to conduct research to prove its validity. The submission is normally presented in the prescribed written form with illustrations and/or drawings.

**Credit Points:** 11    **Contact Hours:** 4 per week

#### ■ ARP501 INTRODUCTION TO FACILITIES MANAGEMENT

**Offered:** Autumn

The concept of facilities programming and management. The notion of human behaviour over time and the monitoring of building performance as the major

focus in the day to day management of facilities in a realistic working environment.

**Credit Points:** 8    **Contact Hours:** 2 per week

#### ■ ARP502 ENVIRONMENTAL COMMUNICATIONS

**Offered:** Autumn

A series of lectures, site visits and projects relating to the design and application of alphabets and factors influencing perception of them in signage systems, display and exhibition, the design of exhibition and display systems, transportation, materials and specifications associated with their construction.

**Credit Points:** 13    **Contact Hours:** 5 per week

#### ■ ARP503 WORKPLACE DESIGN

**Offered:** Autumn

A series of lectures, seminars and projects concerned with physiological, psychological, and sociological aspects of the workplace, involving furniture systems, equipment and services.

**Credit Points:** 12    **Contact Hours:** 5 per week

#### ■ ARP504 PROFESSIONAL PRACTICE & MANAGEMENT FOR INTERIOR DESIGNERS I

**Offered:** Autumn

This subject explores the role and responsibilities of the industrial designer in professional practice: job administration, liability, design protection, designer and client relationships; communication management and organisation of project.

**Credit Points:** 11    **Contact Hours:** 4 per week

#### ■ ARP505 PROFESSIONAL PRACTICE & MANAGEMENT FOR INTERIOR DESIGNERS II

**Offered:** Autumn

A series of seminar/tutorials, case studies and assignments concerned with such topics as: task scheduling; planning systems and control models; program evaluation and review techniques; critical path monitoring; organisational development; personnel recruitment and staffing structures; organisational models; union and labour relations.

**Credit Points:** 4    **Contact Hours:** 2 per week

#### ■ ARP600 BUILDING EVALUATION & BRIEF DEVELOPMENT

**Offered:** Autumn, Spring

Formulation of the client's brief, definition of the design problem and exploration of design methodologies. Evaluation of building types, suitability of spaces to functions.

**Credit Points:** 8    **Contact Hours:** 3 per week

#### ■ ARP601 FILM, TV & DESIGN FOR THEATRE

**Offered:** Spring

Introduction to the basic language, technology and procedures of film and video production, roles of production and design teams, script analysis, preproduction planning, story boarding, set design and construction, modelmaking, make up design, lighting and camera work. This will be given through a series of lectures, visits and projects.

**Credit Points:** 16    **Contact Hours:** 6 per week

#### ■ ARP602 CONSERVATION OF HISTORIC INTERIORS

**Offered:** Spring

A series of lectures, visits and a design project, covering the role and ethic of conservation in interior design.

**Credit Points:** 16    **Contact Hours:** 6 per week

#### ■ ARP603 HISTORIC TECHNOLOGIES

**Offered:** Spring

An introduction to the interior and building technologies required by a practicing interior designer working on conservation, restoration and recycling projects. Knowledge gained in this subject will be applied in "Design of Historic Interiors".

**Credit Points:** 8      **Contact Hours:** 4 per week

#### ■ ARP613 ADVANCED ERGONOMICS I

**Offered:** Autumn

Man-machine system and their relations with living and working environment; the importance of ergonomics (human factors) criteria and their application to industrial design. The course consists of series of seminars relevant to case studies concerned. Typical case studies are concentrated on the ergonomic evaluation of consumer products.

**Credit Points:** 2      **Contact Hours:** 1 per week

#### ■ ARP623 ADVANCED ERGONOMICS II

**Offered:** Spring

Systematic ergonomic evaluation methods and their application to design problems. Lectures and seminars relevant to case studies concentrated on the ergonomic evaluation of the working and living environment, e.g., key-punch operator work station, bus driver work station and ergonomic evaluation of an assembly line.

**Prerequisite:** ARP613 **Credit Points:** 4 per week  
**Contact Hours:** 2 per week

#### ■ ARP642 CASE STUDIES

**Offered:** Autumn

This subject consists of a series of seminars dealing with case study evaluation by practicing designers; study of different evaluation methods and techniques; the application of evaluation methods through individual case studies. All design factors of manufactured products are evaluated in depth.

**Credit Points:** 4      **Contact Hours:** 2 per week

#### ■ ARP652 DESIGN MANAGEMENT & DECISION THEORY

**Offered:** Spring

This subject covers: meaning of the design process, control and the design process, complexity of design problems, types of contracts, design and business, project team, design responsibility and design management, design documentation, concept of design evaluation and management action, application of design theory to design management.

**Credit Points:** 2      **Contact Hours:** 1 per week

#### ■ ARP653 PROFESSIONAL PRACTICE

**Offered:** Spring

This subject explores the role and responsibilities of the industrial designer in professional practice. Lectures cover: job administration, liability, design protection, designer and client relationships.

**Credit Points:** 2      **Contact Hours:** 1 per week

#### ■ ARP671 HISTORY, THEORY & CRITICISM OF INDUSTRIAL DESIGN

**Offered:** Autumn

This subject reviews the development of industrial design and its relationship to ideas, technology and arts, and the development of industrial design from eighteenth century to the present day. It also covers the study of Australian inventions and their impact on product design in Australia.

**Credit Points:** 2      **Contact Hours:** 1 per week

#### ■ ARP672 INDUSTRIAL DESIGN I

#### ■ ARP673 INDUSTRIAL DESIGN II

**Offered:** Autumn, Spring

This course consists of studio work in which students design a wide range of products or systems. The emphasis will be on projects generated from local industry and community. The complexity and depth of the design project will increase systematically according to the semester level.

**Prerequisite:** ARP672 for ARP673

**Credit Points:** 16 (both) **Contact Hours:** 6 per week (both)

#### ■ ARP674 INDUSTRIAL DESIGN RESEARCH I

**Offered:** Spring

This course consists of the topic selected by a student and approved and supervised by the industrial design staff. Examples of topics are: microsurgical equipment design, bushfire safety equipment, mobile dental clinic in isolated regions, and interactive display in psychological testing.

**Prerequisite:** ARP673

**Credit Points:** 20      **Contact Hours:** 8 per week

#### ■ ARP675 INDUSTRIAL DESIGN RESEARCH II

**Offered:** Spring

This course depends on the topic selected by a student in the previous semester. Students are responsible for the program as a part of their project work, which will be approved and supervised by Industrial Design staff.

**Prerequisites:** ARP672, ARP674

**Credit Points:** 20      **Contact Hours:** 8 per week

#### ■ ARP676 ADVANCED CAD FOR INDUSTRIAL DESIGNERS I

**Offered:** Autumn

CAD in the design process. 2D and 3D application of appropriate CAD programs. Development of a design project through the interactive use of CAD and related engineering programs as an aid to design analyses and finalisation.

**Credit Points:** 4      **Contact Hours:** 2 per week

#### ■ ARP677 ADVANCED CAD FOR INDUSTRIAL DESIGNERS II

**Offered:** Spring

CAD/CAM in the design, analysis, and manufacturing process. 3D solid modelling, finite analyses, and CAM will be employed. A project will be taken from first concept through final documentation. The presentation, technical description, engineering analyses, and finalisation to Computer Numerically Controlled (CNC) testing and prototype production of a small product.

**Credit Points:** 4      **Contact Hours:** 2 per week

#### ■ ASB101 STUDY SUPPORT SKILLS

**Offered:** Autumn

A series of workshops run by the Library and the Counselling Centre to assist students to utilise optimally time and resources. Topics include library resources and their use, note taking, effective reading and assignment writing skills, revision and examination techniques, time management.

**Credit Points:** 2      **Contact Hours:** 1 per week

#### ■ ASB200 INTRODUCTORY METEOROLOGY

**Offered:** Spring

Historical introduction, the earth's atmosphere, heat transfer processes, the gas laws, the physics of water vapour, wind theory, atmospheric stability and in-

stability, precipitation, atmospheric electricity, meteorological observation, synoptic meteorology, atmospheric optics.

**Credit Points:** 8      **Contact Hours:** 3 per week

#### ■ ASP701 INFORMATION RETRIEVAL SKILLS

**Offered:** Autumn

This subject, taught by the Division of Academic Support (in collaboration with Faculty staff in Modules 2 and 4) includes a relevant literature review. Module 1 - Retrieving Information; Module 2 - Evaluation of Information; Module 3 - Organising Information; Module 4 - Thesis Preparation. This subject is assessed on a pass/fail basis.

**Credit Points:** 4      **Contact Hours:** 2 per week

#### ■ ASP702 COMPLEMENTARY STUDIES

**Offered:** Autumn, Spring

The unit is tailored to suit individual students - studies include a selection from: participation in research seminars; oral communication skills; written communication skills; formal coursework in occupational health and safety, scientific and industrial ethics, philosophy and methodology of science, and science policy and research funding options; development of research management strategies; preparation of a scientific paper/report; and coursework material from other accredited courses as directed by the project supervisor and Head of Department. Assessed on a pass/fail basis.

**Credit Points:** 16      **Contact Hours:** 8 per week

#### ■ ASP703 STUDIES IN GLOBAL SYSTEMS A

#### ■ ASP704 STUDIES IN GLOBAL SYSTEMS B

These subjects examine topics of current global concern to mankind from the perspectives of each of the participating disciplines (Biology, Geology and Chemistry) including: the enhanced greenhouse effect, ozone depletion, acid rain, pollution, soil erosion, toxic wastes and their disposal, sea level changes, and the laws and treaties which relate to them. Note: Students undertake either ASP703 or ASP704, not both.

**Credit Points:** ASP703 - 9; ASP704 - 6

**Contact Hours:** ASP703 - 3 per week; ASP704 - 2 per week

#### ■ ASP705 ADVANCED MICROSCOPY TECHNIQUES

**Offered:** Autumn

This subject describes, and allows students to practice, preparative techniques relating to transmission (TEM), scanning transmission (STEM) and scanning (SEM) electron microscopy. Techniques include specialist fixation and staining (negative and position), thin sectioning, critical point drying/freeze drying, replica production, sputter coating and metal shadowing. Each technique is applied to a range of specimens and students familiarised with the use and manipulation of each type of microscope. The analytical capabilities of each instrument are also taught and used.

**Credit Points:** 9      **Contact Hours:** 4 per week

#### ■ BEA004 TAXONOMY

**Offered:** Autumn

Investigation and identification of local flora and fauna; use and construction of keys. The concepts of systematics, classification, taxonomy and nomenclature procedure are introduced in short lectures and tutorials associated with the practical exercises.

**Credit Points:** 8      **Contact Hours:** 3 per week

#### ■ BEA011 ANIMAL PHYSIOLOGY

**Offered:** Spring

This unit introduces the general physiological processes which sustain life, and develops an understanding of animal-environment interactions.

**Credit Points:** 8      **Contact Hours:** 3 per week

#### ■ BEA016 AQUACULTURE TECHNIQUES

**Offered:** Autumn

Topics covered include: water quality monitoring; culture methods for microscopic food organisms; disease and parasite identification and treatment; and a variety of techniques associated with spawning, rearing, handling and stock assessment.

**Credit Points:** 8      **Contact Hours:** 3 per week

#### ■ BEA021 PLANT PHYSIOLOGY

**Offered:** Autumn

An introduction to the important aspects of whole-plant physiology, including nutrition, water relations, photosynthesis, translocation and stress physiology.

**Prerequisite:** BEA108

**Credit Points:** 8      **Contact Hours:** 3 per week

#### ■ BEA026 PLANT CELL TISSUE CULTURE

**Offered:** Autumn

Topics covered include techniques, equipment and media used in plant tissue culture, the role of plant growth regulators, and micropropagation. The significance of organogenesis, somatic embryogenesis and genetic variability in plant tissue culture are discussed. The lecture program is supported by appropriate laboratory exercises.

**Credit Points:** 8      **Contact Hours:** 3 per week

#### ■ BEA060 HYDROBIOLOGICAL TECHNIQUES

**Offered:** Autumn

An introduction to the characteristics of aquatic ecosystems. Students gain practical experience using methods, equipment and instrumentation to: estimate population abundance, distribution, biomass and productivity; determine community structure and diversity; determine physical characteristics and morphology and assess water quality. Compulsory field studies form a significant part of this subject.

**Credit Points:** 8      **Contact Hours:** 3 per week

#### ■ BEA090 EXTERNAL PROJECTS I

#### ■ BEA099 EXTERNAL PROJECTS II

**Offered:** Autumn, Spring (both subjects)

These two elective subjects enable students to submit studies carried out as part of their normal employment for credit in the course. Design and assessment of the experimental work program is carried out by the employer in conjunction with a supervisor appointed by the Head of Department/delegate.

**Credit Points:** 8 (both) **Contact Hours:** 3 per week (both)

#### ■ BEA108 INTRODUCTORY BIOLOGY

**Offered:** Autumn

An introduction to the classification of organisms. Examination of the morphology, anatomy, reproduction, life-history and physiology of selected species.

**Credit Points:** 8      **Contact Hours:** 3 per week

#### ■ BEA198 MICROSCOPY TECHNIQUES

**Offered:** Autumn, Spring

This unit includes the use and roles of various types of optical microscopes; microscope accessories for counting, measuring, drawing and photography; procedures for preparing specimens for examination and histological/histochemical study.

**Credit Points:** 8      **Contact Hours:** 3 per week

## ■ BEA200 BIOLOGY B

**Offered:** Spring

This unit extends the basic concepts presented in Introductory Biology and also includes aspects of Mendelian genetics, gene expression and cell differentiation, as well as reproduction and development in selected animals and plants.

**Prerequisite:** BEA108

**Credit Points:** 8      **Contact Hours:** 3 per week

## ■ BEA202 CELL STRUCTURE & FUNCTION

**Offered:** Autumn, Spring

A general course in cell biology including the living cell and its processes, structure and function. Photosynthesis, respiration, intermediary metabolism will be emphasised. Elementary molecular genetics will be outlined.

**Credit Points:** 8      **Contact Hours:** 3 per week

## ■ BEA297 BIOLOGICAL DATA HANDLING

**Offered:** Autumn, Spring

Application of statistical procedures to surveys, sampling and design of experiments. Recognition of problems arising from variability in results and particular data type. Methods of data collection, checking, analysis and presentation are discussed. An introduction to the use of computer software packages is included.

**Prerequisite:** MAA251

**Credit Points:** 8      **Contact Hours:** 3 per week

## ■ BEA339 INTRODUCTION TO BIO CULTURE

**Offered:** Autumn

This subject introduces students to techniques of algal culture and plant tissue culture. Topics include nutrition, continuous production techniques, and the use of growth regulators to control growth. The role of environmental factors in controlling growth also is discussed. This subject will provide the theoretical basis for students undertaking electives in aquaculture techniques and/or plant tissue culture.

**Credit Points:** 8      **Contact Hours:** 3 per week

## ■ BEA349 COMPUTER APPLICATIONS IN BIOLOGY

**Offered:** Autumn

An introduction to microcomputers and applications software such as wordprocessing, data bases, spreadsheets, and computer graphics for report presentation. This subject is not oriented towards any specific computer language.

**Credit Points:** 8      **Contact Hours:** 3 per week

## ■ BEA398 ANIMAL & PLANT TECHNIQUES

**Offered:** Spring

Care and maintenance of animal and plant resources, both micro- and macroscopic. Animal handling, maintenance of glasshouse resources, culture collections and sterile techniques, preparation of specimens for permanent collections and the maintenance of such collections.

**Credit Points:** 12      **Contact Hours:** 4 per week

## ■ BEA403 ENVIRONMENTAL BIOLOGY

**Offered:** Autumn

Ecosystems and energy flow. Productivity, decomposition and nutrient cycling. Niche, species packing, diversity, colonisation and community structure. Short compulsory field trips form an integral part of the unit. **Note:** This subject is not compatible with BEA305, BEA405; credit may not be retained for more than one of these subjects.

**Credit Points:** 8      **Contact Hours:** 3 per week

## ■ BEA405 POPULATION BIOLOGY

**Offered:** Spring

A general course in population biology including: structure and dynamics of populations, evolution and differentiation in populations; the relationships between the genetics, energetics and dynamics of populations leading to particular life-history strategies are emphasised. Field excursions are a compulsory part of the subject.

**Note:** This subject is not compatible with BEA305, BEA403; credit may not be retained for more than one of these subjects.

**Co-requisite:** BEA498

**Credit Points:** 8      **Contact Hours:** 3 per week

## ■ BEA498 FIELD TECHNIQUES

**Offered:** Spring

Activities include surveying, soil and climatic measurements, assessment and sampling of animal and plant populations, evaluation of spatial changes in plant and animal communities in relation to environmental gradients. Skills are gained not only in sampling and analytical techniques, but also in the establishment and running of a field camp. An extended field excursion is a compulsory part of the subject.

**Co-requisite:** BEA405

**Credit Points:** 8      **Contact Hours:** 3 per week

## ■ BEA499 APPLICATIONS IN ELECTRON MICROSCOPY

**Offered:** Autumn

This subject deals with the roles played by various forms of electron microscopy in the biological sciences and presents an introduction to the basic techniques and their limitations.

**Prerequisite:** BEA108 + BEA198

**Credit Points:** 8      **Contact Hours:** 3 per week

## ■ BEB103 BIOLOGY IA

**Offered:** Autumn

A course of lectures and tutorials dealing with fundamental biological principles and phenomena. Content includes nutrient procurement, transport systems and mechanisms, energy transformations, population and community biology, reproduction and basic genetics.

**Co-requisite:** BEB149, unless Senior Biology has been undertaken.

**Credit Points:** 8      **Contact Hours:** 3 per week

## ■ BEB104 BIOLOGY IB

**Offered:** Autumn

A program of practical work presenting aspects of applied biology, plant and animal physiology and basic genetics including bacterial transformation.

**Co-requisite:** BEB149 unless Senior Biology has been undertaken.

**Credit Points:** 6      **Contact Hours:** 3 per week

## ■ BEB149 INTRODUCTORY BIOLOGY

**Offered:** Autumn

A companion subject to BEB103 and BEB104, designed for students who have not studied Senior Biology. It presents an overview of organisms with emphasis on the relationship between structure and basic biological function, including nutrition, excretion, reproduction and inheritance.

**Credit Points:** 6      **Contact Hours:** 3 per week

## ■ BEB201 CELL BIOLOGY

**Offered:** Spring

A program of lectures and tutorials chiefly concerned with the molecular biology of eucaryotic cells, their

structure, function, systems, metabolism and differentiation. The molecular basis for genetic manipulation and other current advances based in molecular genetics is introduced.

**Prerequisite:** BEB149 or Senior Biology

**Credit Points:** 8      **Contact Hours:** 3 per week

### ■ BEB207 BIOLOGICAL SYSTEMS

**Offered:** Spring

This unit introduces general systems theory as a unifying concept in biology and its application to the study of simple biological systems. Emphasis will be placed on modelling techniques and a sub-unit in BASIC programming will provide students with an introduction to computer simulation of simple systems.

**Prerequisite:** BEB149 or Senior Biology.

**Credit Points:** 8      **Contact Hours:** 3 per week

### ■ BEB303 BIOLOGY II

**Offered:** Spring

Comprises a study of plant form, function and classification with examples drawn from major plant and animal taxa.

**Prerequisite:** BEB103

**Credit Points:** 16      **Contact Hours:** 6 per week

### ■ BEB321 PLANT PHYSIOLOGY

**Offered:** Autumn

This unit develops an understanding of the functional systems of plants and provides an introduction to environmental physiology and plant tissue culture.

**Prerequisite:** BEB103 + BEB201

**Credit Points:** 8      **Contact Hours:** 4 per week

### ■ BEB357 POPULATION & SYSTEMS ECOLOGY

**Offered:** Autumn

Topics to be covered include theoretical models dealing with natural regulation of population size, their limitations and applicability. Population processes and density-dependent feedback; life-history strategies. Energy flow models and dynamics, incorporating productivity and decomposition. Field excursions integrate environmental features with population processes.

**Prerequisite:** BEB207 **Co-requisite:** BEB358

**Credit Points:** 8      **Contact Hours:** 4 per week

### ■ BEB358 EXPERIMENTAL DESIGN

**Offered:** Autumn

This subject is offered in two sections. The first section of ten lecture-tutorials involves multiple and curvilinear regression, chi-squared goodness of fit, multiway analysis of variance, multiple range tests. The second section builds a practical extension on the theoretical basis of statistics, using experimental situations commonly met with in biology.

**Co-requisite:** BEB357

**Credit Points:** 8      **Contact Hours:** 3 per week

### ■ BEB366 BIOLOGY & SOILS

**Offered:** Autumn

The subject is an important basis for studies in both aquaculture and terrestrial ecology. Attention is given to the characteristics of soils, soil classification, and the factors (parent material, climate, topography and biota) which determine soil development. The structure and productivity of plant and animal communities, and the distribution of species are shown to be dependent on biogeochemical pathways, regulated by the soil, and on other conditions influenced by the substrate (including water quality). Consideration is given to the distribution of major soil

types in relation to effective management of terrestrial and aquatic biota.

**Prerequisite:** BEB103

**Credit Points:** 8      **Contact Hours:** 3 per week

### ■ BEB388 AQUACULTURE I

**Offered:** Autumn

A largely practical subject which introduces students to a range of methods and techniques associated with the commercial production of aquatic animal species in hatcheries and on aquafarms. Topics covered include: water quality measurement and management; intensive production of food organisms; induction of maturation and spawning; nursing and rearing larvae and fry; feeding; diagnosis and treatment of health problems; handling and husbandry.

**Prerequisite:** BEB103

**Credit Points:** 8      **Contact Hours:** 3 per week

### ■ BEB390 FIELD STUDIES I

**Offered:** Spring

A series of weekend or extended field trips with an aggregate of 40 hours intensive field work in applied biology.

**Prerequisite:** BEB357

**Credit Points:** 8      **Contact Hours:** 3 per week

### ■ BEB411 ANIMAL PHYSIOLOGY

**Offered:** Spring

The subject provides and develops an understanding of the functional systems of animals and provides an introduction to environmental physiology.

**Prerequisite:** BEB103

**Credit Points:** 8      **Contact Hours:** 4 per week

### ■ BEB423 PLANT TISSUE CULTURE I

**Offered:** Spring

This subject introduces students to the techniques and physiological basis of plant tissue culture. Topics covered include: culture media, organogenesis, somatic embryogenesis and micropropagation. It introduces a range of techniques used in research and commercial laboratories.

**Prerequisite:** BEB321

**Credit Points:** 8      **Contact Hours:** 3 per week

### ■ BEB429 VEGETATION STUDIES

**Offered:** Spring

This unit introduces many of the techniques used in vegetation mapping. Basic topics covered include: vegetation classification, floristics, sampling techniques, field surveying techniques and aerial photo-interpretation. There are several compulsory field excursions.

**Prerequisite:** BEB103

**Credit Points:** 8      **Contact Hours:** 3 per week

### ■ BEB435 GENETICS

**Offered:** Spring

This unit is an introductory subject in basic genetics. Topics covered include: reproduction and the genetic code, the molecular basis of genetics and Mendelian genetics; genotype-phenotype interactions and quantitative genetics; the genetics of prokaryote and simple eukaryote organisms; evolution and natural selection.

**Prerequisite:** BEB103 + BEB201

**Credit Points:** 8      **Contact Hours:** 3 per week

### ■ BEB444 POPULATION ANALYSIS

**Offered:** Spring

General principles of population analysis relating to conservation, control and harvesting. A rigorous individual study of two management problems parallels



field trips to agencies responsible for population analysis for management in Queensland.

**Prerequisite:** BEB357 + BEB358

**Credit Points:** 8 **Contact Hours:** 3 per week

#### ■ BEB447 ENVIRONMENTAL MONITORING

**Offered:** Autumn

A course in the skills of environmental assessment, surveying and mapping plant ecosystems. Approaches to, and methods of, assessment. The lecture course is supported by field work in several environments using a range of instrumentation to delineate environmental profiles.

**Credit Points:** 8 **Contact Hours:** 3 per week

#### ■ BEB490 FIELD STUDIES II

**Offered:** Autumn

A series of weekend or extended field trips with an aggregate of 40 hours intensive field work in applied biology.

**Credit Points:** 8 **Contact Hours:** 3 per week

#### ■ BEB500 SELECTED TOPICS I

**Offered:** Autumn

Students complete a study on a specific topic. Such study involves selected reference material and may also include a lecture program or project work.

**Prerequisite:** BEB357

**Credit Points:** 8 **Contact Hours:** 3 per week

#### ■ BEB523 PLANT TISSUE CULTURE II

**Offered:** Autumn

The subject explores several aspects of plant tissue culture in some detail. Topics covered include cytogenetics and protoplast biology as well as aspects of the biochemistry of plants growing in tissue culture.

**Prerequisite:** BEB423

**Credit Points:** 12 **Contact Hours:** 5 per week

#### ■ BEB535 POPULATION GENETICS

**Offered:** Autumn

This unit is an extension of Introductory Genetics and examines in detail the genetics of populations. Topics covered include: the genetic structure of populations and processes of evolutionary change; natural selection, inbreeding and co-adaptation; species and speciation theory; ecological genetics and the genetics of behaviour. Students may be required to undertake semester-long project topics on relevant practical or theoretical problems.

**Prerequisite:** BEB435

**Credit Points:** 8 **Contact Hours:** 3 per week

#### ■ BEB560 PROJECTS I

**Offered:** Autumn

This unit develops a student's capacity for managing his/her own work and for persistence within a circumscribed subject area. Projects emphasise specific investigatory skills in reviewing, collating, interpreting and presenting data; contribution to a seminar is usually required. Projects, supervised by various staff members, are graded individually. The Head of Department co-ordinates assessment, and may request external assessment. Projects are to be selected by the 12th week of the fourth semester of the course. There are a number of compulsory field trips. This unit normally leads into BEB660 Projects II.

**Prerequisite:** BEB303 + BEB357

**Credit Points:** 16 **Contact Hours:** 6 per week

#### ■ BEB563 BIOLOGICAL RESOURCES

**Offered:** Spring

A conceptual basis for aspects of ecosystem management related to naturally-occurring materials and

ecosystems subject to interactive use within the economy. Limitations on specific exploitation of natural resources are identified and linked with relevant aspects of land tenure, administration and law. Strategies leading to sustained yield and conservation are contrasted with those resulting in resource degradation.

**Prerequisite:** BEB103

**Credit Points:** 8 **Contact Hours:** 4 per week

#### ■ BEB588 AQUACULTURE II

**Offered:** Autumn

A course in theoretical and applied aspects of warm-water aquaculture. Subject content includes the design and operation of production facilities; water quality requirements and management; the biology of commercially important species; reproduction and its control; nutrition, feeding and growth; diseases and their control; methods of production improvement; polyculture; case studies.

**Prerequisite:** BEB388

**Credit Points:** 8 **Contact Hours:** 3 per week

#### ■ BEB600 SELECTED TOPICS II

**Offered:** Spring

As a final semester subject, provides students with an opportunity to complete a detailed study on a specific topic. The study will normally be based on project work and may include a lecture program.

**Credit Points:** 8 **Contact Hours:** 3 per week

#### ■ BEB621 PLANT PHYSIOLOGY

**Offered:** Spring

Lectures are designed to follow the sequence of biochemical events during life history of a plant. Topics covered include: starch and oil mobilisation during seed germination, biosynthesis of cell membranes, cell pigments (carotenoids, chlorophylls), and plant cell walls; photosynthetic assimilation of nitrogen and sulphur (overview of biosynthesis of all amino acids); biosynthesis of so-called secondary plant products, e.g., terpenoids, flavonoids, and the lignin component of wood; biosynthesis of starch and oils in new seeds. Laboratory classes emphasise techniques of value to plant biochemical research.

**Prerequisite:** BEB423 or MSB450

**Credit Points:** 8 **Contact Hours:** 4 per week

#### ■ BEB653 POPULATION MANAGEMENT

**Offered:** Spring

The principles of population management are illustrated from examples of economically important plant and animal populations (including pest populations). These are discussed and interpreted in terms of the ecosystem that supports them; various alternative management methods for sustained yield, production or conservation are emphasised; examples of habitat manipulation as a strategy preferable to the direct manipulation of numbers and the criteria for successful biological control programs are examined. The unit also introduces the economic, sociological and legal implications of management programs.

**Prerequisite:** BEB357

**Credit Points:** 8 **Contact Hours:** 4 per week

#### ■ BEB655 CASE STUDIES

**Offered:** Spring

An extension of Population Management, this subject allows for the detailed study of populations of economic importance. Management strategies for both terrestrial and aquatic populations are presented. Topics cover the range of possible population

manipulations including population stimulation, sustained yield and reduction. Major field trips allow students to undertake studies on important systems.

**Co-requisite:** BEB653

**Credit Points:** 12      **Contact Hours:** 5 per week

### ■ BEB660 PROJECTS II

**Offered:** Spring

This elective unit may be undertaken by students who have taken BEB560 Projects I and who have the Head of Department's permission to continue project work. The student either: continues a project undertaken in BEB560, or involves one or more additional projects aimed at developing to a greater depth aspects of the subject matter of experimental subjects previously completed, such projects being established for either individuals or groups. Assessment is conducted as for BEB560. Individual programs for BEB660 are to be determined by the 12th week of the fifth semester of the course. There are a number of excursions.

**Prerequisite:** BEB560

**Credit Points:** 16      **Contact Hours:** 6 per week

### ■ BEP700 PROJECT

**Offered:** Full Year

All students undertaking Honours are required to select and undertake, in consultation with a supervisor, a substantial project in an appropriate area. Each project will be assessed on the basis of an extensive written report and an oral presentation.

**Credit Points:** 40

### ■ BEP701 ADVANCED PLANT PHYSIOLOGY & BIOCHEMISTRY

**Offered:** Autumn

Aspects of plant physiology and biochemistry of current research interest will be covered, expanding upon material in the third year Plant Biochemistry subject. Students will select from a reading list, present seminars and undertake advanced practical work.

**Credit Points:** 9      **Contact Hours:** 4 per week

### ■ BEP703 DATA HANDLING, INTERPRETATION & BIOMETRICS

**Offered:** Autumn

The subject covers the efficient organisation and manipulation of data using techniques available through personal computer software. Data manipulation programs are developed to facilitate the application of commercial software to the analysis and interpretation of experimental data.

**Credit Points:** 9      **Contact Hours:** 4 per week

### ■ BEP704 ADVANCED STUDIES IN POPULATION MANAGEMENT

**Offered:** Spring

Topics include: pest control and economics; chemical pesticides and their uses; biological control agents; acaricidal control and genetic control; use of pheromones, attractants and repellents; resistant varieties, cultural and ecological control; physical methods of control; integrative pest management; quarantine. Conservation management; National Parks and protected areas management; legislation.

**Credit Points:** 9      **Contact Hours:** 4 per week

### ■ BGB005 MEASUREMENT OF CONSTRUCTION I

**Offered:** Autumn

Introduction to Quantity Surveying including the work of the Quantity Surveyor and his relationship with other members of the building industry. A study of mensuration and formulae involved in the calculation of length, area and volume. Detailed study and

instruction in the process and methods of taking off and billing quantities in the trades roofer, and roof plumber, plasterer, pavior, tiler and terrazzo worker, joiner, ironmonger, glazier and painter.

**Prerequisites:** BGB151, BGB154

**Credit Points:** 6      **Contact Hours:** 3 per week

### ■ BGB006 MEASUREMENT OF CONSTRUCTION II

**Offered:** Spring

Detailed study and instruction in the process and methods of taking off and billing quantities in the trades excavator, concreter, bricklayer and blocklayer and carpenter.

**Prerequisite:** BGB005

**Credit Points:** 6      **Contact Hours:** 3 per week

### ■ BGB009 MEASUREMENT OF CONSTRUCTION III

**Offered:** Autumn

Detailed study and instruction in the process and methods of taking off and billing quantities in more complex building solutions in the trades excavator, concreter, bricklayer and blocklayer, underpinning, pier and beam RC frame and suspended slabs.

**Prerequisites:** BGB254, BGB006

**Credit Points:** 4      **Contact Hours:** 2 per week

### ■ BGB010 MEASUREMENT OF CONSTRUCTION IV

**Offered:** Spring

Detailed study and instruction in the process and methods of taking off and billing quantities in the trades asphalters and built up roofing, demolisher, mason, structural steel and precast concrete.

**Prerequisite:** BGB009

**Credit Points:** 4      **Contact Hours:** 2 per week

### ■ BGB013 BUILDING SERVICES I HVAC

**Offered:** Autumn

Minimum standards of ventilation required by the regulatory authorities - fans, centrifugal and axial flow and their applications. Ductwork and accessories, details of layout construction and installation. Requirements for human comfort in air-conditioning. The ASHRAE Comfort Chart; the principles of refrigeration. Types of air-conditioning systems and their composition; cost, application, construction and installation. Heating - fuel types, efficiency, capital and annual costs. Effect of building ordinances on design and installation of air-conditioning and ventilation systems.

**Co-requisite:** BGB253

**Credit Points:** 4      **Contact Hours:** 2 per week

### ■ BGB014 BUILDING SERVICES II - ELECTRICAL

**Offered:** Spring

Electricity supply and distribution. High and low tension supply. Measuring current, cut-outs, intake and distribution. Internal distribution. Large supply installation, sub-station. Fuse gear and switch gear. Wiring systems and circuits. Conduit and cables. Joint boxes, multi-box switching. Heading circuits. Earth connections. Protection of conduit, conductor and accessories against mechanical damage, weather, dampness, fire electric shock. Fibre optic cables in building supervisory systems. Assessment of maximum demand and voltage drop. Earth tests. Tools and handling equipment. Fastenings and supports. Measurement, control and lighting equipment. Accessibility and protection. Domestic, industrial and commercial appliances. Testing and fault locating.

**Credit Points:** 4      **Contact Hours:** 2 per week

### ■ BGB103 MATERIAL SCIENCE I

**Offered:** Autumn

Properties, manufacture, use and analysis of timber, steel, concrete, and clay products, including investigation into their strength, density, hardness, porosity, plasticity, elasticity and deterioration. Investigation and protection of materials against corrosion and fire.

**Co-requisite:** BGB254

**Credit Points:** 4      **Contact Hours:** 2 per week

### ■ BGB104 MATERIAL SCIENCE II

**Offered:** Spring

The aim of this subject is to develop an understanding of the physical and chemical properties of materials and how they affect the construction and structural qualities. It covers laboratory and field testing of bricks, mortar, brickwork, concrete, timber, steel. Investigation and protection of materials against corrosion and fire.

**Credit Points:** 4      **Contact Hours:** 2

### ■ BGB131 MEASUREMENT OF CONSTRUCTION IA (FULL TIME)

**Offered:** Spring

Subject description as for BGB005.

**Credit Points:** 6      **Contact Hours:** 3 per week

### ■ BGB143 STRUCTURES I

### ■ BGB144 STRUCTURES II

**Offered:** Autumn, Spring

Equilibrium of forces. Shear forces and diagram, bending moments and diagram, loading on structures and loading code, truss analysis and force diagram, stress and strain, tension and compression members, bending theory, design of timber beams, columns and connections, design of steel beams and columns, introduction to indeterminate structures.

**Prerequisite for BGB144:** BGB143

**Credit Points:** 4 (both)      **Contact Hours:** 2 per week (both)

### ■ BGB151 CONSTRUCTION I

**Offered:** Autumn

Materials and methods - the uses of materials and construction in single and two storey domestic structures - site information and investigation, foundations, columns, upper floors, external and internal walls, finishes, etc. Environmental, structural and aesthetic requirements of these structures taking account of the constraints such as costs, dimensional requirements, statutory regulations, life and adaptability and manufacturing and erection requirements. Draughting - preparation of typical details and working drawings. Environmental science - study of the factors and technology involved in creating comfort situations in varying climatic zones and their effect on building construction.

**Credit Points:** 12      **Contact Hours:** 6 per week

### ■ BGB154 CONSTRUCTION II

**Offered:** Spring

This subject is designed to develop an understanding of the properties of materials, and how they behave in the manufacturing and construction process and how these considerations relate to form and structure. It includes a studio and practical back-up to the lecture program. Students will be required to prepare working details of building components, co-ordination of building elements for specific building use.

**Prerequisite:** BGB151

**Credit Points:** 14      **Contact Hours:** 7 per week

### ■ BGB161 BUILDING STUDIES I

**Offered:** Autumn

The uses of materials and construction in single and two storey domestic structures - site information, sub-structure, columns, upper floors, external and internal walls, finishes, etc. Environmental, structural, aesthetic, cost, statutory, dimensional, manufacturing and erection requirements. Factors in creating comfort situations in various climatic zones and their effect on building construction. Draughting - preparation of typical details and working drawings. Physical and chemical properties of materials such as timber, steel, concrete and clay products and how they affect their construction and structural qualities.

**Credit Points:** 14      **Contact Hours:** 5.5 per week

### ■ BGB162 BUILDING STUDIES II

**Offered:** Spring

The uses of materials and construction in single and two storey domestic structures under the elements - staircase, roof, internal and external walls, windows, doors, finishes.

Environmental, structural and aesthetic requirements, taking account of constraints such as costs, dimensional requirements, statutory regulations, life and adaptability and manufacturing and erection requirements. Draughting - preparation of typical construction details and drawings.

**Prerequisite:** BGB161

**Credit Points:** 9      **Contact Hours:** 3.5 per week

### ■ BGB164 BUILDING SERVICES IA

**Offered:** Spring

A study of macro services to the community including water supply, sewerage, power, gas, telephone and other public services. Requirements of headworks and reticulations. A study of sanitation, septic tanks, absorption and transpiration beds, stormwater and sewerage disposal and garbage and refuse disposal. Hydraulic engineering services associated with buildings. Water supply (including fire fighting and hot water), sewerage and sanitary plumbing with a study of relevant Acts and laws, including sizing and testing of main and gravity fed services.

**Credit Points:** 6      **Contact Hours:** 2.5 per week

### ■ BGB166 URBAN ECONOMICS

**Offered:** Spring

An explanation of economic and financial aspects of the property and construction industries. This will cover the environment in which these industries operate, their structure, operation and control and the financial aspects of development projects.

**Credit Points:** 4      **Contact Hours:** 2 per week

### ■ BGB243 LAW I - BUILDING ACTS & REGULATIONS

**Offered:** Spring

Procedure in passing and resolving Acts, regulations and by-laws. Procedure in collecting information on regulations and by-laws. Knowledgeable site representatives. A detailed study of the 1975 - 1981 Building Act, Appendix 4 to the Building Act, and Standard Building By-laws, which control the design and construction and building works in Queensland, with particular emphasis on Building Codes referred to in the By-laws. A study of the Health Act, Factories and Shops Act, Liquor Act, Acts Interpretation Act, Fire Safety Act and Town Planning Acts.

**Co-requisite:** BGB254

**Credit Points:** 5      **Contact Hours:** 2 per week

### ■ BGB245 MEASUREMENT OF CONSTRUCTION IB

**Offered:** Autumn

Detailed study and instruction in the process and methods of taking off and billing quantities in the trades of excavator, concreter, bricklayer, blocklayer and carpenter for simple buildings.

**Prerequisites:** BGB154, BGB131

**Co-requisite:** BGB253

**Credit Points:** 6      **Contact Hours:** 3 per week

### ■ BGB246 MEASUREMENT OF CONSTRUCTION IIB

**Offered:** Spring

Detailed study and instruction in the process and methods of taking off and billing quantities in more complex building solutions in the trades excavator, concreter, bricklayer and blocklayer in simple basement, underpinning, pier and beam, R.C. frame and suspended slabs. Detailed study and instruction in the process and methods of taking off and billing quantities in the trades asphalter and built up roofing, demolisher, mason, structural steel and precast concrete.

**Prerequisites:** BGB253, BGB245

**Co-requisite:** BGB254

**Credit Points:** 8      **Contact Hours:** 4 per week

### ■ BGB247 MATERIAL SCIENCE III

**Offered:** Autumn

Elements of material sciences: introduction to atomic structure and bonding and its effects on a material's engineering property. Elementary metallurgy of iron and steel. Non-ferrous metals and alloys. Joining of metals, fatigue, creep, brittle and ductile fractures, corrosion and protection. Properties, manufacture, use and analysis of fibrous cement, wood products, ceramics, polymers, paints, sealants and mastic products. Investigation into the material's strength, density, hardness, porosity, plasticity, elasticity, deterioration, optical, electrical, thermal and acoustic properties.

**Prerequisites:** BGB103, BGB104

**Credit Points:** 4      **Contact Hours:** 2 per week

### ■ BGB253 CONSTRUCTION III

**Offered:** Autumn

Extending the scope of Construction I and II to include a range of structures from industrial single to multi-storey residential buildings. Study management, planning, and co-ordination necessary for successful construction including site layout, site establishment and material handling processes. Construction draughting and detailed drawings. Site visits and/or workshop.

**Prerequisites:** BGB154, BGB103, BGB104

**Credit Points:** 10      **Contact Hours:** 5 per week

### ■ BGB254 CONSTRUCTION IV

**Offered:** Spring

An extension of Construction I, II and III, dealing with multi-storey commercial buildings.

**Prerequisite:** BGB253

**Credit Points:** 12      **Contact Hours:** 6 per week

### ■ BGB257 STRUCTURES III

### ■ BGB258 STRUCTURES IV

**Offered:** Autumn, Spring

Analysis of indeterminate structures, frame analysis, moment distribution, design of steel connections and structures, concrete columns and walls, composite beams, theory of prestressed concrete, brickwork and concrete masonry design, design of retaining walls,

substructures and foundations. Use of computers in structural design.

**Prerequisites:** BGB103, BGB104, BGB143, BGB144

**Credit Points:** 4 (both) **Contact Hours:** 2 per week (both)

### ■ BGB261 BUILDING STUDIES III

**Offered:** Autumn

Study of the materials and construction of a range of structures from industrial single to multi-storey residential buildings - substructure, columns and upper floors, staircases, roof, external and internal walls, windows and doors, finishes, fire protection and fittings. Environmental, structural, aesthetic, cost, statutory, dimensional, manufacturing and erection requirements. Draughting - preparation of typical details and working drawings. Material science - physical and chemical properties of materials such as non-ferrous metals and alloys, fibrous cement, ceramics, polymers, paints and sealants and how they affect their construction and structural qualities.

**Prerequisite:** BGB162

**Credit Points:** 12      **Contact Hours:** 5 per week

### ■ BGB262 BUILDING STUDIES IV

**Offered:** Spring

An extension of Building Studies III, dealing with multi-storey commercial buildings. It also looks at design appraisal - effect of design on users comfort, safety, energy usage, orientation, materials, layout, services, ageing and aesthetic composition.

**Prerequisite:** BGB261

**Credit Points:** 12      **Contact Hours:** 5 per week

### ■ BGB263 VALUATIONS I

### ■ BGB268 VALUATIONS II

**Offered:** Autumn, Spring

Concept of value and the methods and reasons for, and factors affecting the valuation of land and buildings. Property inspection procedure and report writing. Role of property within the investment market. Study of leasehold valuation, the concept of profit rent, sinking fund theory and the effect of tax. Valuation tables. Compound interest theory, determination of present value and the sum of an annuity, sinking fund theory. Principles of discounting, including tax adjusted tables. Investment method of valuation, including the determination of annual outgoings. The valuation of perpetual, fixed and varying income, mortgage calculation. Analysis of market information in determining yields and values.

**Prerequisite for BGB268:** BGB263

**Credit Points:** 5 (BGB263); 7 (BGB268)

**Contact Hours:** 2 (BGB263); 3 (BGB268) per week

### ■ BGB264 BUILDING SERVICES IIIA

Transportation of people and goods - passenger, goods and service lifts - planning disposition, control systems and construction. Regulatory requirements, approximate traffic calculations. Escalators and moving walks - use, widths and ratings, regulatory requirements, and construction. Planning and scheduling of lift contracts and ancillary building work. Cost of lifts and their effect on the cost of buildings. Fire protection - sprinklers, detectors, alarms, extinguishers. Telephone and sound systems. Intrusion alarm systems. Clock and time systems.

**Prerequisite:** BGB262

**Credit Points:** 3      **Contact Hours:** 1.5 per week

### ■ BGB301 PML - ADVANCED CONSTRUCTION METHODS

**Offered:** Spring

The main thrust of the subject will be to broaden the education and experience of students by setting them construction and site management problems which are typically encountered by a project manager. Alternatively or in conjunction with the above, case studies will be carried out by the students on projects which have unusual construction problems or techniques. Problems and case studies will cover areas such as: site planning organisations for small, medium and large projects. Material handling and site equipment selection.

**Credit Points:** 4      **Contact Hours:** 2 per week

### ■ BGB341 BUILDING & CIVIL ENGINEERING CONSTRUCTION

**Offered:** Autumn

Civil Engineering techniques commonly used in excavation of large project sites, involving bulk excavation, earth and rock retaining systems, and rock excavation and explosive handling. Discussion on dewatering and techniques of pile driving, bored pier and special foundation construction. Problems faced in the demolition of structures, particularly those associated with prestressed concrete construction. Roadworks - techniques, stabilised construction and surface sealing and associated bridge construction. Particular attention is given to the need for falsework and temporary works and their effect on cost.

**Credit Points:** 4      **Contact Hours:** 2 per week

### ■ BGB342 LAW II - PRINCIPLES & PROPERTY

**Offered:** Autumn

Introduction to legal principles and process - the legal system and process. Sources and divisions of the law. Rules of precedent. Interpretation of statutes and regulations. Legal practice and procedure. Law of property - ownership and possession. Estates and interests in land. Easements, rights and restrictive covenants. Party walls, boundary walls, fences and encroachments.

**Credit Points:** 3      **Contact Hours:** 1.5 per week

### ■ BGB343 ECONOMICS OF THE CONSTRUCTION INDUSTRY

**Offered:** Spring

Branches of economics. Applied economics. Features of the macro economy. Demand, supply, prices and stocks. Market structures, competition, collusion, integration and concentration. Real property markets, tenure, markets and sub markets. Structure of the construction and housing industries, composition and characteristics. Demand for dwellings, the deposit gap, public housing, rental markets. Pricing mechanism, application to land, contract and speculative projects, etc. Cost analysis, cost components in housing, problems of rising costs and effects of time delays, etc. Finance industries, types and use of finance, use of gearing, risk considerations, cash flow, causes of failure of developer and builder firms.

**Credit Points:** 4      **Contact Hours:** 2 per week

### ■ BGB345 HYGIENE & SANITATION

**Offered:** Spring

Subject description as for BGB164.

**Credit Points:** 4      **Contact Hours:** 2 per week

### ■ BGB361 BUILDING SERVICES IIA

**Offered:** Autumn

Heating venting and air-conditioning. Requirements for human comfort and the principles of refrigeration.

Minimum standards of ventilation. Types of air-conditioning systems and their composition, application, layout, construction and installation.

Component parts - fans, ducts and accessories. Heating fuel types, efficiency, capital and annual costs. Effect of building ordinances on design of systems. Electrical: high and low tension supply and distribution. Large supply installations, substations. Fuse and switch gear. Wiring systems and circuits. Conduits, cables, joint boxes and earth and protection. Maximum demand and voltage drop. Tools and handling equipment. Measurement, control and lighting equipment. Testing and fault locating.

**Co-requisite:** BGB261

**Credit Points:** 10      **Contact Hours:** 4 per week

### ■ BGB362 PROPERTY MARKETING

**Offered:** Spring

Characteristics of the Australian property market, the nature of the marketing problems. The marketing plan: the mix, implementation of plan and sales forecast; pricing decisions, approach to selling; consideration of sales particulars and auction catalogues. Promotional decisions: determination of budget size; media decision and sales promotion; technological advances and market changes. Real estate brokerage and the application of marketing principles to residential, commercial, industrial and special and overseas properties. Marketing in international markets. Negotiation skills development.

**Credit Points:** 7      **Contact Hours:** 3 per week

### ■ BGB363 VALUATIONS III

### ■ BGB364 VALUATIONS IV

**Offered:** Autumn, Spring

Valuation net of tax, the effect on value of income and corporation taxes. Valuation of freehold and leasehold interests, including surrender and renewal value. The valuation of life interests. Cost of capital concepts. Internal rate of return, depreciation, future capital sums, cost in use. Alternative valuation models: equated and equivalent yields approaches to valuing growth investments. Equated rents. The Land Act and the Valuations Land Act. Valuation for statutory rating, insurance and mortgage. Appreciation of accounts. Advanced methods of valuation of residential, commercial and industrial property accounting for current legislation. Valuation of specialised properties: licensed premises, hotels, service stations and entertainment properties.

**Prerequisite for BGB363:** BGB268

**Credit Points:** 5 & 7 respectively

**Contact Hours:** 2 & 3 per week respectively

### ■ BGB367 REAL ESTATE ACCOUNTING I

**Offered:** Autumn

Principal issues in financial accounting - period vs project income determination, inventory valuation and costs of goods sold, introduction of asset valuation theories, depreciation, intangible asset determination, effects of taxation. Analysis and interpretation of financial statements - multiple factors in interpretation, analysis principles for business brokerage. Asset valuation - conventional bases for valuation, current cost, replacement cost, general price level changes, effects in depreciation and taxation. Business structures - sole trader, partnerships, companies and appropriate accounting procedures. Business analysis and assessment of value for business brokerage. Project accounting, contracts, part-payments, interim project determination, development costs.

**Credit Points:** 4      **Contact Hours:** 2 per week

## ■ BGB368 REAL ESTATE ACCOUNTING II

**Offered:** Spring

Budgeting and cost accounting, the production function, decision and control aspects of production, cost accounting, cost flows, cost types, cost classification, costing systems, standard costing and variance analysis, flexible budgets and budgetary control, performance and evaluation. Company finance - objectives of the finance function, use of financial indicators, debt equity sources of funds, financial versus capital structure, financial risk and gearing, cost of capital. Cash flow management - decision-making using cash flow management techniques viz purchase vs lease etc. Working capital management and short term investment criteria. Capital budgeting for an on-going business. Project sorting and budgeting.

**Prerequisite:** BGB367

**Credit Points:** 7      **Contact Hours:** 3 per week

## ■ BGB401 BUILDING ECONOMICS & COST PLANNING

**Offered:** Spring

The concept of cost control - building outputs and costs; comparison of cost planning and approximate estimating. Cost implication of design variables - perimeter/floor area ratio; size of building; circulation space; storey height. Effect of site conditions on building costs; cost implication of prefabrication and standardisation. Approximate estimating - types and uses. Measurement of variations; adjustment of prime cost and provisional sums. Cost analyses, indices and data, applications and use of cost analyses; cost data; worked examples covering the preparation and adjustment of cost plans. Progress payments, rise and fall calculations and final accounts. Bill of quantity and bulk checking techniques.

**Prerequisites:** BGB446, BGB540

**Credit Points:** 4      **Contact Hours:** 2 per week

## ■ BGB403 BUILDING MANAGEMENT I

**Offered:** Autumn

Management in principle - planning, leading, organising, controlling and applied communication. Fundamentals of management. Roles of policy maker and executive. Accountability. Communication. Problem solving. Organisation structures and relationships, formal and informal structures, latest trends in organisation. Management in practice - building industry participants - client to builder, and their possible relationship and operational sequence. Systems in the building industry. Contract management and head office - small and large contracts. Management job description - contracts, plant, estimating, purchasing, planning and accounting heads. Contract terminology. Types of tenders and contracts. Controlling incoming work - securing contract.

**Co-requisite:** BGB253

**Credit Points:** 4      **Contact Hours:** 2 per week

## ■ BGB404 BUILDING MANAGEMENT II

**Offered:** Spring

A study of more advanced management principles and their application to site administration and management.

**Credit Points:** 4      **Contact Hours:** 2 per week

## ■ BGB405 PROJECT EQUIPMENT & SAFETY

**Offered:** Spring

Study of the Construction Safety Act 1971 - 73 and regulations. This includes fixed, mobile and portable equipment, hoarding, gantries, scaffolding and other miscellaneous gear. Crane, hoist and other relevant

codes. Responsibilities and certification of side operatives. Safety problems in erection, demolition and excavation work. Accident investigation, analysis and preventive techniques. Frequency and severity rates and training, management responsibilities.

**Co-requisite:** BGB254

**Credit Points:** 4      **Contact Hours:** 2 per week

## ■ BGB406 BUILDING FINANCIAL MANAGEMENT II

**Offered:** Spring

Search and selection of construction projects. The discount rate - the cost of capital, and return on investment. Cash flows and contract mark-up. Risk, uncertainty and inflation in capital investment decisions. Analysis and interpretation of financial statements. Sources of funds and classifications in the structure of funds. Bidding theory and strategy. Prescribed payments taxation system.

**Prerequisites:** ACB281, BGB403

**Credit Points:** 4      **Contact Hours:** 2 per week

## ■ BGB440 LAW III - BUILDING CONTRACTS

**Offered:** Autumn, Spring

The aim of this subject is to provide students with a greater understanding of the law relating to building and engineering agreements, and of practices relating in the building industry.

It includes contract law - elements, formation and discharge of a contract. Contents of a valid contract - misrepresentation, collateral contract implied terms. Contract documents and their interpretation. Remedies for breach of contract. The building contract process: consideration of the major provisions in Australian Standard Forms of Building Contract.

**Credit Points:** 3      **Contact Hours:** 2 per week

## ■ BGB442 VALUATIONS & DILAPIDATIONS

**Offered:** Autumn, Spring

The nature of value. Effect of supply and demand of land and buildings. Investment value and occupational value. Types of landed property, the incidents of their tenure, the outgoing, and comparison with other forms of investment. Rates of interest required from different types of property. Calculating rental value and net income and capitalization of net income. Use of valuation tables. Liability for dilapidations. Meaning and liability for legal and equitable waste. Implied, express contract covenants and statutory obligations to repair between landlord and tenant. Landlords' remedies for breach of covenant to repair. Liability for injuries to third parties.

**Credit Points:** 3      **Contact Hours:** 3 per week

## ■ BGB443 BUILDING SERVICES III

**Offered:** Autumn

Transportation of people and goods - passenger, goods and service lifts - planning disposition, control systems and construction. Regulatory requirements, approximate traffic calculations. Escalators and moving walks - use, widths and ratings, regulatory requirements, and construction. Planning and scheduling of lift contracts and ancillary building work. Cost of lifts and their effect on the cost of buildings. Fire protection - sprinklers, detectors, alarms, extinguishers. Telephone and sound systems. Intrusion alarm systems. Clock and time systems. Acoustics.

**Co-requisite:** BGB253

**Credit Points:** 5      **Contact Hours:** 2.5 per week

#### ■ BGB444 MECHANICAL & ELECTRICAL ESTIMATING

Offered: Autumn

Outline of the various mechanical and electrical systems and the parameters influencing their design and application. Types of estimates and tenders. Break-down of preliminaries. Trade awards and wage rates. Take off procedures under major sections of works including costing and estimating make-up calculations. System costs in relation to total building, floor area, operating and maintenance cost, builders allowance for each system.

Prerequisites: BGB013, BGB014

Credit Points: 4 Contact Hours: 2 per week

#### ■ BGB446 ESTIMATING I

Offered: Spring

Building trades award and wages rates. Hourly rate build up for equipment and trade services. Calculation of preliminaries for a small suburban project.

Prerequisites: BGB006, BGB245

Co-requisite: BGB254

Credit Points: 5 Contact Hours: 2.5 per week

#### ■ BGB451 COMPUTER SOFTWARE APPLICATIONS I

Offered: Autumn

The series of lectures in this subject is to be used to study in depth the preparation of Bills of Quantities using various commercially available computer software packages. The student will be given "hands-on" experience in the following: set up of base accounts, trades, headings, etc; measurement input; editing, correction and data manipulation; report generation in various Bill of Quantities formats; pricing using estimated and/or tendered rates; elemental analyses; team leader responsibilities; the use of computers in the measurement of non-traditional contractual systems; and specification and preamble development.

Credit Points: 4 Contact Hours: 2 per week

#### ■ BGB452 COMPUTER SOFTWARE APPLICATIONS II

Offered: Spring

This subject covers the preparation of cost plans/estimates using various computer software packages, and includes set up of base accounts including parameter specifications; elemental and detailed estimate measurement; editing, correction and data manipulation; report generation and formatting; development of labour constants, standard rates and standard items; pricing, tendering, spreadsheet application. It also deals with contract administration software packages, encompassing set up of base accounts; variation control, rise and fall and final accounts; and progress payments and cash flow forecasts.

Credit Points: 4 Contact Hours: 2 per week

#### ■ BGB461 MEASUREMENT OF CONSTRUCTION V

Offered: Autumn

Detailed study and instruction in the process and methods of taking off and billing quantities in complex basement and foundation work in the trades underpinning, excavator, concreter and all types of piling systems. Study and instruction will also be applied to complex structural systems in suspended slabs and walls.

Prerequisite: BGB010

Credit Points: 3 Contact Hours: 1.5 per week

#### ■ BGB462 MEASUREMENT OF CONSTRUCTION VI

Offered: Spring

Detailed study and instruction in the process and methods of taking off and billing quantities in the trades plumber and drainer.

Prerequisite: BGB345

Credit Points: 3 Contact Hours: 1.5 per week

#### ■ BGB464 VALUATIONS V - RURAL

Offered: Spring

The background to farming in Australia; Government impacts on road and rail development and rural subdivision. Bases of value: rural property values; the valuation process; data collection, collation and analysis; soils. Valuation of crown leaseholds. Property inspections and descriptions. Market data approach: sale price records and analysis and organisation of data; value by comparison. Cost approach: reproduction or replacement cost; unit in place method; comparative unit cost; depreciation. Income approach: application in Australia; income and expense estimates; value by capitalisation.

Prerequisite: BGB363, LPP441

Credit Points: 7 Contact Hours: 3 per week

#### ■ BGB465 INVESTMENT DECISIONS & FINANCIAL STRATEGY I

#### ■ BGB466 INVESTMENT DECISIONS & FINANCIAL STRATEGY II

Offered: Autumn, Spring

Corporate financial system in Australia: Concepts and techniques of financial evaluation, risk management, financing of investments. Investigation and selection of investment strategies in accordance with pre-determined objectives, investment, market analysis and appraisal of capitalisation rates and rates of return on property investments. Corporate strategy, investment market and portfolio analysis and management. Principles of national taxation as they affect the above, nature and incidence of personal and corporate taxation on income and capital. Principles of taxation and capital and development gains, including the consideration of chargeable gains, occasions of charge and provisions for deferment and relief.

Credit Points: 7 & 8 respectively

Contact Hours: 3 per week (both)

#### ■ BGB520 SPECIFICATIONS

Offered: Spring

The compilation of specifications complementing other architectural documents. Definitions, objects and purpose of a specification. Specification as a contract legal and working document; relationship to the Bill of Quantities and drawings; schedules; reference material and specification writing. The use of 'Master' specifications; outright and performance specifications and preparation of specified Bills of Quantities.

Prerequisite: BGB254

Credit Points: 3 Contact Hours: 1.5 per week

#### ■ BGB524 MEASUREMENT OF CONSTRUCTION VII

Offered: Spring

Detailed study and instruction in the process and methods of taking off and billing quantities in the trades of mechanical and electrical engineer, external works and preliminaries. Detailed study and instruction in the process of Bill of Quantity presentation and the prospects for computer usage in Bill of Quantity preparation.

Prerequisites: BGB013, BGB014, BGB443

Credit Points: 4 Contact Hours: 2 per week

**■ BGB526 POST CONTRACT SERVICES I****■ BGB526 POST CONTRACT SERVICES II**

**Offered:** Spring, Autumn

An in-depth study in the method of adjustment of provisional items in the contract; a study of rise and fall entitlements under various formulae, methods of preparing valuation certificates for progress payments, and modern cost control techniques used on jobs during the construction period including review of relevant contractual clauses applicable to all items within semester study. An in-depth study of various aspects of Quantity Surveying practice including adjustment to the contract sum for variations, feasibility studies and different types of contractual arrangement and selection of contractors.

**Credit Points:** 5 (both) **Contact Hours:** 2.5 per week (both)

**■ BGB529 PM2 - QUANTITATIVE TECHNIQUES**

**Offered:** Autumn

Review of statistical methods. Data recording and presentation technique. The weighted index. Probability and expected value. Frequency and probability distribution. The normal distribution - control charts. Regression and multiple regression. Work study technique. Value analysis in building design and production. Operation research: linear programming - graphical, simplex, transportation and assignment methods. Dynamic programming. Decision making under conditions of certainty and uncertainty. Decision trees.

**Prerequisites:** BGB403, BGB404

**Credit Points:** 5 **Contact Hours:** 2.5 per week

**■ BGB540 ESTIMATING II**

**Offered:** Autumn

Build up of a typical rate for the following trade items: demolition, dewatering, piling, underpinning, shoring/formwork to columns, beams, walls and slab systems/reinforcement tying and fixing; concrete placing rates; precast erection; scaffolding, gantries, hoists and cranes etc. Calculations of preliminaries for country and city project.

**Prerequisites:** BGB009, BGB010, BGB246, BGB446

**Credit Points:** 5 **Contact Hours:** 2.5 per week

**■ BGB543 LAW 4 - TORTS & ARBITRATION**

**Offered:** Spring

An introduction to the law as it affects the construction industry. Law of tort - negligence, professional negligence, duty of care, liability, occupiers liability, nuisance, fraud and conversion. Arbitration - nature of comparison with actions at law. Reference by consent. The arbitration agreement, parties subject matter, appointment of arbitrators or umpire. Conduct of an arbitration; powers and duties of an arbitrator. Rules of evidence. Validity of publication and enforcement of an award. Costs.

**Prerequisite:** BGB440

**Credit Points:** 3 **Contact Hours:** 1.5 per week

**■ BGB547 PM3 - CONSTRUCTION PLANNING TECHNIQUES I**

**Offered:** Autumn

This subject is designed to develop skills in the application of construction planning and control techniques. It includes bar charts. Critical path networks - arrow and precedence diagrams. Updating, control and reporting techniques. Line of balance. Resource levelling. Least-cost optimisation. Multiple activity chart.

**Credit Points:** 5 **Contact Hours:** 2.5 per week

**■ BGB548 PM4 - CONSTRUCTION PLANNING TECHNIQUES II**

**Offered:** Spring

The advanced application of quantitative techniques to construction planning and control. Planning and control for various types of projects. Expediting contracts. Misuse and abuse of planning. Flowline scheduling. Legal problems associated with CPM. Simulation techniques.

**Prerequisites:** BGB547 PM3

**Credit Points:** 8 **Contact Hours:** 4 per week

**■ BGB550 PM5 - PROJECT COST CONTROL**

**Offered:** Spring

This subject is designed to develop skills in the financial planning and cost control of the construction project. It deals with a variety of topics including the development time relationship, cost consequences of design decision. Preconstruction budget, budget management, materials control. Performance analysis. Trend evaluation. Forecasting techniques. progress reports. Cost reports. Financial status reports. Computer applications in expenditure. Control and forecasting. Equipment policy. Equipment economics. Maintenance management. Contract administration including maintaining records, processing payments, negotiating extensions and prolongation claims, rise and fall, prescribed payments, sundry administration.

**Credit Points:** 6 **Contact Hours:** 3 per week

**■ BGB552 OFFICE MANAGEMENT**

**Offered:** Spring

A study of scale of fees and professional charges, code of ethics, letters of engagement, law involving the quantity surveyor and his client, professional indemnity, professional image and status. Office management and procedures.

**Credit Points:** 2 **Contact Hours:** 1 per week

**■ BGB561 PROPERTY MAINTENANCE I****■ BGB562 PROPERTY MAINTENANCE II**

**Offered:** Autumn, Spring

Technological, legal and financial factors in property maintenance, including taxation issues. It encompasses the nature and importance of building maintenance - concept of building maintenance, liability for defects. Capital, maintenance and running costs. Quality control. Government policy. Planning of maintenance including inspections, long and short term. Maintenance policies, cycles and profits, maintenance audits, maintenance manuals. Building stock age and conditions, statistics. Maintenance standards - application, attitude, quality control, responsibility. Statutory requirements - Building Act, defective premises, Factories Act, fire precautions, health and safety. Cost control - estimates and budgets, performance measures. Life cycle costing.

**Prerequisite for BGB561:** BGB164, BGB361, BGB269

**Credit Points:** 4 & 5 respectively  
**Contact Hours:** 2 & 3 respectively per week

**■ BGB563 VALUATION - ADVANCED I**

**Offered:** Autumn

Capital taxation as it affects property transactions. Valuations for development land tax, capital transfer tax and taxation of capital gains. Consideration of fiscal policy and tax planning as they affect the public and private property sectors. Valuations resulting from compulsory purchase with particular reference to land taken, part taken and where no land is taken.



Residential and business disturbance claims. Compensation resulting from adverse planning decisions. The compensation and betterment problem. Law and valuation. The Land Court, professional liability.

**Prerequisites:** BGB363, BGB364

**Credit Points:** 5      **Contact Hours:** 2 per week

#### ■ **BGB564 VALUATION - ADVANCED II**

**Offered:** Spring

Valuation in the development sphere, with emphasis on the valuer's role in the development process; the structuring of development schemes in the private and public sectors with specific consideration of partnership schemes. Development potential and the effect of equity sharing schemes, capital budgeting, finance. A study of investment appraisal techniques and their application in the property sector. Portfolio management in the public and private sector, including selection, lease management, property maintenance and performance measurement. The conflict between investment theory and the problems/objectives of operational estate management.

The valuation of corporate assets for organisational and balance sheet purposes. Consideration of the valuer's role and responsibilities. The treatment of depreciation of fixed assets for accounting purposes.

**Credit Points:** 5      **Contact Hours:** 2 per week

#### ■ **BGB565 TIME MANAGEMENT**

**Offered:** Autumn

Bar chart, critical path networks - arrow and precedence diagrams.

Updating, control and reporting techniques. Line of balance, production planning. Resource management.

**Prerequisite:** BGB161

**Credit Points:** 8      **Contact Hours:** 3 per week

#### ■ **BGB567 REAL ESTATE PRACTICE I**

#### ■ **BGB568 REAL ESTATE PRACTICE II**

**Offered:** Autumn, Spring

These subjects explore in detail real estate practice, conveyancing, real estate law, marketing and office administration.

**Credit Points:** 4 & 5 respectively

**Contact Hours:** 2 & 2.5 per week respectively

#### ■ **BGB569 PROJECT COST MANAGEMENT I**

**Offered:** Autumn

Principles of project cost planning and control from project inception through design, pre-tender, tender, post contract and final account phases. Principles of measurement and preparation of Bills of Materials, the pricing of construction work including preliminaries and overheads. An introduction to building economics and cost planning. Comparison of cost planning and approximate estimating. Cost implication of design variables - perimeter/floor area ratio, size of building/circulation space, storey height, column spacing, floor space and loadings. Variations, adjustment of prime cost and provisional sums and final accounts. Progress payments.

**Prerequisite:** BGB162

**Credit Points:** 5      **Contact Hours:** 2 per week

#### ■ **BGB601 FORMWORK DESIGN & CONSTRUCTION**

**Offered:** Autumn

Objectives in formwork building, quality, safety, control. Formwork planning - re-use, materials and

hardware, cost, hire or buy, erecting and stripping, scheduling. Types of materials, facings, finishes, hardware and fasteners. Loads and pressures on slab, beams, column and wall forms. Form design and design tables. Formwork drawing and detailing. Building and erecting formwork, architectural forms, precast concrete. Special techniques and pre-stressing. Proprietary formwork systems. Falsework will be designed in conjunction with the above but will only involve simple support beam or axially loaded props; more complex support systems will not be dealt with.

**Prerequisite:** BGB144 **Co-requisite:** BGB253

**Credit Points:** 4      **Contact Hours:** 2 per week

#### ■ **BGB606 PM8 - LAND DEVELOPMENT STUDIES**

**Offered:** Spring

The structure, operation and control of the land development industry including the politico-economic framework, land use plans and approval mechanisms, potentially subdividable land, financial aspects of development projects, and trends and prospects in the house development industry.

**Credit Points:** 4      **Contact Hours:** 2 per week

#### ■ **BGB623 PM6 - BUILDING DEVELOPMENT TECHNIQUES I**

#### ■ **BGB624 PM7 - BUILDING DEVELOPMENT TECHNIQUES II**

**Offered:** Autumn, Spring

Feasibility, market and location surveys. Cost analysis. Evaluation techniques, conventional and discounting. Cash flows and sensitivity analysis. Authorities, development restrictions, services, profitability, commercial assessment, land values, options. Purchase - terms, legal documentation, consolidation, surveys. Commissioning design team - building use, facilities, quality, staging. Instruct consultants, analyse alternatives, value engineering, marketability, income and outgoings, commercial assessment from sketch through to working drawings. Cost and time control from sketch design to completion. Tender procedures and negotiations, contract documentation. Leasing, brochures, publicity, letting agents, targets. Authorisation of construction payments, monthly reports, coordination meetings. Financing projects and cash flow.

Each Semester

**Credit Points:** 4 (both) **Hours:** 2 per week (both)

#### ■ **BGB626 LAND DEVELOPMENT STUDIES**

**Offered:** Spring

Subject description as for BGB606.

**Prerequisites:** BTB663, LPB441, LPB444

**Credit Points:** 4      **Contact Hours:** 2 per week

#### ■ **BGB642 APPLIED COMPUTER TECHNIQUES**

**Offered:** Autumn

An evaluation of the range of commercial and non-commercial computer programs designed for the construction industry.

**Prerequisites:** BGB548 PM4

**Credit Points:** 6      **Contact Hours:** 3 per week

#### ■ **BGB643 LAW 5 - COMMERCIAL LAW**

**Offered:** Spring

An introduction to the law as it affects the construction industry. Sale of goods, hire purchase. Negotiable instruments. Insurance law. Partnership law and general principles of company law. Bankruptcy and liquidation.

**Credit Points:** 3      **Contact Hours:** 1.5 per week

■ **BGB647 COST PLANNING & COST CONTROL I**

■ **BGB648 COST PLANNING & COST CONTROL II**

**Offered:** Autumn, Spring

The significance of construction economics for the client, the professions, the industry and society. Historical development, need for main aims of cost control. Comparing cost planning and approximate estimating. Cost implication of design variables - shape, size, perimeter, storey height, etc. Cost implications of construction methods, of site and market conditions, of prefabrication and industrialisation. Types of approximate estimates. Cost analyses, indices and data. Cost in use, maintenance and running costs, the life of buildings and components, effect of taxation and insurance.

**Prerequisites:** BGB006, BGB461, BGB462, BGB542, BGB540

**Credit Points:** 4 & 6 respectively

**Contact Hours:** 2 & 3 respectively

■ **BGB656 BUILDING RESEARCH**

**Offered:** Full year

History of building research. The definition of research. Australian and international building research organizations. The nature of the building industry and implications for research. Financing research. Future developments in building research. Research management. The research process. The development and presentation of a bibliographic report.

**Prerequisite:** BGB341

**Credit Points:** 9 **Contact Hours:** 9 per week

■ **BGB661 ELECTIVE RESEARCH PROJECT I**

■ **BGB662 ELECTIVE RESEARCH PROJECT II**

**Offered:** Autumn, Spring

The subject is designed to develop an ability to disseminate and evaluate information and specialised knowledge and to acquire an understanding of research methodology. It encompasses the definition, history, financing, future prospects and management of research. Students may either select a research subject, test its workability, develop working procedures, prepare an outline for the study, draft the preliminary section and after a series of critiques, present a bibliographic report, or carry out a case study or project based upon an unusual or complex process within a relevant professional area, prepare a report and give an oral presentation.

**Credit Points:** 8 (both) **Contact Hours:** 4 per week (both)

■ **BGB663 PROJECT DEVELOPMENT PROCESS I**

■ **BGB664 PROJECT DEVELOPMENT PROCESS II**

**Offered:** Autumn, Spring

An overview of the project development process from inception to occupancy as a prelude to detailed study of discrete parts of the process. Subject description as for BGB623/4.

**Credit Points:** 5 each semester

**Contact Hours:** 2 each semester

■ **BGB665 PROPERTY MANAGEMENT I**

■ **BGB666 PROPERTY MANAGEMENT II**

**Offered:** Autumn, Spring

Principles and techniques in property management in the private and public sectors. The management of a

property department in an organisation with a large property holding. Management of property portfolio in the private and public sectors. The characteristics and choice of alternative forms of ownership and interests. Financial and tax planning; public policies. The management of residential, retail, industrial and commercial buildings. Main statutory provisions relating to above tenancies. Tenancy agreements, management records and accounts. Insurance. Cash flow and forms of ownership. Property brokerage - principles and practices.

**Credit Points:** 4 & 6 respectively

**Contact Hours:** 2 & 3 per week respectively

■ **BGB667 APPLIED COMPUTER TECHNIQUES**

**Offered:** Spring

The subject is designed to give students hands-on experience and to demonstrate contemporary commercial software. On completion of the subject, students should be able to evaluate a range of commercial and non-commercial computer programs designed for the property development and construction industry. It covers accounting and cost control packages; feasibility studies, etc.; maintenance packages; and CPM, network analysis techniques.

**Credit Points:** 6

**Contact Hours:** 3 per week

■ **BGB668 LAW 6 - VALUATION OF LAND**

**Offered:** Autumn

The aim of this subject is to provide students with a better understanding of the basis upon which valuations of land are made for the levy of rates and taxes and the assessment of compensation for compulsory acquisition. It encompasses review of land, fixtures, plant, improvements, tenure, interests of land. Valuation - market, capital, unimproved, annual and site values. General principles - assessment of value. Valuation methods - urban and rural lands. Goodwill and business disturbance. Compensation upon compulsory acquisition. Mines and mineral bearing lands. Licensed premises. Valuation of strata title property. Valuer as an expert witness. Valuation appeals procedures.

**Co-require:** BGB563

**Credit Points:** 4

**Contact Hours:** 2 per week

■ **BGP412 PROPERTY MAINTENANCE**

**Offered:** Autumn

Nature and importance of building maintenance; maintenance standards; statutory requirements; cost control and taxation.

**Credit Points:** 6

**Contact Hours:** 2 per week

■ **BGP414 TIME MANAGEMENT II**

**Offered:** Spring

This subject is designed to develop an understanding and a high level of competence in the design of planning and control techniques for all stages of project management. It is expected that students will understand basic planning techniques. The subject covers updating, control and reporting techniques. Using CP networks. Resource, time and cost analysis of CPM and PERT. Production planning and control using line of balance/flowline techniques. A critical examination of CPM and case studies on its misuse and abuse in contracts. Development of basic planning to produce detailed repetitive production planning of project components and elements, including cycle times and balancing. Planning for various

project types and its processes, including systematic analysis of methods, techniques and alternatives. Use of multiple activity charts in planning and monitoring progress, and material handling time analyses in repetitive projects.

**Credit Points: 6      Contact Hours: 2 per week**

#### ■ BGP417 DESIGN MANAGEMENT

**Offered: Autumn**

The aim of this subject is to provide the student with an understanding of the nature of design and a knowledge of all factors which influence the process of design. It includes planning, managing and controlling the design process from inception to detail documentation; decision sequences in design; appreciation of the consequence of design decisions on the total project; the interrelationships between architectural design and engineering and services design requirements; briefing techniques; cost control; and building maintenance manuals.

**Credit Points: 6      Contact Hours: 2 per week**

#### ■ BGP422 ADVANCED VALUATIONS

**Offered: Spring**

Introduction to valuation, its purposes, the need for valuation, ethical and legal responsibilities. Land identification and title. Value - theory of value, economic base of value, retail value, principles of real estate. Basic valuation concepts and methods. Valuation of vacant land, improvements, valuation of improved land, subdivisonal land. Valuation for rating and taxation. Techniques for valuation of residential, single and multi occupier, urban including commercial, high rise, industrial, goodwill and businesses, shopping centres, rural including crops, plant machinery, irrigation, livestock. Acquisition - law and procedures. Compensation and assessment.

**Credit Points: 6      Contact Hours: 2 per week**

#### ■ BGP426 PROJECT DEVELOPMENT

**Offered: Full year**

Site selection/acquisition. Securing the land. Authority negotiation and approvals. Authority approvals. Resource planning. Acquisition/procurement. Project co-ordination. Construction management. Commissioning and occupation. Property management. Project finalisation. Post control evaluations. Project management objectives of cost time and quality. Process overview. Project stages. Management principles. Feasibility/justification. Preliminary brief. Development objective, motivation and needs. Feasibility studies. Project feasibility/ justification. Finance for projects. Marketing.

**Credit Points: 6      Contact Hours: 2 per week**

#### ■ BGP429 COST MANAGEMENT & ECONOMICS

**Offered: Full year**

Financial statements. Investment decisions. Economic evaluation. Financing decisions. Life cycle costing. Control systems. Management accounting and reporting. Information systems. Cost planning theories and techniques. The economy.

**Credit Points: 6      Contact Hours: 2 per week**

#### ■ BGP430 CURRENT ISSUES

**Offered: Full year**

This subject is to be seen very much as an integrative study area. There are two main strands of integration: the integration, under the project management umbrella, of areas already studied; and the integration of recent and topical developments in the area of project management. Areas may include: quality

management, buildability, value analysis, case studies, industrial relations, computer applications and selection, technology, information systems IT and AI, international project management, simulation exercises (Arousal, Bicep), recent developments in law, and englobal land development. It is expected that many of these topics will be covered by guest speakers from industry or presented in the form of seminars.

**Credit Points: 9      Contact Hours: 3 per week**

#### ■ BGP431 PROJECT MANAGEMENT I

**Offered: Autumn**

This subject is designed to introduce the student to basic theory in the areas of communication, management and organisation as it applies to the project situation. It encompasses communication - process, skills, environment, applications; management theory and organisation theory.

**Credit Points: 6      Contact Hours: 2 per week**

#### ■ BGP432 PROJECT MANAGEMENT II

**Offered: Spring**

Negotiation. Project team building. Motivation theory. Construction and project leadership. Change. Strategic management and planning. Personnel. Decision making strategies. Stress management.

**Credit Points: 6      Contact Hours: 2 per week**

#### ■ BGP433 PROJECT MANAGEMENT LAW

**Offered: Full year**

Introduction to the legal system. Law of tort. Contract law. Elements of contract. Contents of valid contract. The building contract process. Legal issues and problems associated with project management contracts. Arbitration. Property law. International law. Agency law. Local Government law. Statutory regulations. Industrial relations.

**Credit Points: 6 each semester**

**Contact Hours: 2 per week**

#### ■ BGP434 TIME MANAGEMENT I

**Offered: Autumn**

The use of planning techniques for project control. The emphasis will be on practical assignments applicable to the proposed situation. Critical path method for planning. Precedence networks. Activity on the arrow. Time scaled networks. Bar charts. Resource loading and levelling. Line of balance. Introduction to computing packages.

**Credit Points: 6      Contact Hours: 2 per week**

#### ■ BGP437 FIELD TRIP

**Offered: Spring**

An experiential field trip of 5 days duration in an adventure style environment. The emphasis will be on team building, working in a stressful environment, communication skills, personal discovery and extension, and building trust and relationships. The activities will be oriented to achieving greater awareness of and competence in the above areas.

**Credit Points: 6      Contact Hours: 5 days**

#### ■ BGP438 REAL ESTATE INVESTMENT & ECONOMICS

**Offered: Autumn**

Financial analysis of real estate investments. Taxation, tax exemption on financing. Capital budgeting. Debt and equity ponding. Measures of value. Capitalisation. Portfolio analysis. Syndication cash flow and appraisal techniques. Application of micro and macro economics to property market. Economic theories related to locational choice. Land economic theory. Economic factors influencing real estate in-

vestment. Business cycles, growth trends, demographic analysis.

**Credit Points:** 6    **Contact Hours:** 2 per week

#### ■ BGP439 PROPERTY MANAGEMENT

**Offered:** Autumn

Economic and feasibility studies related to various properties. Land valuation and technique. Legal aspects including strata letter and tenancy law. Sources of finance. Taxation. Cash flow and forms of ownership. Management of lease hold rental and home unit property. Marketing aspects. Insurance. Obsolescence, maintenance and replacement. Feedback for future proposals.

**Credit Points:** 6    **Contact Hours:** 2 per week

#### ■ BGP440 RESEARCH METHODOLOGY

**Offered:** Autumn

This subject is to enable the student to apply recognised research techniques to the production of his/her dissertation. It covers structure of a dissertation and format. Referencing. Hypotheses. Different methods of investigation. Formation of questionnaires, interviews, etc. Sampling, sample size.

**Credit Points:** 3    **Contact Hours:** 2 x 7 weeks

#### ■ BGP441 STATISTICS

**Offered:** Autumn

Collection and presentation of data. Probability and probability distribution. Normal, t F and chi distributions, statistical estimation and tests of hypotheses based on these. Introduction to non-parameter tests of hypotheses. Regression and correlation.

**Credit Points:** 6    **Contact Hours:** 2 per week

#### ■ BGP442 DISSERTATION

The dissertation may be of a research or investigative nature on any approved area related to project management. Suitable topics will be discussed and arranged with course members each year. Each student will be assigned a supervisor and will be examined by means of a dissertation by that supervisor and another member of staff prior to review by the external examiner.

**Credit Points:** 19.5    **Contact Hours:** 2 per week

#### ■ BTB100 INTRODUCTORY DESIGN I

**Offered:** Autumn

The greater part of the course will consist of studio work in freehand and mechanical drawing techniques, applied to a variety of subject matter at different environmental scales. Topics covered include: contour, texture and tone; depth perception, optical illusions and the principles of perspective; techniques of perspective drawing; the organisation of the visual field and the gestalt 'laws of pragnanz'; pattern in two and three dimensions; visual interest and attention; visual dynamics; and principles of scale drawing.

**Credit Points:** 18    **Contact Hours:** 8 per week

#### ■ BTB101 THE HUMAN ENVIRONMENT I

**Offered:** Autumn

The aim of this subject is to provide a basic understanding of the dimensions and movement of the human body, and of its perceptual systems, as an essential preliminary to the design of all artefacts for human use. The course consists of lectures and studio exercises. Lecture topics include: static and dynamic anthropometry; human sensory systems; introduction to ergonomics; applications of anthropometrics and ergonomics to design.

**Credit Points:** 4    **Contact Hours:** 2 per week

#### ■ BTB102 HISTORY OF THE BUILT ENVIRONMENT I

**Offered:** Autumn

The course reviews the development of man's artificial environment and its relationship to ideas, technology, and the fine arts from the earliest times to the seventeenth century.

**Credit Points:** 6    **Contact Hours:** 3 per week

#### ■ BTB103 ENVIRONMENTAL STUDIES I

**Offered:** Autumn

Man's place in nature. Some concepts of ecology - concept of the ecosystem, energy in ecosystems, interactions in the natural environment. Population, resources and pollution - the ecology of populations, man as part of the ecosystem, diversity as an ecological resource, resilience of natural systems, systems of overloading. Structure and function of essential biological systems. Environmental health.

**Credit Points:** 2    **Contact Hours:** 1 per week

#### ■ BTB110 APPLIED MATHEMATICS FOR DESIGNERS I

**Offered:** Autumn

Applications of plane and solid geometry in design revision of basic geometry; symmetry; construction and packing of solids; spherical geometry and its applications. Applications of trigonometry in design; revision of basic trigonometry; calculation of heights, distances, areas and volumes. Data collection and analysis in design; introduction to statistics; use of computers in data analysis; elements of computer programming.

**Credit Points:** 6    **Contact Hours:** 3 per week

#### ■ BTB132 LIGHT & COLOUR STUDIES

**Offered:** Autumn

This subject extends the study of colour vision, colour harmony and contrast, mixing and the application of colour; examines a range of contemporary theories relating to the use of colour in design; and introduces the study of the qualitative effects of lighting on form and colour in interiors. Lecture topics include the physiological-psychological basis for colour relations and examine the range of techniques used to apply these theories in the design professions.

**Credit Points:** 8    **Contact Hours:** 2 per week

#### ■ BTB135 MAP & AIR PHOTO INTERPRETATION

**Offered:** Autumn

Types, sources, uses and availability of maps and air photos, map reading, understanding of contours, land form and use of sections; methods and techniques of map production; introduction to photogrammetry and use of stereoscopes; introduction to remote sensing. Material will be covered by lectures, workshops, visits to map and air photo source organisations. Evaluation and assessment will be by assignment and practical workshop(s).

**Credit Points:** 2    **Contact Hours:** 1 per week

#### ■ BTB151 INTRODUCTION TO TECHNOLOGY

**Offered:** Autumn

This subject aims to provide basic knowledge on applied technologies, and how they relate to industrial products and systems. The subject consists of series of lectures covering in a broad sense: different technological issues and their application in the content of technological evolution; factors related to technological changes; appropriate technologies.

**Credit Points:** 2    **Contact Hours:** 1 per week

## ■ BTB200 INTRODUCTORY DESIGN II

**Offered:** Spring

Studio work: simple three dimensional design tasks at a variety of scales, and illustrating tasks associated with the five professions. Workshop and fieldwork will be related to studio exercises. Studies of the professions: a seminar course in which the work and roles of architect, industrial designer, landscape architect, urban and regional planner and interior designer will be explained and discussed by staff and practitioners and related to current work in the studio and to teaching in History of Built Environment II. Prerequisite: BTB100

**Credit Points:** 16      **Contact Hours:** 8 per week

## ■ BTB201 THE HUMAN ENVIRONMENT II

**Offered:** Spring

This subject encourages the understanding of human behaviour by examination of relevant theories and processes, and skill acquisition and practical application to daily life. It encompasses basic research principles, perception, learning processes, motivation and problem-solving. Communication, characteristics and dynamics of group and interpersonal interactions. Stress and anxiety management. The role of the self-concept and locus of control in transactions with the world in general.

**Credit Points:** 4      **Contact Hours:** 2 per week

## ■ BTB202 HISTORY OF THE BUILT ENVIRONMENT II

**Offered:** Spring

A continuation of History of the Built Environment I. History of the following from circa 1600 AD: ideas, art, and three of the following (one of which must be the student's strand discipline) - Town and Country Planning, Landscape Architecture, Architecture, Interior Design, Industrial Design.

**Credit Points:** 10      **Contact Hours:** 5 per week

## ■ BTB203 ENVIRONMENTAL STUDIES II

**Offered:** Spring

A continuation of Environmental Studies I, covering the natural environment and its interactions with people. It looks at man's

place in nature. Some concepts of ecology - concept of the ecosystem, energy in ecosystems, interactions in the natural environment. Population, resources and pollution - the ecology of populations, man as part of the ecosystem, diversity as an ecological resource, resilience of natural systems, systems of overloading. Structure and function of essential biological systems. Environmental health.

**Credit Points:** 2      **Contact Hours:** 1 per week

## ■ BTB204 APPLIED SCIENCE FOR DESIGNERS II

**Offered:** Spring

In laying the foundations of a scientific understanding of the physical environment and the technology by which it can be adapted to human use, this subject covers chemistry for environmental design; basic chemical properties of commonly occurring materials, natural and artificial; common chemical processes in buildings and artifacts.

**Credit Points:** 4      **Contact Hours:** 2 per week

## ■ BTB209 APPLIED LAND SCIENCE FOR DESIGNERS

**Offered:** Spring

This subject is concerned with establishing the foundations of a scientific understanding of the earth's

surface. It includes earth science and climatology for environmental design; land forms and their origins; introduction to the physical properties and behaviour of soils and rocks in relation to the design professions. **Credit Points:** 2      **Contact Hours:** 1 per week

## ■ BTB210 APPLIED MATHEMATICS FOR DESIGNERS II

**Offered:** Spring

Applications of plane and solid geometry in design: revision of basic geometry; symmetry; construction and packing of solids; spherical geometry and its applications. Applications of trigonometry in design: revision of basic trigonometry; calculation of heights, distances, areas and volumes. Data collection and analysis in design; introduction to statistics; use of computers in data analysis; elements of computer programming.

**Credit Points:** 6      **Contact Hours:** 3 per week

## ■ BTB220 ERGONOMICS I

**Offered:** Spring

To develop a scientific and research approach to problem solving and implementation of principles during the design education, this subject studies different aspects of human factors with an emphasis on their application to human-equipment interface.

**Credit Points:** 2      **Contact Hours:** 1 per week

## ■ BTB235 INTRODUCTION TO INTERIOR TECHNOLOGY

**Offered:** Spring

The subject has two purposes: to introduce the student to the elements of construction systems and construction materials and how these elements relate to form and structure; and to develop skills in measuring, surveying and recording information in existing spaces in buildings. Lectures deal with basic structural systems and building carcass. Construction materials and finish materials are differentiated. Instruction in techniques of measuring and recording existing structures including the use of tapes, levels, photography, photogrammetry and the recording, storage and use of surveyed information.

**Credit Points:** 8      **Contact Hours:** 3 per week

## ■ BTB300 DESIGN I

**Offered:** Autumn

Lecture topics include: Scope of problem solving theory; Reitman's State Transformation Model; special characteristics of design problems; the task environment, the problem space, the solution space and their representation; problem difficulty, recognition and algorithmic methods; generate-and-test methods; heuristics; creativity and innovation; and general psychological theories of creativity. The theoretical base also encompasses theories of and development in art, design and perception. The studio exercises, to which most of the time is devoted, are aimed at a range of problems within specific boundaries to focus on the systematic processes of design rather than on questioning the environmental implications of these processes.

**Prerequisite:** BTB200

**Credit Points:** 18      **Contact Hours:** 7 per week

## ■ BTB301 THE HUMAN ENVIRONMENT III

**Offered:** Autumn

The role of social, cultural, and historical variables in human - environment interactions. The social and cultural development of Australian urban environments, with particular reference to the local built environment. The study of human functioning in

urban environments. Theory: privacy, personal space, territoriality, environmental meaning and cognition, cognitive maps and wayfinding, intercultural and intracultural differences. Application via examination and analysis of an urban environment with respect to its sociocultural function.

**Credit Points:** 6      **Contact Hours:** 3 per week

### ■ BTB303 ENVIRONMENTAL STUDIES III - EVALUATION

**Offered:** Autumn

The characteristics and elements of spaces - form, size, scale, contextual relationships, furnishings, fittings, and uses; the needs of living vegetation in external and internal urban spaces - light, air, soil, water, support, management problems; techniques of evaluation of spaces relevant to the various disciplines - Architecture, Urban and Regional Planning (similarities and differences in techniques, approaches, and terminology will be highlighted); graphic-based assignment with class discussion on specific requirements.

**Credit Points:** 2      **Contact Hours:** 1 per week

### ■ BTB306 VISUAL COMMUNICATION I

**Offered:** Autumn

A practice-based program will be followed with specialised, formal lecture inputs related to the development of methodologies. The program will concentrate on the achievement of a professional standard in basic techniques of production documentation whilst allowing further individual development in the more 'legitimate' aspects of artistic expression.

**Credit Points:** 4      **Contact Hours:** 2 per week

### ■ BTB307 DESIGN SCIENCE I

**Offered:** Autumn

A study of the principles of science and their implications on the design of buildings and spaces. The application of these principles in the conceptual stages of design allowed by laboratory tests and computer evaluations of design proposals. The principles governing quantity and quality of light and daylight in buildings. Manual and computerised calculation of daylight factors. Testing of model interiors in artificial sky. Solar variation, solar loads, solar paths and solar charts. Design for sublight and shade. Manual and computerised projection of solar shadows and reflections. Testing of models on heliodon.

**Credit Points:** 2      **Contact Hours:** 1 per week

### ■ BTB310 BUILDING CONSTRUCTION I

**Offered:** Autumn

Lecture topics will include: introduction to common building materials, their properties and behaviour in use; the building as a system; technical innovation and its influence and design and performance; the influence of occupancy, environmental factors, materials and erection procedures in the choice of a construction method; elements of the small building and their function in the building system; historical and contemporary methods of construct small timber framed and masonry buildings. Studio work will consist of exercises in construction drawing related to the lecture topics. Lectures and studio work will be complemented by site visits and workshop practice.

**Credit Points:** 14      **Contact Hours:** 6 per week

### ■ BTB315 MANUFACTURING TECHNOLOGY I

**Offered:** Autumn

The course will consist of lectures and studio work. Lecture topics will include: metals, glass, ceramic,

wood technologies in relation to product construction. The relationship between the properties of materials and the industrial processes available for their fabrication. Applications of the study of materials, processes and their fabrication to product design including product development, systems and specifications for manufacture will be the subject of studio exercises.

**Prerequisite:** BTB220

**Credit Points:** 12      **Contact Hours:** 6 per week

### ■ BTB320 ERGONOMICS II

**Offered:** Autumn

The aim of this subject is to develop a scientific and research approach to problem solving and implementation of principles during the design process. This subject studies different aspects of human factors with an emphasis on their application to human-equipment-interface. The course will consist of lectures, and laboratory exercises. Lectured topics will include systems and people; person-machine-system models; human capabilities; hearing and signal detection theory; vision.

**Prerequisite:** BTB220

**Credit Points:** 4      **Contact Hours:** 2 per week

### ■ BTB331 FURNITURE & FITTINGS I

**Offered:** Autumn

The course will consist of lectures and field studies. Topics will include: introduction to fabrics and textiles in interior design; wall to wall carpeting, materials, properties and fixing methods; curtains and blinds, materials, properties, methods of installation and control; upholstery, materials, properties and techniques; the role of fabrics and textiles in interior design.

**Credit Points:** 4      **Contact Hours:** 2 per week

### ■ BTB340 SITE MEASUREMENT

**Offered:** Autumn

Introduction to basic equipment for site measurement - levels, staffs, chains and tapes, prismatic compass, optical prism, clinometer, range poles and their use in horizontal and vertical measurement. Introduction to recording of field data and the preparation of measured site drawings from recorded data. Theory and technique will be introduced in lectures and applied in the field with a site measurement exercise. Evaluation and assessment will be based on the field work.

**Credit Points:** 4      **Contact Hours:** 1 per week

### ■ BTB341 SITE PLANNING THEORY

**Offered:** Autumn

Exploration of open space theory at regional and local scales; definition of spatial characteristics by edges, nodes, landmarks, districts and paths. Sense of place; structure and form; legibility; imageability; etc; human responses and expectations and their effects on site planning decisions. The subject is taught through lectures, seminar, and application in Design I. Evaluation and assessment will be by assignment and contribution to project work in Design I.

**Credit Points:** 6      **Contact Hours:** 2 per week

### ■ BTB343 INTRODUCTION TO THE PROFESSIONS

**Offered:** Autumn

The concept of professionalism and contemporary social expectations of the environmental design professions. Current issues and controversies in environmental design and planning in Australia including resource conservation and degradation, and coastal, city centre and inner city development. Roles and ranges of employment within the two professions. Organisation and activities of the professional institutes. The powers, responsibilities and day to day

activities of landscape architects and urban and regional planners in different forms of private and public employment. The future directions, potentials and job opportunities of the two professions.

**Credit Points:** 3      **Contact Hours:** 1 per week

#### ■ BTB344 ORAL PRESENTATION

**Offered:** Autumn

Formal oral presentation techniques including meetings, conferences, interviews and speeches (informative and persuasive). Evaluation and assessment is by verbal report and presentation.

**Credit Points:** 3      **Contact Hours:** 1 per week

#### ■ BTB400 DESIGN II

**Offered:** Spring

This subject aims to develop the design process in order to facilitate the capacity for application of available technologies and philosophies, consistent with encouragement of individual freedom in the forging of intrinsic and innovative approaches in seeking design solutions; to develop a rigorous and systematic methodology in the sciences and arts that constitute the design process; to concentrate attention on problems within specific parameters so that students are exposed to and involved in design rather than the broader area of problem solving; and to instil an appreciation of design as a capability of human beings.

**Prerequisite:** BTB300

**Credit Points:** 20      **Contact Hours:** 6 per week

#### ■ BTB401 THE HUMAN ENVIRONMENT IV

**Offered:** Spring

Organisation of society; bureaucracy; other approaches to organisation and their structure; directing society; the roles of government and private enterprise; theories of power in society; Federal governments; the Australian example; three tiers of government; Australian constitution; Parliamentary democracy and procedures in State and Federal governments; Queensland State administration; role of local government, especially in Queensland; quangos and statutory authorities; pressure groups and lobby groups and their influence in the Built Environment arena; examples of interactions between government and built environment professions.

**Credit Points:** 4      **Contact Hours:** 2 per week

#### ■ BTB403 ENVIRONMENTAL STUDIES IV - ENVIRONMENTAL IMPACTS

**Offered:** Spring

The impacts of particular types and processes of development; environmental impacts related to land uses, land and building development, production and use of consumer products, construction materials and processes; environmental criteria for future land and product development.

**Credit Points:** 2      **Contact Hours:** 1 per week

#### ■ BTB406 VISUAL COMMUNICATION II

**Offered:** Spring

To concentrate on graphic applications in the specific professional areas represented by the School and to allow exploration of areas of particular individual interest and ability, emphasis is placed on development and application of skills and techniques previously covered and computer graphic techniques relevant to professional applications.

**Credit Points:** 4      **Contact Hours:** 2 per week

#### ■ BTB407 DESIGN SCIENCE II

**Offered:** Spring

Continuation of the aims and principles as described in Design Science I. Basic design for hot humid

climates. Principles governing air flow through and around buildings and spaces. Natural ventilation. Introduction to airflow in cities. Testing of airflow through and around models. Basic design for hot arid climates and for cold climates. Macro and micro climatic conditions and their evaluation for design. Manual and computerised climatic evaluation.

**Prerequisite:** BTB307

**Credit Points:** 2      **Contact Hours:** 1 per week

#### ■ BTB410 BUILDING CONSTRUCTION II

**Offered:** Spring

The course will be conducted by the case study method, with lectures and studio work. Case studies will be selected to develop understanding of construction in breadth and depth. Each case study will be introduced by lectures explaining the system characteristics of the problem, the human and environmental factors which constrain the solution, and the technical systems which have been developed to deal with problems of this type. Students will then develop their own solution for a particular case in the studio. Lectures and studio work will be complemented by field studies and workshop practice.

**Prerequisite:** BTB310

**Credit Points:** 10      **Contact Hours:** 5 per week

#### ■ BTB414 POPULATION & URBAN STUDIES

**Offered:** Spring

Within this subject students are introduced to urbanisation and its definition. Aspects of urban structure including size/function relationships, concentric zone theory, Hoyt's Settlement patterns and problems of rural settlements are discussed. The dynamics of urban areas: the relationships and requirements of urban activities (especially residential, work, and leisure activities); theories of city form and change; the problems of the CBD; the CBD fringe, and the urban/rural fringe. Case studies of Australian settlements.

**Credit Points:** 6      **Contact Hours:** 3 per week

#### ■ BTB415 MANUFACTURING TECHNOLOGY II

**Offered:** Spring

The course will consist of lectures and studio work. Lecture topics will include application of principles of engineering mechanisms to products/systems in current technology. Analysis of the performance of mechanical, electrical, hydraulic and pneumatic mechanisms in relation to product evaluation and performance criteria. Application of engineering mechanisms and product performance check lists to design problems will be the subject of studio exercises.

**Credit Points:** 12      **Contact Hours:** 6 per week

#### ■ BTB420 ERGONOMICS III

**Offered:** Spring

Different aspects of human factors with an emphasis on their application to human-equipment-interface. The course will consist of lectures, and laboratory exercises. Lecture topics will include: psychomotor skills, human information processing. Human machine interfaces, displays, controls and tools, human machine system properties, feedback, and controls, workspace design, noise, stress, vibration, legal aspect, safety and product liability.

**Credit Points:** 2      **Contact Hours:** 1 per week

#### ■ BTB431 FURNITURE & FITTINGS II

**Offered:** Spring

The manufacture, assembly and fabrication of furniture, fittings and components. Lectures include the

expected performance of materials and furniture items, and will focus on functional, maintenance, life span, economic properties.

**Credit Points:** 4      **Contact Hours:** 2 per week

#### ■ BTB435 INTERIOR TECHNOLOGY II

**Offered:** Spring

The subject will comprise lectures, tutorials and studio work complemented by site visits. The subject will deal with industrialised interior finishes, and construction of joinery and fittings and their interaction with the building shell and services. The notions of interior maintenance, life span economics will be introduced.

**Credit Points:** 8      **Contact Hours:** 4 per week

#### ■ BTB440 INTRODUCTION TO ECONOMICS

**Offered:** Spring

An introduction to the basic economic problem of scarcity. Production possibilities are outlined together with various types of economic regimes. A simple macro-economic circular flow model is introduced. The household and trading sectors are outlined together with the role of government. Business cycles, inflation, unemployment, saving and investment are introduced and discussed. The second part of the subject deals with micro-economic concepts. The market system and associated concepts of demand, supply and price equilibrium are developed.

**Credit Points:** 2      **Contact Hours:** 1 per week

#### ■ BTB441 SITE PLANNING TECHNIQUES

**Offered:** Spring

Introduction to the processes of site planning and detailed site design that lead to defendable and accountable solutions; role and objectives of survey and analysis phases; types of information required and the methods of processing the resultant data; data analysis, its scope and documentation; the use of data analysis to generate and evaluate possible problem solutions in conceptual form as a basis for strategic and master planning and the value of these processes as long term mechanism for adaptation of master planning to meet changing needs.

**Credit Points:** 2      **Contact Hours:** 1 per week

#### ■ BTB442 QUANTITIES & COSTS

**Offered:** Spring

Measurement and costing of time, resources, and materials for professional services, production of documents, and implementation of projects. The techniques and tools available for both preliminary and detailed measurement and costing and their control.

**Credit Points:** 2      **Contact Hours:** 1 per week

#### ■ BTB444 APPLIED NATURAL SCIENCES

**Offered:** Spring

This subject looks at continued or altered land use that is safe and healthy as human habitat and able to resist deteriorating agencies by remaining in tune with natural processes. Applied studies in geology and geomorphology, climate and micro-climate, soils and hydrology, and broad soil and plan community associations. The influences of these systems collectively and separately on environmental design decisions. Lectures and field work are integrated with design studios and technology studies. Evaluation and assessment are by assignment and application in related study areas.

**Credit Points:** 4      **Contact Hours:** 2 per week

#### ■ BTB451 ARCHITECTURAL INTERIOR SYSTEMS I

**Offered:** Spring

Lighting and acoustic considerations, human sensory and behavioural needs. An outline of systems and guidelines for selection and professional judgement.

**Credit Points:** 4      **Contact Hours:** 28 per week

#### ■ BTB500 DESIGN III

**Offered:** Autumn

As the growth of design abilities is largely dependent upon practice and experience, the program will continue to maintain the major time allocation to studio and workshop exercises. Studies in theory will form an integral part but will be cross-referenced with other subject areas that give emphasis to the methodologies inherent in the roles of the professions represented by the School. The study program will allow for the exploration of optional design topics by students.

**Prerequisite:** BTB400

**Credit Points:** 20      **Contact Hours:** 6 per week

#### ■ BTB506 VISUAL COMMUNICATION III

**Offered:** Autumn

This subject concentrates on processes and techniques employed in the production of three dimensional aids to design and presentation. The course will consist of a series of studio exercises in the production of rough mock-ups as an aid to the design process; scale model-making and choice of materials.

**Credit Points:** 4      **Contact Hours:** 2 per week

#### ■ BTB510 BUILDING CONSTRUCTION III

**Offered:** Autumn

The course will be conducted by the case study method, and predominantly by studio work. Case studies will be selected to develop a thorough understanding of the construction of non-domestic buildings of intermediate size. Each case study will be introduced by lectures explaining the system characteristics of the building type, the human and environmental factors which constrain the solution, and the building systems which have been developed for the building type. Students will then develop their own set of solutions for a particular case. Studio work will be complemented by field work.

**Prerequisite:** BTB410

**Credit Points:** 17      **Contact Hours:** 6 per week

#### ■ BTB511 LANDSCAPE CONSTRUCTION

**Offered:** Autumn

This subject aims to introduce students to materials and methods commonly used in landscape construction; and to develop skills in construction detailing and preparation of construction documents. Topics covered include the common building materials; an understanding of foundation soils; basic services of site stormwater drainage, water and electrical services; applied systems including paving, steps and ramps; and construction for planting and small water features.

**Credit Points:** 6      **Contact Hours:** 3 per week

#### ■ BTB517 BUILDING SERVICES I

**Offered:** Autumn

Supply, connection and reticulation of electricity, gas, water and telephone services and relevant outlets and appliances. Sewerage, sullage and stormwater drainage as applicable to domestic buildings. Domestic waste disposal.

**Credit Points:** 4      **Contact Hours:** 2 per week



### ■ BTB527 DESIGN SCIENCE III

Offered: Autumn

Continuation of the aims and principles described in Design Science I. Thermal performance of buildings. Energy conservation and low energy design. Calculation of heat flow and indoor temperatures under steady state and fluctuating conditions. Quantitative monitoring of thermal performance of building elements. Principles governing control of noise and good hearing conditions in buildings. Basic acoustic design of auditoria. Calculation of reverberation and noise reduction.

Prerequisite: BTB407

Credit Points: 3 Contact Hours: 1 per week

### ■ BTB531 FURNITURE & FITTINGS III

Offered: Autumn

The aesthetic and practical possibilities of the decorative crafts for interior design. The course will consist of lectures, field studies, and studio and workshop exercises. Lecture topics will include: general principles of ornamental design; decorative metalwork; stained glass; decorative ceramics; plasterwork; carved and inlaid woodwork; lacquer work; printed fabrics and papers; tapestry and embroidery.

Credit points: 4 Contact Hours: 2 per week

### ■ BTB535 INTERIOR TECHNOLOGY III

Offered: Autumn

This subject continues Interior Technology I, with an emphasis on commercial construction systems and the impact of regulations. High rise buildings are examined, the planning of tenancies, partitioning, and furniture systems. Special considerations for shopping centres, theatres, medical clinics, taverns and restaurants are highlighted.

Credit Points: 16 Contact Hours: 6 per week

### ■ BTB543 ENVIRONMENTAL STUDIES V - IMPACT ANALYSIS

Offered: Autumn

The technical, administrative, and legal aspects of environmental analysis. Need for environmental analysis. Aids to analysis - vegetation mapping, pollution and use indicators. Techniques of analysis, projections and predictions. Social and economic aspects of environmental impact analyses. Administrative and legislative bases of environmental and economic impact assessment. Roles of various disciplines in environmental impact analyses.

Credit Points: 2 Contact Hours: 1 per week

### ■ BTB546 LAND DEVELOPMENT I

Offered: Autumn

This subject is designed to illuminate the political, economic, and physical contexts of land development, and establish an understanding of the land development process; to study environmental services and utilities at the broad scale and their effects on land development; to examine the necessary design criteria for these services; and to explore contemporary techniques, future trends, and alternatives systems. It looks at a range of topics including characteristics of land development projects; structure and operation of approval authorities; design considerations; impacts of electricity and gas systems on the natural environment; and transport systems planning.

Credit Points: 6 Contact Hours: 3 per week

### ■ BTB547 LAND USE GENERATION

Offered: Autumn

The evolution of western cities - medieval market towns, industrial conurbations, the modern

metropolis. Order and diversity in the organisation of modern land uses. Values, activities and land uses. Characteristics of major human activities - shelter, work, movement, learning, recreation, exchange. Changing influences on contemporary settlements and emergent settlement forms.

Credit Points: 4 Contact Hours: 2 per week

### ■ BTB551 ARCHITECTURAL INTERIOR SYSTEMS II

Offered: Autumn

An overview of the environmental systems used in buildings: air-conditioning and system performance, thermal and atmosphere control; the building as a comprehensive environmental system; and their impact on individual interior spaces.

Credit Points: 4 Contact Hours: 2 per week

### ■ BTB552 ECONOMICS OF INDUSTRIAL PRODUCTION

Offered: Autumn

This subject consists of series of lectures and seminars and covers the following aspects: business, costing, production, marketing, strategic planning and capital budgeting.

Credit Points: 4 Contact Hours: 2 per week

### ■ BTB556 MARKETING

Offered: Autumn

The aim of this subject is to develop an understanding of marketing concepts and their relation to industrial design; and to provide knowledge on methodologies of forecasting and their relation to industrial design. A series of lectures and seminars covers: marketing concept, market segmentation, marketing test, methodologies of forecasting, planning and organisation, costing of products, etc.

Credit Points: 4 Contact Hours: 2 per week

### ■ BTB558 MANUFACTURING TECHNOLOGY III

Offered: Autumn

The course will consist of lectures, studio work and field studies. Lecture topics will include: production techniques in relation to different materials, various methods for different finishing operations, various methods for forming, automatic and semi-automatic assembly and quality control methods. Field studies will consist of site visits to selected manufacturing industries. The application of the appropriate production technique should be developed through the design project.

Credit Points: 12 Contact Hours: 5 per week

### ■ BTB561 ECONOMICS OF TOWN PLANNING

Offered: Autumn

This subject is essentially micro-economic although the global and national macro-economic forces as they affect firms will be outlined. It introduces urban economics and the economic aspects of town planning issues; provides techniques for economic analysis suited to planning needs; and illustrates interactions with employment, industry, population and urban studies at the economic interface.

Credit Points: 5 Contact Hours: 2 per week

### ■ BTB562 REPORT PREPARATION

Offered: Autumn

Formal writing techniques, including reports, instructions, proposals, specifications, correspondence and essays. Report writing. Structure and content of reports. Summaries and subdivision of material. Precise use of tables, charts, and illustrations, in writ-

ten presentation. Clarity and the selection and management of relevant data. Evaluation and assessment is by written report.

**Credit Points:** 2     **Contact Hours:** 1 per week

#### ■ BTB563 TRANSPORT PLANNING

**Offered:** Autumn

The objective of this subject is to introduce students to alternative modes of transport; to methods for predicting future urban transport patterns; and to techniques of transport planning and management. It covers movement and its alternative modes - foot, cycle, car, bus, train, plane, pipeline, inland waterway and marine modes. The origin and destination approach to traffic management; interchange studies. Inter-urban traffic and regional transport planning. The relationship between land use and traffic generation.

**Credit Points:** 5     **Contact Hours:** 2 per week

#### ■ BTB565 LANDSCAPE GRAPHICS

**Offered:** Autumn

Combined application of freehand, drafting and colour techniques. The selection of colour, theme and emphasis in graphic packages. Realism, abstraction and symbolism in landscape communication. Monochromatic graphics for simple reproduction. Integration of various graphic techniques and media. Efficient processes for production and reproduction. Lectures and studio work. Evaluation will be based on evidence of skills and understanding through studio exercises and folio/workbook.

**Credit Points:** 4     **Contact Hours:** 2 per week

#### ■ BTB571 PLANT RECOGNITION & REQUIREMENTS

**Offered:** Autumn

Field recognition by visual characteristics of size, form, texture and colour and by use of simple keys. Requirements of plants for growth in differing environments and the selection of species most suited to particular sets of environmental conditions. Basic botanical terms, plant nomenclature, collection and preservation of plant material, plant physiology and concepts of plant association will be introduced. Teaching consists of lectures, field work, workshops and the use of slides and films etc. Evaluation and assessment is by submission of annotated plant sketches and tests of both identification skills and basic terminology.

**Credit points:** 4     **Contact Hours:** 2 per week

#### ■ BTB600 DESIGN IV

**Offered:** Spring

The major time allocation will again be given to studio and workshop exercises. Studies in theory again form an integral part of design and will be cross-referenced to other subjects such as Dynamics II, Environmental Studies VI, Building Construction II, Industrial Construction II, Building Services III, Ecological Principles II, Land Development II, Interior Construction III, Visual Communication IV and External Services II. All students will pursue the same program providing specific inputs but with a limited range of specialisation through research studies and field exercises associated with the studio projects.

**Prerequisite:** BTB500

**Credit Points:** 20     **Contact Hours:** 6 per week

#### ■ BTB609 LAW OF THE BUILT ENVIRONMENT

**Offered:** Spring

The law as a constraint in the design and construction process. Laws, regulations and their interpretation. A review of the Australian and Queensland acts, local

authority by-laws and regulations of statutory authorities as they affect the built environment. Legal aspects of land and land transfer. Introduction to professional liability, design registration, patents and copyrights.

**Credit Points:** 4     **Contact Hours:** 2 per week

#### ■ BTB610 BUILDING CONSTRUCTION IV

**Offered:** Spring

Continuing from Building Construction III. The course will be conducted by the case study method, and predominantly by studio work. Case studies will be selected to develop a thorough understanding of the construction of non-domestic buildings of intermediate size. Each case study will be introduced by lectures explaining the system characteristics of the building type, the human and environmental factors which constrain the solution, and the building systems which have been developed for the building type. Students will then develop their own set of solutions for a particular case. Studio work will be complemented by field work.

**Prerequisite:** BTB510

**Credit Points:** 14     **Contact Hours:** 6 per week

#### ■ BTB617 BUILDING SERVICES II

**Offered:** Spring

Mechanical, electrical and hydraulic services and their integration in the design and construction of major buildings. Hydraulics: water supply, plumbing, drainage; fire services: sprinklers, alarms, extinguishers, emergency systems; electricity: supply, substations, switchboards, metering, reticulation; vertical transportation: lifts, escalators, hoists.

**Prerequisite:** BTB527

**Credit Points:** 4     **Contact Hours:** 2 per week

#### ■ BTB627 DESIGN SCIENCE IV

**Offered:** Spring

Continuation of the aims and principles of Science III. Module G - continuation of module E (thermal performance of buildings). Module H - artificial lighting of interiors, lamp characteristics, colour rendering, modelling, lighting quality, simplified lighting design methods, and external lighting.

**Prerequisite:** BTB527

**Credit Points:** 2     **Contact Hours:** 1 per week

#### ■ BTB631 FURNITURE & FITTINGS IV

**Offered:** Spring

This subject encompasses the development of a methodical approach to the choice of loose furniture, furniture systems and interior products; introduces both quantitative and qualitative assessment approaches; and extends the understanding of design of furniture and its integration into interiors.

**Credit Points:** 4     **Contact Hours:** 2 per week

#### ■ BTB635 INTERIOR TECHNOLOGY IV

**Offered:** Spring

The subject will consist of lectures, tutorials and studio work. Lectures will concentrate on the technological assessment of interiors, structure, openings, environmental systems, artifacts and ambience of existing spaces with a view to utilising/changing what an existing space has to 'offer'. Tendering, consultants, leasing and tenancy-building interface will be examined.

**Credit Points:** 16     **Contact Hours:** 6 per week

#### ■ BTB640 PLANTING DESIGN

**Offered:** Spring

Design characteristics and criteria. The use of plants as structural and design elements within landscape

principles to planting design. Scale. Design for change, growth, replacement and maintenance. Planting design in typical schemes such as streets, highways, parks, urban forecourts and interior landscapes, gardens and broadscale regeneration and stabilisation. Lectures, tutorials and a field visit will be held. Evaluation and assessment will be undertaken through a selected analytical exercise.

**Credit Points:** 3      **Contact Hours:** 1 per week

#### ■ BTB643 ENVIRONMENTAL STUDIES VI - ISSUES & ETHICS

**Offered:** Spring

Case studies of successful solutions to environmental problems (e.g. Oregon, London, South Australia). Implications of major environmental problems and environmental awareness for urban form and policies. Environmental impacts of technological change. Contrasting attitudes towards conservation of natural, rural and urban environments. Concept of stewardship.

**Credit Points:** 2      **Contact Hours:** 6 per week

#### ■ BTB644 APPLIED ENVIRONMENTAL SCIENCE

**Offered:** Spring

The basic principles of ecosystems are introduced and the concepts of plant community - environmental associations are strengthened. Methods and techniques of vegetation mapping and classification are introduced including use of air photo and remote sensing skills introduced previously. Environmental needs of plants in diverse built environments and nursery production of these plants are explored. Lectures include ones by specialist guests and field work is conducted. Evaluation and assessment will be by written assignment and field notes.

**Credit Points:** 6      **Contact Hours:** 1 per week

#### ■ BTB645 GRADING

**Offered:** Spring

Techniques of land surface manipulation including the construction of platforms for building, car parks, sports ovals and other features and the associated provision of surface drainage. Lectures are accompanied by skill development exercises in a Grading Workbook concluding with the preparation of two set grading plans. Evaluation and assessment is based on the studio exercises and the grading plans.

**Credit Points:** 6      **Contact Hours:** 3 per week

#### ■ BTB646 LAND DEVELOPMENT II

**Offered:** Spring

The problems associated with implementation of land development proposals and the means of achieving land development designs. Land development projects - financial aspects (private and community viewpoints), marketing aspects, the housing industries, problems confronting firms and the industry, trends. Spot developments - approval processes, development networks, financing and marketing aspects. A field trip is usually undertaken as part of this unit.

**Credit Points:** 4      **Contact Hours:** 2 per week

#### ■ BTB647 LAND USE POLICIES

**Offered:** Spring

Review of the Government structure as applied to urban areas and regions. The levels of urban planning. How urban policies are made, and analysis of their effectiveness and implementation. Organisations as policy makers, and policy implementors. Areas of conflict and their resolution. Roles of various agencies involved; the various levels and types of land use

planning, their powers, and their limits and practice. Major land uses and activities: work, housing, recreation, transport and welfare.

**Credit Points:** 4      **Contact Hours:** 2 per week

#### ■ BTB648 PUBLIC SERVICES

**Offered:** Spring

The provision, organisation, and administration of community services other than public utility services. The subject covers definitions and concepts, historical perspectives, and measurement of community needs in relation to social infrastructural systems and services; health and welfare, education, law/order and safety, open space and recreation, cultural, administration, and communication. Planning objectives for service provisions and maintenance, siting requirements, design considerations, environmental considerations, recent trends and developments.

**Credit Points:** 4      **Contact Hours:** 2 per week

#### ■ BTB649 CONSERVATION THEORY

**Offered:** Spring

Introduction to the concepts of conservation and preservation. Outline of the development and current status of the conservation movement. The structure of conservation legislation and responsibility in Australia. ICOMOS and the "Burra" charter. The particular requirements of places, landscapes and precincts in mixed or public ownership. Application of conservation concepts and their use in the National Listings process. Local and regional case studies.

**Credit Points:** 3      **Contact Hours:** 1 per week

#### ■ BTB653 VISUAL COMMUNICATION IV

**Offered:** Spring

Visual communication techniques employed in the production of design presentations to clients. The subject consists of a series of studio exercises and mock-up presentations in a 'forum' environment to aid the design process.

**Credit Points:** 4      **Contact Hours:** 2 per week

#### ■ BTB654 URBAN & REGIONAL PLANNING ELECTIVES

**Offered:** Spring

Any approved subject selected from the undergraduate programs of the Faculty of the Built Environment, normally one of the Landscape Architecture courses. In special circumstances the elective may be selected from courses offered in other faculties of QUT or other approved university or college.

**Credit Points:** 4      **Contact Hours:** 2 per week

#### ■ BTB655 CAD FOR INDUSTRIAL DESIGNERS

**Offered:** Spring

2D CAD used for the development of design concepts through to technical drawings. Evaluations of projects and their evolution through studies undertaken with three dimensional CAD, both wire frame and shaded.

**Credit Points:** 6      **Contact Hours:** 2 per week

#### ■ BTB656 HOUSING & COMMUNITY SERVICES

**Offered:** Spring

Population change and households formation on techniques of analysis and projection of housing stock. Housing conditions and preference surveys: housing issues and policies. The economics of the building and land development industries. The physical place of educational institutions in communities - schools, colleges, universities. Shared use of facilities. Location

and space standards. Social and welfare services and their role in the community. Planning and management aspects of welfare.

**Credit Points:** 4      **Contact Hours:** 2 per week

#### ■ BTB658 MANUFACTURING TECHNOLOGY IV

**Offered:** Spring

This course is designed to develop an understanding of advanced manufacturing processes and materials; and to provide knowledge of advanced manufacturing production techniques and how they relate to product design solutions. Lecture topics will include: organisation, planning and technologies required for CIM (computer-integrated manufacturing). The impact of CIM to product design solutions; advanced materials and their applications. Field studies will complement the lecture series. The application of CIM should be developed through the design project.

**Credit Points:** 14      **Contact Hours:** 5 per week

#### ■ BTB663 URBAN PLANNING I

**Offered:** Autumn

Building upon preliminary economic knowledge, urban growth theory and constraints are outlined. Population and employment changes and their effect on employment, industry and residential location are identified together with relevant definition and analytical techniques. Introduction to economic base studies, activity rates and use of multipliers. The urban labour market, unemployment and labour supply are outlined. Theory and methods of industry location are developed: types and needs of industry, retailing, retail hierarchies; office activities, office location; shopping centres; and office, industrial and corporate parks. The role of government and the impact of the post-industrial society are considered.

**Credit Points:** 4      **Contact Hours:** 2 per week

#### ■ BTN101 URBAN DESIGN ANALYSIS STUDIO

**Offered:** Autumn

The emphasis within this subject is on the development of skills in analysis related to the urban design process and adequate communication of the results. Each student will be required to undertake two studies, one chosen from each of two groups typically: city interpretation or townscape appraisal, and housing morphology or pedestrian environments. Where applicable, work in other units of study will be incorporated into this subject. Field work will be incorporated as necessary.

**Credit Points:** 9      **Contact Hours:** 3 per week

#### ■ BTN102 URBAN DESIGN CONTEXT STUDIO

**Offered:** Spring

Aim: to develop design skills required for relating new development to existing urban contexts. Each student will be required to undertake two studies, one from each of two groups typically: a community participation project or a sense of place project and a conservation and infill project for the redevelopment/rehabilitation of either an urban precinct or a residential area. Where applicable, work in other units of study will be related to this subject.

**Credit Points:** 9      **Contact Hours:** 3 per week

#### ■ BTN103 URBAN DESIGN CONJECTURE STUDIO

**Offered:** Autumn

Identification and classification of approaches to urban design. The setting of objectives, the adoption of a method and the testing of implications for a

particular urban design problem type. Each student will be required to undertake one study chosen typically from: local area, precinct, part of the city, the city as a whole. Where applicable, work in other units of study will be incorporated into this subject.

**Credit Points:** 9      **Contact Hours:** 3 per week

#### ■ BTN104 URBAN DESIGN GUIDELINES STUDIO

**Offered:** Spring

Each student will be required to develop design guidelines for an urban complex, typically one of the following: a regional centre, a tourist development or a housing development and then to test a design guideline produced by a fellow student for a project other than the one used for his/her own design. Where applicable, work in other units of study will be related to this subject.

**Credit Points:** 9      **Contact Hours:** 3 per week

#### ■ BTN105 URBAN DESIGN FIELD STUDIES STUDIO

**Offered:** Autumn

Aim: To provide students with direct experience of a range of recent and current urban design problems in Australia. The work in this subject will consist of a field trip of approximately two weeks duration. Visits will be paid to successful and unsuccessful examples of urban design and to design offices in the eastern states and the Australia Capital Territory.

**Credit Points:** 9      **Contact Hours:** 3 per week

#### ■ BTN201 URBAN DESIGN HISTORY OF URBAN SYSTEMS

**Offered:** Autumn

This subject will offer a systematic analysis of urban forms and systems in the pre-industrial and post-industrial periods. Specific topics will include urban activities (commerce, manufacture, administration, dwelling, recreation and culture) - urban services (water supply, transportation, defence and public order, fire control, sewerage and waste disposal, fuel and power, public information) - urban form (planning for intelligibility, planning for propriety and symbolism, planning for delight).

**Credit Points:** 3      **Contact Hours:** 1 per week

#### ■ BTN202 THE URBAN ENVIRONMENT & BEHAVIOUR I

#### ■ BTN203 THE URBAN ENVIRONMENT & BEHAVIOUR II

**Offered:** Autumn, Spring

The city as a product and an influence on human behaviour. This subject will be studied over two semesters and will offer an organising framework for the investigation of interactions between people and the urban environment. Specific topics will include user groups and their spatial and temporal distribution, the impact of changing lifestyles, life cycles in the city, groups at risk, cultural norms and attitudes to the city, interpersonal and group behaviour in urban settings, individual behavioural responses, cognitive and evaluative responses, and psychophysical responses. Methods of observation and recording will be discussed in relation to each topic.

**Credit Points:** 3 (each)

**Contact Hours:** 1 per week (each)

#### ■ BTN204 URBAN DESIGN THEORY & CRITICISM

**Offered:** Autumn

This subject covers a range of theoretical and critical writing about urbanism and urban design, with particular attention to the twentieth century. This subject

will be studied over two semesters and will investigate the characteristics of 'good theory' in the field of urban design in relation to the work of a number of theoretical writers and schools. Specific topics will include theoretical writing on urban design before 1800, theory and practice in the nineteenth century, the 'Kunstlerischen Grundsätzen' of Camillo Sitte, the Garden City movement, Le Corbusier and Modernism, Rowe and the city as independent artefact, Canter, Relph and Tuan on the phenomenology of the city, and Maitland's analysis of urban design concepts.  
**Credit Points:** 6      **Contact Hours:** 1 per week

#### ■ **BTN301 CONSERVATION & RE-USE IN URBAN DESIGN**

**Offered:** Spring

Conservation principles and practice in the urban context, including the modification of existing fabric for re-use. Conservation of urban landscape, townscape, and urban structures will be considered. Specific topics will include conservation criteria (historical, aesthetic, environmental, sociological), conservation principles, evaluation for level of conservation on social and economic bases, conservation issues (private ownership, equity, acquisition, compensation, incentives), existing Australian and other heritage guides, conservation organisation, conservation methods, examples of urban conservation.

**Credit Points:** 3      **Contact Hours:** 1 per week

#### ■ **BTN302 THE URBAN LANDSCAPE**

**Offered:** Spring

The city as a landscape unit, notable examples of city/site relationships; contribution of natural factors and patterns (topography, soils, drainage, vegetation, climate) towards better delineation of urban form and character. Spaces and their organisation, the city as spatial entity, sequential experience; spaces for specific purposes; the choreography of spaces - use, settings, and furnishings (enclosure, floors, overhead structures, services, features, finishes). Natural elements and their nurture within urban areas - vegetation species, groupings, and their requirements (streets, plazas, forecourts, roofs, parks, urban forests, natural areas); water bodies and their conservation as healthy feature; urban wildlife - habitats and contribution to the urban experience; landscape conservation techniques in urban areas.

**Credit Points:** 3      **Contact Hours:** 1 per week

#### ■ **BTN303 TRANSPORT & MOVEMENT SYSTEMS IN URBAN DESIGN**

**Offered:** Autumn

Origins and destinations of traffic movements. The road hierarchy and its characteristics. Features of major terminals, car parks, pedestrian and cycle networks. Modes of travel and transport systems, bus, railway and light rail, water evaluation of comparative systems. Major traffic generators: airports, terminals, CBD circulation. Related environmental and design issues: noise, atmospheric pollution, physical and visual impacts of different systems and traffic channels. Future trends in transport and movement systems and related issues.

**Credit Points:** 3      **Contact Hours:** 1 per week

#### ■ **BTN304 URBAN CLIMATE & SERVICES**

**Offered:** Autumn

Urban Climate - the science of urban climate and design for micro-climatic comfort: effects on climatic factors of solar radiation, air movement, temperature, precipitation, glare, daylight control, etc. of such elements as urban planning layouts, building orientation

and design, streetscape, open space, materials and finishes, etc. Urban Services - functional services of power, telephone, gas, water stormwater and sewerage reticulation: controlling authorities, planning requirements and controls relevant to urban design. Community services related to health, safety, and welfare (such as medical, fire, emergency services, libraries, police, community participatory groups); controlling authorities, extent of services provided and controls relevant to urban design.

**Credit Points:** 3      **Contact Hours:** 1 per week

#### ■ **BTN305 TOURISM & RECREATION IN URBAN DESIGN**

**Offered:** Spring

Tourism and recreation as generators of development: benefits and impacts; analysis of demand, trends, potential. Types of tourism and recreation, urban tourism; basic facilities of tourism and recreation. Specific facilities of resorts. Planning procedures - strategy, controls, performance standards and infrastructure requirements. Multi cultural aspects and host culture implications.

**Credit Points:** 3      **Contact Hours:** 1 per week

#### ■ **BTN401 URBAN DESIGN COMPUTER APPLICATIONS**

**Offered:** Spring

Introduction to the computers available at QUT. The use of computers to analyse and solve urban design problems and communicate solutions: feasibility studies; land use studies; generation of envelope and space layouts; environment and service systems analysis; development control testing; data handling and manipulation; computer graphics; and interactive integrated design systems.

**Credit Points:** 6      **Contact Hours:** 2 per hour

#### ■ **BTN402 LAW & LEGISLATION IN URBAN DESIGN**

**Offered:** Autumn

The subject will investigate legislative controls and law reform related to urban design and the development process with specific reference to Queensland. Topics will include the potential range of legislative controls, principal relevant legislation in Queensland and its impacts on urban design, the development process, the roles of the developer, developments control authority, arbitration process and of the State Government and influences of additional legislation (e.g., Group Title, Heritage Acts, Pedestrian Malls) on the urban design process.

**Credit Points:** 3      **Contact Hours:** 1 per week

#### ■ **BTN403 URBAN DESIGN GUIDELINES & DEVELOPMENT CONTROL**

**Offered:** Spring

Change and continuity as factors in urban environments. The contrasting needs for innovation and heritage, coherence and diversity, natural features and vigorous built form. Techniques of control: the use of regulations, ratios, and performance standards. Positive planning and the use of incentives for good design: bonuses, transferable rights, advance publication of permissible development, rapid decisions, early dissemination of information. The preparation of design guides and development briefs. Strategic choice in the management of change: the roles of public and private sectors in the development process. Case studies of design guidance: Adelaide, Perth, Melbourne, Canberra, Sydney, Victorian country towns, Spring Hill in Brisbane, British design guide housing, design guidance in San Francisco.

**Credit Points:** 3      **Contact Hours:** 1 per week

## ■ **BTN404 URBAN DESIGN FEASIBILITIES & MANAGEMENT**

**Offered:** Spring

The role of feasibility studies. Methods of assessment of feasibility. Evaluation of economic and social/environmental costs and benefits. Decision making criteria. Introduction to management. The management of urban projects, management structures, project team organisation, planning and programming, project control and maintenance.

**Credit Points:** 3      **Contact Hours:** 1 per week

## ■ **BTN501 URBAN DESIGN RESEARCH DISSERTATION ELECTIVE**

**Offered:** Spring

Each student will be required, with tutorial guidance, to prepare a dissertation on an individually selected topic approved by the Course Co-ordinator. The student will be required to show evidence of proficiency in research and application of research in the development of design ideas. This may be achieved through an emphasis on a design project or through a written process. The balance between theory and design application in the dissertation may vary. However, a dissertation which focuses on a specific design project must be supported by a theoretical analysis sufficient to define the problem and to explain how the design proposed satisfies the conditions for a solution. Conversely a dissertation which focuses on the development of a theory must sufficiently illustrate the practical implications of the theory for the relevant classes of design task. The dissertation will be supported by work undertaken as Research Electives. Unless specifically approved otherwise by the Course Co-ordinator, this subject shall be undertaken as a final semester subject.

**Credit Points:** 24      **Contact Hours:** 7 per week

## ■ **BTN601 PRESCRIPTIVE SUBJECT FOR URBAN DESIGN**

**Offered:** Autumn

To ensure a more effective balance of knowledge and skills in students from a variety of backgrounds, students will be required to take one or more existing subjects offered within Graduate Diploma, other Faculty courses, or specified courses elsewhere. Typically, a student would work 3 hours per week taking topics from the following: The Political Context, Economics of Town Planning, Urban Structure, Introduction to Computers in Planning, Graphics & Professional Presentation, Natural Environment Studies, History of Architecture, and European Cultural History. Topics will be prescribed for each student by the Course Co-ordinator on the basis of the students' qualifications and experience.

**Credit Points:** 9      **Contact Hours:** 3 per week

## ■ **BTN701 URBAN DESIGN RESEARCH ELECTIVES I**

## ■ **BTN702 URBAN DESIGN RESEARCH ELECTIVES II**

**Offered:** Spring, Autumn

These subjects are intended to give guidance on research techniques, to provide the opportunity for students to research areas of urban design of personal choice, and to provide a firm basis for the final Dissertation. Study required for these subjects may be undertaken within QUT or other academic institution or may be undertaken as individual research under direction of a tutor, all subject to the approval of the Course Co-ordinator. Research Electives I will also contain formal input on research and presentation

techniques. The electives undertaken should be selected to support the topic of the Research Dissertation typically from the following within the Faculty of the Built Environment: Planning in Developing Countries, Computer Applications, Social Planning, Urban Land Development, Landscape Design, History of Landscape Design, Principles of Landscape Design, and Building Economics.

**Credit Points** BTN701:6; BTN702:15

**Contact Hours** BTN701:2; BTN702:3 per week

## ■ **CEB102 CIVIL ENGINEERING I**

**Offered:** Autumn

A series of lectures and field visits aimed at introducing the student to the profession of civil engineering, its scope and variety, and its many branches, whilst providing technical information that will prove useful for each discipline of engineering.

**Credit Points:** 3      **Contact Hours:** 1.5 per week

## ■ **CEB184 ENGINEERING MECHANICS I**

**Offered:** Autumn

A series of lectures, tutorials and practical work involving the study of bodies in static equilibrium under the action of forces. Topics covered include: resolution and resultant of forces acting on a particle or rigid body, equilibrium of particle or rigid body, analytical and graphical analysis of plane trusses, shearing force and bending moment in beams, the properties of sections and the introduction to stress and strain.

**Credit Points:** 7      **Contact Hours:** 3 per week

## ■ **CEB185 ENGINEERING MECHANICS II**

**Offered:** Spring

A detailed study of the fundamental principles of structural mechanics and the application of computer programming to the same, i.e., stress, strain and elasticity; elastic compatibility; simple beam theory including the flexure formula and the shear stress formula; transformation of plane stress; torsion of circular sections; stresses in thin walled pressure vessels.

**Prerequisite:** CEB184

**Credit Points:** 7      **Contact Hours:** 3 per week

## ■ **CEB201 STEEL STRUCTURES**

**Offered:** Full year

Structural behaviour and limit state design of steel structures, first as structural elements such as beams, columns, beam-columns and ties, then their connections (bolted and welded) and simple assemblies. Practical details and economy are discussed. Site visit and laboratory testing may be included.

**Prerequisite:** CEB185 **Co-requisites:** CEB281, CEB282

**Credit Points:** 4 per week **Contact Hours:** 1.4 per week

## ■ **CEB202 CONCRETE STRUCTURES**

**Offered:** Full year

Basic principles involved in the limit state design of reinforced concrete structures. The determination of size and reinforcement to resist shear and bending in beams. Anchorage and detailing of reinforcement. The evaluation of deflections in concrete structures and the analysis of long and short columns in uniaxial bending.

**Prerequisite:** CEB185

**Co-requisites:** CEB282, CEB281

**Credit Points:** 4      **Contact Hours:** 1.4 per week

## ■ **CEB220 CIVIL SYSTEMS I**

**Offered:** Spring

Lectures, tutorials and practical work dealing with computer applications in Civil Engineering Science.

Hardware and software integration within the data logging environment are discussed.

**Prerequisites:** CSB191, MAB193, CEB185

**Co-requisites:** CEB252, CEB260

**Credit Points:** 6      **Contact Hours:** 2.8 per week

### ■ CEB231 CONCRETE TECHNOLOGY

**Offered:** Autumn

Materials: cement, aggregates, water quality, pozzolans, chemical admixtures and special materials. Testing: materials and concrete including quality control. Characteristics of concrete: plastic and hardened properties and influences of environment. Mix design: design for standard and special requirements.

**Credit Points:** 7      **Contact Hours:** 3 per week

### ■ CEB240 SOIL MECHANICS I

**Offered:** Spring

Systematic description and classification of soil for engineering purposes. Moisture/density relationships. Compaction. Pore pressure, effective stress and suction. Shear strength of cohesionless and cohesive soils. Lateral earth pressure. Earth retaining structures design.

**Prerequisite:** CEB185

**Credit Points:** 5      **Contact Hours:** 2.8 per week

### ■ CEB241 SOIL MECHANICS II

**Offered:** Autumn

Bearing capacity of shallow foundations. Permeability and seepage. Surface loading on an elastic medium. Pore pressure parameters. Consolidation. Settlement of shallow foundations. Design of shallow foundations. Computer applications in seepage and consolidation.

**Prerequisite:** CEB240

**Credit Points:** 7      **Contact Hours:** 3 per week

### ■ CEB253 STRUCTURAL ENGINEERING I

**Offered:** Spring

Lectures, tutorials, computer programming and laboratory work involving the calculation of deflections for determinate beams, frames and trusses and the analysis of indeterminate structures by the method of superposition. Introduction to buckling and computer based analytical procedures.

**Prerequisites:** CEB185, CEB282

**Co-requisite:** MAB493

**Credit Points:** 5      **Contact Hours:** 2.8 per week

### ■ CEB260 FLUID MECHANICS

**Offered:** Autumn

Introduction to fluid mechanics and its relationship to civil engineering practice. Fluid properties; fluid statics, pressure, forces, buoyancy and stability; continuity, energy and momentum applied to steady one-dimensional flows; viscosity, turbulence, boundary layers and fluid dynamics forces; dimensional analysis. The subject includes lectures, tutorials and practical work.

**Prerequisites:** CEB185, MAB193

**Credit Points:** 7      **Contact Hours:** 3 per week

### ■ CEB281 STRENGTH OF MATERIALS

**Offered:** Autumn

Extension of elastic theory from engineering mechanics into more complex states of stress and shape. Topics include - composites, stress strain transformations, un-symmetrical sections, shear flow, shear centre, torsion, theories of failure, stress concentrations and fatigue.

**Prerequisite:** CEB185 **Co-requisite:** CEB282

**Credit Points:** 5      **Contact Hours:** 2 per week

### ■ CEB282 STATICS

Lectures, tutorials and demonstrations involving the structural behaviour of trusses, beams and frames. Qualitative evaluation of deflected shapes, shear force and bending moment diagrams. Load paths and structural idealisation of real structures.

**Prerequisite:** CEB185

**Co-requisites:** CEB281, CEB184

**Credit Points:** 2      **Contact Hours:** 1 per week

### ■ CEB291 CIVIL ENGINEERING MATERIALS

**Offered:** Autumn

Physical, chemical and engineering properties of common civil engineering materials. Ferrous and nonferrous metals and alloys, timber, bitumen, cladding materials, polymers, corrosion of materials and protective measures. Selection of materials. Role of quality control in engineering subjects.

**Prerequisites:** MEB171, MEB133

**Credit Points:** 7      **Contact Hours:** 3 per week

### ■ CEB304 CIVIL ENGINEERING DESIGN I

**Offered:** Full year

Design project work involving the use of steel and reinforced concrete, geotechnical and highway designs. The influence of construction method to design is emphasised. Students prepare design calculations and sketches with the help of design aids and computer software. The development of problem solving skills is emphasised throughout the projects.

**Prerequisites:** CEB201, CEB202, CEB240

**Co-requisites:** CEB253, CEB354, CEB291

**Credit Points:** 8      **Contact Hours:** 4 per week

### ■ CEB305 CONSTRUCTION PLANNING & ECONOMICS

**Offered:** Spring

The use of manual and computer based methods for the planning and programming of projects. The fundamental principles of economic and financial analysis pertaining to both the planning and execution of engineering projects.

**Prerequisites:** CEB307

**Credit Points:** 6      **Contact Hours:** 3 per week

### ■ CEB306 CONCRETE STRUCTURES II

**Offered:** Autumn

Basic principles involved in the serviceability limit state and ultimate limit state design of prestressed concrete structures. Stress blocks and equivalent loads due to prestress, losses, serviceability limit, states of cracking and deflection, ultimate limit states of bending and shear, design of anchorage zones, evaluation of deflections, and anchorage zone reinforcement, design.

**Prerequisite:** CEB202

**Credit Points:** 7      **Contact Hours:** 3 per week

### ■ CEB307 CONSTRUCTION PRACTICE

**Offered:** Autumn

Through a series of lectures, tutorials and field trips some basic procedures of Civil Engineering construction are introduced. This subject provides a foundation for further construction studies and also gives a practical perspective to later theoretical subjects.

**Prerequisites:** CEB231, CEB281

**Credit Points:** 6      **Contact Hours:** 3 per week

### ■ CEB312 HIGHWAY ENGINEERING

**Offered:** Spring

Lectures, practical work and field visits covering highway geometry including vehicle performance and human factors as they relate to road geometry,

geometric design, geometric co-ordination and use of computer aided design. Highway pavements including pavement materials and construction processes, pavement cross sections and drainage, pavement theory and pavement analysis methods.

**Prerequisites:** SVB306, MAB193, CEB102, CEB291, CSB191, CEB231

**Co-requisites:** MAB493, CEB240

**Credit Points:** 6      **Contact Hours:** 3 per week

#### ■ CEB313 TRAFFIC ENGINEERING

**Offered:** Spring

Lectures, practical work and field work covering traffic theory including traffic behaviour, probability models, queuing and bunching; traffic management analysis including unsignalised and signalised intersections, street lighting, signs and markings, barriers and parking. Traffic capacity analysis including standards, warrants, and capacity and environmental volumes.

**Prerequisite:** MAB493 **Co-requisite:** CEB312

**Credit Points:** 6      **Contact Hours:** 3 per week

#### ■ CEB354 STRUCTURAL ENGINEERING II

**Offered:** Autumn

Structural analysis of determinate structures under moving loads using influence lines for beams and trusses. The analysis of indeterminate structures using moment distribution and matrix structural analysis techniques. Analysis of simple cable structures.

**Prerequisites:** CEB253, MAB493

**Credit Points:** 7      **Contact Hours:** 3 per week

#### ■ CEB355 STRUCTURAL ENGINEERING III

**Offered:** Spring

The application of plastic analysis techniques to the analysis of beam, frame and slab structures. The use of approximate methods for structural analysis and checking purposes. Development of buckling theory.

**Prerequisite:** CEB281

**Co-requisites:** MAB893, CEB354

**Credit Points:** 6      **Contact Hours:** 3 per week

#### ■ CEB359 PRINCIPLES OF STRUCTURES I

**Offered:** Autumn

Terminology, forces and reactions; loading on structures, equilibrium and stability; co-planar and non co-planar forces; resolution of forces; mechanism of structural components under load: compression, tension, bending, shear, deflection. Connections.

**Credit Points:** 2      **Contact Hours:** 1 per week

#### ■ CEB360 HYDRAULIC ENGINEERING I

**Offered:** Spring

Lectures, tutorial and practical work on the applications of fluid mechanics to pipe and open channel flow, flow measurement and hydraulic machinery. Topics include: steady flow in pipes, networks, flow measurement, uniform flow in open channels, pump and turbines.

**Prerequisite:** CEB260 **Co-requisite:** MAB493

**Credit Points:** 6      **Contact Hours:** 3 per week

*\* Repeat-requisite - the prerequisite or co-requisite requirement may be satisfied by attempting the unit; a passing grade is not essential. A student is deemed to have attempted the unit if all assessment requirements have been attempted when registered for the unit. If failed, the repeat-requisite must be repeated at the first opportunity.*

#### ■ CEB361 HYDROLOGY

**Offered:** Spring

Lectures, tutorial and practical work providing an introductory course in hydrology and urban drainage design; hydrologic cycle, rainfall and runoff; groundwater evapotranspiration, statistical concepts, urban drainage design; unit hydrograph methods; flood studies; data generation, storage estimation.

**Prerequisite:** CEB260 **Co-requisite:** CEB360

**Credit Points:** 6      **Contact Hours:** 3 per week

#### ■ CEB364 ENGINEERING SCIENCE II

**Offered:** Spring

Fluids and fluid flow in pipes and channels. Flow measurement. Hydraulic models. Pumps and pump characteristics.

**Prerequisite:** MAB199 **Survey Mathematics I** [R\*]

**Credit Points:** 6      **Contact Hours:** 3 per week

#### ■ CEB370 PUBLIC HEALTH ENGINEERING I

**Offered:** Spring

An introduction to the principles of public health engineering. Causes and effects of water pollution, principles of unit processes and operations of water quality control. An introduction to air pollution, its causes and control.

**Prerequisite:** CHB346

**Credit Points:** 6      **Contact Hours:** 3 per week

#### ■ CEB393 ENGINEERING INVESTIGATION & REPORTING I

**Offered:** Spring

Lectures and practical work on the appropriate techniques of investigation and reporting on civil engineering processes. Each student will be required to carry out an investigation, prepare a formal written report on that investigation.

**Prerequisite:** CMB108

**Credit Points:** 3      **Contact Hours:** 2 per week

#### ■ CEB401 DESIGN PROJECT

**Offered:** Autumn

Students work in groups to produce initial studies and outline designs of typical civil engineering projects. Students are required to produce a comprehensive definition of the design problems, to establish goals for the project, to identify and collect necessary information, to generate alternative solutions and to optimise some of these solutions. Students are to develop an awareness of the possible impact of civil engineering projects on ecosystems. Students prepare and present reports on various aspects of selected projects, including feasibility studies, environmental and economic assessment. Compulsory site visits are included.

**Prerequisites:** CEB361, CEB305, CEB313

**Co-requisites:** CEB470, CEB440

**Credit Points:** 5      **Contact Hours:** 3 per week

#### ■ CEB403 PROFESSIONAL PRACTICE

**Offered:** Spring

Engineering organisations, project initiation, documentation, form of contract, contract administration, arbitration, safety and insurances, legal responsibilities, ethics.

**Prerequisite:** CSB191 **Co-requisite:** CEB305

**Credit Points:** 7      **Contact Hours:** 2 per week

#### ■ CEB404 FIELD TRIP

**Offered:** Spring

This subject involves site visits to several civil and structural projects (generally under construction in south-east Queensland). The practical inspections are



supervised by lecturing staff and engineers associated with the project, and allow valuable consolidation of the theoretical aspects of other subjects.

**Credit Points:** 3      **Contact Hours:** 1.5 per week

#### ■ CEB405 CIVIL ENGINEERING DESIGN II

**Offered:** Full year

This subject is the continuation of Civil Engineering Design I with topics covering primarily civil engineering design, i.e., municipal civil/structural projects. Field visits are required. More general problem solving skills are developed so that graduates can successfully complete projects other than those covered during the course.

**Prerequisites:** CEB440, CEB304, CEB331

**Co-requisites:** CEB460, CEB410, CEB470

**Credit Points:** 6      **Contact Hours:** 3 per week

#### ■ CEB406 STRUCTURAL APPLICATIONS

**Offered:** Spring

Lectures and tutorials involving analysis, design, supervision of construction and performance of structures. The course evolves around case studies. Topics include: structural systems, structure modelling, sketching, civil engineering structures, designing for construction, detailing and lessons from structural failures, timber structures and the role of testing, controlling vibrations in structures.

**Prerequisites:** CEB355, CEB291, CEB354

**Credit Points:** 8      **Contact Hours:** 3 per week

#### ■ CEB421 CIVIL SYSTEMS II

**Offered:** Autumn

Lectures, tutorials on understanding and applying advanced civil engineering software. Methods of error checking and model validation are discussed.

**Prerequisites:** CEB220, CEB241, CEB260, CEB460, CEB355

**Credit Points:** 3      **Contact Hours:** 1 per week

#### ■ CEB430 BUILDING CONSTRUCTION

**Offered:** Autumn

Through lectures, tutorials and a site visit this subject provides engineering students with a broad appreciation of building techniques and principles. The subject coverage includes details of building construction from foundations to fitting out for low and high rise structures. The requirements of building regulations as they affect construction are also discussed.

**Prerequisite:** CEB305

**Credit Points:** 3      **Contact Hours:** 2 per week

#### ■ CEB440 GEOTECHNICAL ENGINEERING I

**Offered:** Spring

Bearing capacity and settlement of deep foundations. Introduction to rock mechanics. Stability of soil and rock slopes. Routine site investigation procedures. Computer applications in slope stability.

**Prerequisite:** CEB185, CEB240

**Co-requisite:** CEB241

**Credit Points:** 6      **Contact Hours:** 3 per week

#### ■ CEB459 PRINCIPLES OF STRUCTURES II

**Offered:** Spring

Loading on buildings. Foundations and footings. Timber, construction, floor, wall and roof framing and cladding, fastening and connections. Structural stability. Masonry construction: brickwork and blockwork, loadbearing construction, continuity, stiffening. Codes.

**Prerequisite:** CEB353

**Credit Points:** 4      **Contact Hours:** 1 per week

#### ■ CEB460 HYDRAULIC ENGINEERING II

**Offered:** Autumn

A series of lectures, tutorial and practical work in hydraulics with particular emphasis on unsteady flow, movable boundary hydraulics, hydraulic models and hydraulic design of structures. Topics include: unsteady flow in pipes; unsteady flow in open channel flow; design of hydraulic structures such as transitions, culverts, crests, chutes etc., mobile boundary hydraulics; and the theory and practice relating to fixed and mobile boundary, natural scale and distorted models.

**Prerequisite:** CEB360 **Co-requisite:** CEB361

**Credit Points:** 7      **Contact Hours:** 3 per week

#### ■ CEB470 PUBLIC HEALTH ENGINEERING II

**Offered:** Autumn

Development of principles taught in CEB370 to enable functional design of treatment units to be undertaken. An introduction to sewerage and water reticulation. On completion of this unit the student should be able to proceed to simple design exercises in water supply and sewerage and treatment processes.

**Prerequisite:** CEB370

**Credit Points:** 5      **Contact Hours:** 3 per week

#### ■ CEB491 PROJECT (CIVIL)

**Offered:** Full year

The student is required to undertake a relatively difficult task in an area of civil engineering practice requiring further research and development. Each project includes: a literature review; problem definition; organisation and execution of a program of investigation; critical analysis of investigation; presentation of a seminar on the work and presentation of a written report.

**Prerequisite:** Student must normally be in final year of course, however students in the penultimate year of their course may be given special permission to attempt Project.

**Co-requisites:** CEB393, CEB492

**Credit Points:** 9      **Contact Hours:** 3 per week

#### ■ CEB492 ENGINEERING INVESTIGATING & REPORTING II

**Offered:** Autumn

A short series of lectures on verbal presentation techniques of civil engineering investigation topics. Each student is required to prepare a report and deliver a .5 hour lecture on a civil engineering investigation topic.

**Prerequisite:** CEB393

**Credit Points:** 3      **Contact Hours:** 1 per week

#### ■ CEB501 CIVIL ENGINEERING PRACTICE I

**Offered:** Autumn

Lectures, tutorials, practical work and field trips covering current topics in a specified area of civil engineering at an advanced undergraduate level. Subject is offered irregularly. When offered, the subject material is advertised.

**Prerequisite:** Students must be substantially in the final year of course.

**Credit Points:** 6      **Contact Hours:** 3 per week

#### ■ CEB503 ADVANCED CONSTRUCTION METHODS

**Offered:** Autumn

Through a series of lectures, tutorials and site visits this subject both examines existing practice and technology in the construction industry and provides insights into current and future developments in construction techniques and plant.

**Prerequisites:** CEB307, CEB305

**Credit Points:** 6      **Contact Hours:** 3 per week

**■ CEB504 ENGINEERING SCIENCE III****Offered:** Spring

Hydrology; rainfall, stream flow measurement; hydraulic design of drainage. Soil mechanics for surveyors; definition, properties and grading of soils; roadwork, foundation and retaining wall design; soil stability. Concrete technology; properties, manufacture and testing of concrete; elementary reinforced concrete design.

**Co-requisite:** CEB364**Credit Points:** 5      **Contact Hours:** 3 per week**■ CEB505 PROJECT MANAGEMENT & ADMINISTRATION****Offered:** Spring

Using case studies and 'role playing' techniques students are required to develop solutions to a variety of project management problems and to submit reports and make presentations regarding these exercises.

**Prerequisite:** CEB305**Credit Points:** 6      **Contact Hours:** 3 per week**■ CEB506 CIVIL ENGINEERING PRACTICE II****Offered:** Spring

Lectures, tutorials, practical work and field trips covering current topics in a specified area of civil engineering at an advanced undergraduate level. Subject is offered irregularly. When offered, the subject material is advertised.

**Prerequisites:** Students must be substantially in the final year of course.

**Credit Points:** 6      **Contact Hours:** 3 per week**■ CEB511 TRANSPORT ENGINEERING II****Offered:** Spring

Lectures and practical work focussing in depth on two aspects of transport engineering - rural road upgrading and small urban area transportation planning/road needs requirement. Work covered includes highway upgrading, deficiency analysis, traffic accident analysis, traffic flow simulation, staged development including overtaking lanes and rural intersection design; application of four step transportation planning models, surveys, zone selection, network development, trip generation, distribution, assignment, model calibration, future year modelling, evaluation and selection of road needs, sensitivity analysis.

**Co-requisite:** CEB512**Credit Points:** 6      **Contact Hours:** 3 per week**■ CEB512 TRANSPORT ENGINEERING I****Offered:** Autumn

A series of lectures, practical work and field work covering land use/transport interaction, travel impedance, transport costs, trip distribution and multi model assignment, transport operations analysis, transport economics, transport capacity, urban road planning principles, urban transit planning, railway, aviation and bulk commodity systems design.

**Prerequisites:** MAB893, CEB312, CEB313**Credit Points:** 6      **Contact Hours:** 3 per week**■ CEB520 FINITE ELEMENT METHODS****Offered:** Spring

Lectures and tutorials dealing with finite element, finite difference and similar numerical techniques. Theoretical and modelling considerations are covered in the context of case studies in structures, soil mechanics and hydraulics.

**Prerequisite:** CEB220**Credit Points:** 6      **Contact Hours:** 3 per week**■ CEB532 CONCRETE & MASONRY STRUCTURES****Offered:** Spring

The analysis and design of continuous prestressed concrete members. Detailing of concrete structures including halving joints, opening corners, beam intersections, deep beams, pile caps, etc. Masonry materials and properties. Design of reinforced and unreinforced concrete and clay masonry beams, walls and piers. This includes compression, vertical bending, lateral bending and shear. Walls include solid, hollow, cavity and diaphragm, and vertical prestressing is introduced.

**Prerequisite:** CEB355, CEB306**Credit Points:** 6      **Contact Hours:** 3 per week**■ CEB541 GEOTECHNICAL ENGINEERING II****Offered:** Autumn

Analysis, design and installation of sheetpile walls and excavation support. Protection of adjacent structures. Analysis, design and installation of pile and pier foundations. Shallow foundations on rock. Rock sockets. Foundations on expansive soils. Site characteristics by in-situ testing methods. Selection of soil properties for design.

**Prerequisite:** CEB440**Credit Points:** 6      **Contact Hours:** 3 per week**■ CEB542 GEOTECHNICAL ENGINEERING III****Offered:** Spring

Development of marginal lands: traffickability; embankments on soft soil; preloading; vertical drainage; vibroflotation; dynamic compaction and other methods of deep foundation improvement. Rock excavation and rock slope stabilisation. Soil improvement, including mechanical and chemical stabilisation, soil reinforcement and other techniques which may be economically feasible. Anchoring in soil and rock. Principles of earth and rockfill design and construction.

**Prerequisite:** CEB541**Credit Points:** 6      **Contact Hours:** 3 per week**■ CEB551 ADVANCED STRUCTURAL DESIGN****Offered:** Autumn

This subject widens and deepens experience in the structural design area. Emphasis is placed on the design of more complex structures. Normally three projects are studied which involve some or all of: design in new materials, new analytical techniques, new codes of practice, novel structures.

**Prerequisites:** CEB354, CEB201, CEB306**Credit Points:** 6      **Contact Hours:** 3 per week**■ CEB559 PRINCIPLES OF STRUCTURES III****Offered:** Autumn

Structural properties of mild steel and high tensile steel. Structural framing and connections. Structural systems in steel: beams and columns, portal frames, space frames, trusses, tensile structures.

**Prerequisite:** CEB453**Credit Points:** 4      **Contact Hours:** 1 per week**■ CEB560 HYDRAULIC ENGINEERING III****Offered:** Spring

Lectures, tutorial, practical work and site visits examining selected topics in water engineering. Topics are chosen from hydrology, mobile bed hydraulics, river hydraulics, hydraulic structures, urban drainage, physical and mathematical modelling.

**Prerequisites:** CEB361, CEB460**Credit Points:** 6      **Contact Hours:** 3 per week

### ■ CEB561 COASTAL ENGINEERING

Offered: Autumn

Lectures and tutorial work on coastal engineering: wave theory, recording and analysis, wave generation; coastal processes, tides, surges etc, currents, sediment movement, foreshore protection; coastal inlets, general theory, canal systems; planning and design of coastal structures; hydraulic models for coastal studies. At least one major site visit is required.

Prerequisite: CEB360 Co-requisite: CEB460

Credit Points: 6 Contact Hours: 3 per week

### ■ CEB570 PUBLIC HEALTH ENGINEERING III

Offered: Spring

This subject covers basic solid waste management (of domestic, commercial and industrial wastes), together with a study of the general principles of industrial liquid waste management, with examples of some important industries. Students completing this subject will have gained a basic understanding of solid and industrial liquid waste management necessary for a municipal engineer operating in Queensland.

Co-requisites: CEB470

Credit Points: 6 Contact Hours: 3 per week

### ■ CEB659 PRINCIPLES OF STRUCTURES IV

Offered: Spring

Structural behaviour of reinforced concrete. Basic theory of reinforced concrete beams and columns. Structural elements systems in reinforced concrete: post-and-beam, one and two-way slab, waffle slab, flat slab. Columns. Frames. Framing, walling and roofing in reinforced concrete.

Prerequisite: CEB553

Credit Points: 4 Contact Hours: 1 per week

### ■ CEB701 CIVIL ENGINEERING QUANTITIES I

Offered: Autumn

Introduction to the measurement of civil engineering works based on the study of SMM of Civil Engineering Quantities. Detailed study of construction methods, plant, specification and measurement of: earthworks, (clearing, levelling, borrow, compaction, control tests, quarries and dredging); roadworks (survey, clearing, bulk excavation and filling, pavement construction, kerbing, culverts, stormwater); and bridges (types of structures, foundations, prestressed concrete). It includes a brief introduction to computer applications such as earthwork calculations, bridge reinforcement.

Credit Points: 4 Contact Hours: 2 per week

### ■ CEB801 CIVIL ENGINEERING QUANTITIES II

Offered: Spring

Further study of SMM of Civil Engineering Quantities leading to measurement of: foundations; pad footings, piles and piers; bridges: further study, including abutments, superstructure, approach embankments, safety structures; wharves: over water work, deck structures; and specialised earthworks: tunnelling, dredging, quarrying, open cuts, earthworks, earth dams.

Prerequisite: CEB701

Credit Points: 3 Contact Hours: 2 per week

### ■ CEP107 CONSTRUCTION MANAGEMENT & ECONOMICS

Offered: Autumn

The management of operational features of municipal practice. Topics include engineering economics, con-

tracts, plant and labour considerations of concern to the municipal engineer and manager.

Credit Points: 8 Contact Hours: 2 per week

### ■ CEP109 MUNICIPAL LAW & REGULATIONS

Offered: Spring

The legislative framework for municipal engineering in Queensland. The various acts and regulations affecting the practising municipal engineer. The powers and responsibilities of the municipal engineer.

Credit Points: 8 Contact Hours: 2 per week

### ■ CEP127 ROAD & TRAFFIC ENGINEERING

Offered: Autumn

Urban traffic management, parking systems, surveys, intersection analysis with emphasis on the design and evaluation of the urban road network. The design of rural roads. Design of pavement structures. Pavement management.

Credit Points: 12 Contact Hours: 3 per week

### ■ CEP128 MUNICIPAL ENGINEERING PLANNING

Offered: Autumn

The principles of town and regional planning for municipal engineers in Queensland. The objectives and methodology of planning, practical problem solving, legislation and other factors of concern to the municipal and development engineer.

Credit Points: 12 Contact Hours: 3 Per week

### ■ CEP131 ENGINEERING MANAGEMENT & ADMINISTRATION

Offered: Autumn

Management principles and functions. Strategic and tactical planning, forecasting, decision making. Budgeting and controls in organisations, techniques of project control. Human resources, managing change and development. Formulation of policy within a local authority. Local authority internal organisation, management, powers, responsibilities and functions, accounting and budgetary cycles, sources of finance and expenditure patterns.

Credit Points: 12 Contact Hours: 3 per week

### ■ CEP172 WATER QUALITY ENGINEERING

Offered: Autumn

Characteristics of liquid wastes. Their effect on receiving waters. Dispersion and decay of pollutants in the water environment. Water quality standards and objectives.

Credit Points: 8 Contact Hours: 2 per week

### ■ CEP174 PUBLIC HEALTH ENGINEERING PRACTICE

Offered: Autumn

Water reticulation, network analysis. Water supply apertures. Sewerage design and construction. Materials and corrosion control, pumping station design. Unit operations and processes of water quality control. Process design parameters.

Credit Points: 12 Contact Hours: 3 per week

### ■ CEP200 PROCESS MODELLING

Offered: Spring

Role of models in engineering design and investigation. Principles of modelling techniques and their uses, limitations and relevant applications.

Credit Points: 8 Contact Hours: 2 per week

■ **CEP215 ADVANCED TRAFFIC ENGINEERING**

**Offered:** Spring

Traffic flow theory and traffic management. Development of computer analysis routines for urban intersection design, their background and applications.

**Prerequisite:** CEP217

**Credit Points:** 8      **Contact Hours:** 2 per week

■ **CEP218 TRANSPORTATION ENGINEERING**

**Offered:** Autumn

Techniques for the appraisal of rural and urban area road systems, bus operations, airport design, construction and maintenance.

**Credit Points:** 12      **Contact Hours:** 3 per week

■ **CEP276 ADVANCED TREATMENT PROCESSES**

**Offered:** Spring

The design of water and wastewater treatment plants, including conventional and alternative processes. Current practice and development. Operation of treatment plants.

**Prerequisite:** CEP174

**Credit Points:** 8      **Contact Hours:** 2 per week

■ **CEP277 WASTE MANAGEMENT**

**Offered:** Spring

Characteristics and analysis of solid wastes. Collection, storage, transportation, handling, recycling and disposal. Sources and characteristics of industrial liquid wastes. Treatment design methodology. Pilot scale modelling and investigation. Case studies of selected classes of industrial wastes.

**Co-requisite:** CEP174

**Credit Points:** 12      **Contact Hours:** 3 per week

■ **CEP310 URBAN TRANSPORTATION PLANNING**

**Offered:** Spring

Transportation planning applications; road needs, urban transport, new developments, local area planning. Macro land use/transportation and micro urban transportation models; urban transportation zone selection and data needs; trip generation; model splits; survey techniques.

**Credit Points:** 8      **Contact Hours:** 2 per week

■ **CEP361 DRAINAGE ENGINEERING**

**Offered:** Autumn

Drainage engineering of interest to municipal engineers, road and railway designers, irrigation and general civil engineers. Subject covers rainfall and runoff models, both rational and computer models; drainage hydraulics of roof, streets, pipes, open channels, retention basins, culverts and bridges; erosion, sedimentation aspects of drainage, costs, planning policies and the law.

**Credit Points:** 8      **Contact Hours:** 2 per week

■ **CEP491 MUNICIPAL ENGINEERING PRACTICE**

**Offered:** Autumn

A prescribed program of individual supervised study in a selected area within the field of municipal engineering, involving one or more major assignments together with appropriate tutorials.

**Credit Points:** 16      **Contact Hours:** 3 per week

■ **CEP999 PROJECT**

**Offered:** Autumn, Spring

The student is required to investigate in depth an approved topic within the range of civil engineering practice and to carry out design, computing, model or

experimental design and construction, experimental work and testing. The results are presented in a major formal report.

**Credit Points:** 36      **Contact Hours:** 8 per week

■ **CET135 ENGINEERING MECHANICS**

**Offered:** Autumn

Equilibrium of forces and moments, reactions, free body diagrams, truss analysis, shear force and bending moment diagrams.

**Credit Points:** 7      **Contact Hours:** 3 per week

■ **CET195 CIVIL ENGINEERING I**

**Offered:** Autumn

Lectures, tutorial work and field trips covering the scope and nature of civil engineering, the organisation of a civil engineering enterprise emphasising the engineering associate role, and emphasising the important skills of oral and written communication and measurement.

**Credit Points:** 7      **Contact Hours:** 3 per week

■ **CET235 LABORATORY PRACTICE A**

**Offered:** Spring

The type and role of laboratories in civil engineering. NATA registration and calibration requirements. Quality control and assurance, basic statistics. Basic measuring equipment and techniques; associated calculations. Presentation of data in reports. Laboratory work in materials and hydraulic engineering to demonstrate measuring techniques.

**Co-requisites:** CET365, CET435

**Credit Points:** 3      **Contact Hours:** 3 per week

■ **CET255 STRUCTURAL MECHANICS**

**Offered:** Spring

Stress direct flexure, shear in beams and shafts. Combined stress conditions. Deflections in beams and trusses.

**Prerequisites:** CET135

**Credit Points:** 7      **Contact Hours:** 3 per week

■ **CET286 CIVIL OFFICE PRACTICE**

**Offered:** Spring

An introduction to the preparation and layout of civil engineering drawings, and to design office procedures including methods of data manipulation, presentation and checking.

**Prerequisite:** MET120

**Credit Points:** 7      **Contact Hours:** 3 per week

■ **CET287 CIVIL OFFICE PRACTICE A**

**Offered:** Spring

Further experience in civil engineering design drafting/drawing, supplementing that undertaken in CET286 Civil Office Practice.

**Prerequisite:** MET120 **Co-requisite:** CET286

**Credit Points:** 3      **Contact Hours:** 3 per week

■ **CET306 FIELD PRACTICE IA**

**Offered:** Autumn

Tutorial, practical sessions and field trips supplemented by some lectures covering: sitting out, as-built surveys and drawings, photography and field sketching; field measurement and sampling in water, soils and materials; implications of field measurements on design and construction practice.

**Prerequisites:** SVT306, CET365 **Co-requisite:** CET775

**Credit Points:** 3      **Contact Hours:** 3 week

### ■ CET365 HYDRAULIC ENGINEERING

**Offered:** Spring

Lectures, tutorials and practical work covering the properties of fluid, simple hydrostatics, fundamental characteristics and equations of fluid flow, pipe and open channel flow and hydraulic measurements. Laboratory and tutorial work covers basic fluid behaviour and provides an introduction to instrumentation.

**Prerequisite:** CET135

**Credit Points:** 7      **Contact Hours:** 3 per week

### ■ CET387 CIVIL ENGINEERING DRAFTING A

**Offered:** Autumn

Further experience in municipal engineering design drafting/drawings, additional to that undertaken in CET385 Civil Engineering Drafting.

**Prerequisite:** CET286 **Co-requisite:** CET585

**Credit Points:** 3      **Contact Hours:** 3 per week

### ■ CET405 FIELD PRACTICE IIA

**Offered:** Spring

This subject involves field visits and laboratory workshops on many aspects of civil engineering construction.

**Credit Points:** 3      **Contact Hours:** 3 per week

### ■ CET435 CONCRETE PRACTICE

**Offered:** Spring

Raw materials, cements, aggregates, additives and admixtures. Properties of plastic and hardened concrete. Testing and quality control. Simple mix design, concrete manufacturing and transportation, construction procedures.

**Credit Points:** 7      **Contact Hours:** 3 per week

### ■ CET495 PROJECT A

**Offered:** Spring

The student is required to undertake a substantial project in his/her chosen field. This involves the investigation of the topic, performance of the tests, design calculations etc, and submission of a comprehensive report on sets of drawings.

**Prerequisite:** Subject must be in student's final year.

**Credit Points:** 3      **Contact Hours:** 3 per week

### ■ CET565 ROAD & DRAINAGE ENGINEERING

**Offered:** Autumn

Elements of road construction and maintenance, road pavements types, design and construction. The drainage component includes road drainage principles, design and construction of urban and rural culverts, urban stormwater drainage systems.

**Prerequisites:** CET815, CET645, CET365

**Credit Points:** 7      **Contact Hours:** 3 per week

### ■ CET585 CIVIL ENGINEERING DRAFTING

**Offered:** Autumn

Preparation of municipal engineering drawings including roadworks and stormwater drain exercises. Exercises refer to State and local authority standards. Projects will involve varying amounts of design computations and at least one example involves computer usage. Introduction to quantity takeoff, bills of quantities, cost estimates and cross referencing between drawings, bills or quantities and specifications.

**Prerequisite:** CET286 **Co-requisite:** CET565

**Credit Points:** 7      **Contact Hours:** 3 per week

### ■ CET598 PROJECT II

**Offered:** Autumn

An individually designed program including designs, reports and investigations in the area of sanitary engineering.

**Prerequisite:** The student must have completed or be exempt from the first four semesters of the part-time course.

**Credit Points:** 21      **Contact Hours:** 9 per week

### ■ CET606 CONSTRUCTION MANAGEMENT

**Offered:** Autumn

Construction planning, organisational structure, construction reporting, contract, management and administration, human relations, plant hire.

**Credit Points:** 7      **Contact Hours:** 3 per week

### ■ CET645 SOIL MECHANICS I

**Offered:** Autumn, Spring

Identification and classification of soils; testing methods required. Compaction of soil, soil permeability, effective and total stress, shear strength and compressibility. Introduction to retaining walls, bearing capacity, CBR testing and in situ sampling and testing.

**Prerequisite:** CET135

**Credit Points:** 7      **Contact Hours:** 3 per week

### ■ CET655 CONCRETE & STEEL DESIGN

**Offered:** Autumn, Spring

Principles of structural design. Design in structural steel, detailing of elements. Design of concrete members, detailing of elements.

**Prerequisites:** CET135, CET255, CET435

**Credit Points:** 7      **Contact Hours:** 3 per week

### ■ CET703 CIVIL ENGINEERING PRACTICE I

**Offered:** Autumn

Lectures, tutorials, practical work and field trips covering current topics in a specified area of civil engineering practice at a level appropriate to the course and as approved by the Head of School. The content of this subject may be changed from semester to semester depending on demand and available staff.

**Prerequisite/Co-requisite:** Students must be in the final year of course.

**Credit Points:** 7      **Contact Hours:** 3 per week

### ■ CET704 CIVIL CONSTRUCTION PRACTICE

**Offered:** Autumn, Spring

Principles of temporary works design. Form work, false work and scaffolding. Shoring, de watering, excavation and earthworks. Plant introduction to the Construction Safety Act and Regulations.

**Credit Points:** 7      **Contact Hours:** 3 per week

### ■ CET707 MUNICIPAL ENGINEERING

**Offered:** Autumn

Structures and function of local authorities. Local roads, streets, traffic management, swimming pools, solid waste management, drainage, bridges, town planning, subdivision, landscaping, building practice, relevant legislation.

**Prerequisites:** CET815

**Co-requisites:** CET565, CET775

**Credit Points:** 7      **Contact Hours:** 3 per week

### ■ CET708 SPECIFICATIONS & ESTIMATES

**Offered:** Spring

General conditions of contract, arbitration, annexures, specifications, special provisions. Types of estimates. Mechanics of estimating, computer applications.

**Credit Points:** 7      **Contact Hours:** 3 per week

### ■ CET709 SAFETY & INDUSTRIAL RELATIONS

**Offered:** Spring

Lectures, tutorials, practical work and field trips covering current systems and practices in occupational safety and health programs, the industrial relations

system in Australia, and the man management techniques which may be employed to create a good industrial relations climate on a site or in an industry.  
**Credit Points:** 7      **Contact Hours:** 3 per week

#### ■ CET735 ADVANCED LABORATORY TESTING I

**Offered:** Autumn

A variety of testing work is undertaken to give the student experiences with a range of equipment and testing procedures. The program includes tests in a number of selected laboratory areas.

**Credit Points:** 7      **Contact Hours:** 3 per week

#### ■ CET756 BUILDING CONSTRUCTION PRACTICE

**Offered:** Autumn, Spring

Practical aspects associated with reinforced, prestressed concrete (in situ and precast). Steel construction aspects associated with fabrication and erection. Building construction aspects of clay brick and concrete masonry construction including cladding. Overview of building regulations.

**Prerequisite:** MET141

**Credit Points:** 7      **Contact Hours:** 3 per week

#### ■ CET775 PUBLIC HEALTH ENGINEERING

**Offered:** Autumn

The design construction and operation of water supply and sewerage systems, including materials and equipment. Pumping station layout and operation. Basic principles of water quality control. Treatment plant construction, layout and operation.

**Prerequisite:** CET365

**Credit Points:** 7      **Contact Hours:** 3 per week

#### ■ CET776 EQUIPMENT OPERATION & MAINTENANCE

**Offered:** Spring

Lectures, tutorial exercises, practical work and site visits examining the principles and practice of the operation and maintenance of equipment in water and wastewater treatment plants. Topics include: overview of plant; motors, engines, pumps, compressors and generators; rotary and rectilinear scraping and raking mechanisms; chemical handling, mixing, dosing; safety and maintenance scheduling for specific equipment items.

**Prerequisites:** CET365, CHA140

**Credit Points:** 7      **Contact Hours:** 3 per week

#### ■ CET777 PROCESS OPERATION & CONTROL I

**Offered:** Autumn

A study of the principles of unit processes of water and wastewater treatment, with particular reference to their operation. The methods of operational control of these processes.

**Prerequisites:** CET365, CET775, CHA140

**Credit Points:** 7      **Contact Hours:** 3 per week

#### ■ CET787 STRUCTURAL ENGINEERING DRAWING

**Offered:** Autumn, Spring

Preparation of structural engineering drawings covering basic steel work and reinforced concrete works. Reinforcing schedules together with details of steel connections.

**Prerequisites:** MET120, CET286, CET585, CET655

**Credit Points:** 7      **Contact Hours:** 3 per week

#### ■ CET797 PROJECT I

**Offered:** Autumn, Spring

The student is required to undertake a substantial project in his/her student's chosen field. This involves

the investigation of the topic, performance of tests, design calculations etc, and submission of a comprehensive report on sets of drawings.

**Prerequisite/Co-requisite:** Subject must be in student's final year.

**Credit Points:** 7      **Contact Hours:** 3 per week

#### ■ CET802 CIVIL ENGINEERING PRACTICE II

**Offered:** Spring

The synopsis of this subject is the same as CET703.

**Prerequisite/Co-requisite:** Students must be in the final year of course.

**Credit Points:** 7      **Contact Hours:** 3 per week

#### ■ CET815 ROAD LOCATION & DESIGN

**Offered:** Spring

Road location principles, road design and geometry including computer applications, subdivision and subdivision street design, introduction to traffic engineering, intersection design.

**Prerequisite:** SVT306 **Co-requisite:** CET286

**Credit Points:** 7      **Contact Hours:** 3 per week

#### ■ CET837 LABORATORY PRACTICE

**Offered:** Spring

Laboratory organisation and NATA registration. Measurement of strain, temperature, force, pressure and linear devices; their calibration and accuracy. Data logging, photography, concrete and aggregate testing.

**Credit Points:** 7      **Contact Hours:** 3 per week

#### ■ CET838 ADVANCED LABORATORY TESTING II

**Offered:** Spring

Testing projects undertaken in a more limited number of specialist areas and presented as a series of reports. Each report is expected to include a discussion of the tests undertaken, based on the student's experience and background reading.

**Prerequisite:** CET735

**Credit Points:** 7      **Contact Hours:** 3 per week

#### ■ CET856 FORMWORK DESIGN

**Offered:** Spring

Concrete pressures, load on formwork, false work stability, timber characteristics, soffit systems; conventional, proprietary, stripping, reshoring, multistorey reshoring, multiple tiebeam systems, waffle floors, beam forms, wall forms; conventional proprietary, columns, permanent forms, moving systems, special systems, form failure planning, documentation, architectural concrete.

**Prerequisite:** CET435

**Credit Points:** 7      **Contact Hours:** 3 per week

#### ■ CET876 PLANT OPERATION & MAINTENANCE

**Offered:** Spring

The operation and maintenance requirements of water quality treatment plants, including scheduling, labour control, workshop organisation, safety, training and performance monitoring.

**Prerequisite:** CET606 **Co-requisite:** CET776

**Credit Points:** 7      **Contact Hours:** 3 per week

#### ■ CET877 PROCESS OPERATION & CONTROL II

**Offered:** Spring

An extension of the studies - covered in CET777 - of unit processes of water and wastewater treatment with particular reference to their operation. The methods of operational control of these processes.

**Prerequisite:** CET777

**Credit Points:** 7      **Contact Hours:** 3 per week

### ■ CET887 COMPUTER AIDED DRAFTING

Offered: Spring

A series of lectures, tutorials, practicals and demonstrations on the VAX780 mainframe and personal computers covering civil and structural drawings presentations. Outputs from various computer design programs are used as examples.

Prerequisite: CET286

Credit Points: 7      Contact Hours: 3 per week

### ■ CET888 STRUCTURAL DRAWING & DESIGN

Offered: Spring

Minor structural design and layout. Preparation of advanced structural engineering drawings covering steel, reinforced and prestressed concrete and timber where geometric and physical restraints interact with the structural design process.

Prerequisites: MET120, CET286

Co-requisites: CET787, CET585, CET655

Credit Points: 7      Contact Hours: 3 per week

### ■ CET894 COMPUTATIONS A

Offered: Autumn

Calculations involving aspects of civil engineering. Computer aided design. Planimeters. Technical reports.

Co-requisite: SVT306

Credit Points: 3      Contact Hours: 3 per week

### ■ CHA111 LABORATORY TECHNIQUES

Offered: Autumn, Spring

A course introducing safe and proficient procedures in the laboratory, and giving practice in the manipulation of common elementary laboratory apparatus, equipment and reagents. On completing the course the student should be able to handle, correctly and safely, all the basic pieces of laboratory equipment and be familiar with their main functions and limitations.

Credit Points: 8      Contact Hours: 3 per week

### ■ CHA145 INTRODUCTORY CHEMISTRY

Offered: Autumn

An integrated course of fundamental chemistry covering: the nature of chemistry, atomic molecular and nuclear structure, bonding and types of bonds; the structure and nature of matter, molecular formulae, atomic and molecular weights; the periodic classification; reduction/oxidation, chemical equilibria; liquids and solutions and simple phase equilibria; equilibria in electrolyte solutions; pH and its measurement. Carbon chemistry and functional groups. The chemistry and properties of some common laboratory chemicals. Practical applications are emphasised.

Credit Points: 8      Contact Hours: 3 per week

### ■ CHA218 ANALYTICAL CHEMISTRY I

Offered: Autumn, Spring

A lecture and laboratory program covering fundamental theory and techniques of titrimetric and gravimetric analysis.

Prerequisite: CHA111

Credit Points: 8      Contact Hours: 3 per week

### ■ CHA219 QUALITATIVE ANALYSIS

Offered: Spring

This course considers the behaviour of a range of common cations and anions towards common laboratory reagents. These reactions form the basis of procedures for the separation and identification of these cations and anions. Qualitative testing for elements in organic molecules together with test

procedures for qualitative identification of functional groups in organic molecules also are covered.

Prerequisite: CHA111

Credit Points: 6      Contact Hours: 3 per week

### ■ CHA230 CHEMISTRY OF INORGANIC MATERIALS

Offered: Autumn, Spring

The occurrence, extraction/manufacture, properties and uses of the elements and the important inorganic compounds derived from a selection of members of the chemical groups.

Prerequisite: CHA145

Credit Points: 4      Contact Hours: 2 per week

### ■ CHA240 INSTRUMENTAL TECHNIQUES

Offered: Spring

An overview of the principles and practice of modern instrumental analysis, including the nature of electromagnetic radiation and its interaction with matter; use of visible, UV and IR spectroscopy; emission and absorption phenomena; chromatographic techniques and electroanalytical chemistry.

Prerequisite: CHA111 Co-requisite: CHA218 or CHA111 + PHA154, and PHA258

Credit Points: 8      Contact Hours: 3 per week

### ■ CHA250 ORGANIC CHEMISTRY I

Offered: Autumn, Spring

An introduction to functional group chemistry including hydrocarbons, aromatic compounds, organic halides, alcohols, phenols and ethers and also an introduction to the use of infrared spectroscopy to indicate the presence of particular functional groups.

Prerequisite: CHA145

Credit Points: 8      Contact Hours: 3 per week

### ■ CHA270 PHYSICAL CHEMISTRY I

Offered: Autumn, Spring

The first part of an integrated syllabus of physical chemistry in the Associate Diploma. A study of the fundamental aspects of chemical energetics, solution chemistry and equilibria and practical applications thereof.

Prerequisite: CHA145

Credit Points: 8      Contact Hours: 3 per week

### ■ CHA318 INSTRUMENTAL ANALYTICAL CHEMISTRY

Offered: Autumn

A course of lectures and practical work introducing the principles and practices of mass spectrometry, fluorescence spectroscopy and ICP together with further development of selected topics from the unit CHA240.

Prerequisite: CHA218 & CHA240

Co-requisite: CHA319

Credit Points: 8      Contact Hours: 4 per week

### ■ CHA319 ANALYTICAL CHEMISTRY II

Offered: Autumn

A course of lectures and practical work designed to develop further the basic titrimetric and gravimetric analysis principles introduced in the unit CHA218. The practical program will feature the analysis of commercial materials with emphasis on sample dissolution techniques.

Prerequisite: CHA218, CHA219

Credit Points: 6      Contact Hours: 3 per week

### ■ CHA320 CHEMICAL PROCESS PRINCIPLES I

Offered: Autumn

This course discusses chemical reactors (both homogeneous and heterogeneous), unit operations

(transport and preparation of materials and separation of materials) and material and energy balances in chemical processes.

**Prerequisite:** CHA270 **Co-requisite:** CHA370

**Credit Points:** 8 **Contact Hours:** 3 per week

### ■ CHA350 ORGANIC CHEMISTRY II

**Offered:** Autumn, Spring

This subject continues the study of functional groups and includes carbonyl compounds, carboxylic acids and their derivatives, organic nitrogen compounds, including heterocycles, as well as selected polyfunctional compounds such as triglycerides, amino acids and proteins. Further uses of infrared spectroscopy are discussed.

**Prerequisite:** CHA250

**Credit Points:** 8 **Contact Hours:** 3 per week

### ■ CHA368 INDUSTRIAL CHEMISTRY

**Offered:** Spring

This subject aims to develop an appreciation of the basic aspects of product and quality control, an understanding of the underlying fundamental chemistry and an overall concept of the chemical technology involved in, for example, the petroleum and petrochemical industry, the polymer, plastic and adhesive industries, the paint industry, the textile industry, the sugar industry, water treatment plants, the glass and ceramics industry, and the cement industry. Field trips are an integral part of this subject.

**Prerequisites:** CHA250, CHA320

**Credit Points:** 8 **Contact Hours:** 4 per week

### ■ CHA370 PHYSICAL CHEMISTRY II

**Offered:** Autumn

The second part of the integrated syllabus of physical chemistry of the Associate Diploma. Covers the areas of chemical kinetics, surface chemistry and elementary electrochemistry.

**Prerequisite:** CHA270

**Credit Points:** 6 **Contact Hours:** 2 per week

### ■ CHA410 COMPUTERS IN CHEMISTRY

**Offered:** Spring

This course outlines the use of computers in various aspects of the chemical industry - both in laboratory and plant. The different approaches to laboratory automation are discussed and a detailed study of computer control in a selected industry undertaken. Field trips also are included.

**Prerequisite:** CSA259

**Credit Points:** 8 **Contact Hours:** 3 per week

### ■ CHA442 INTRODUCTION TO OCCUPATIONAL SAFETY

**Offered:** Autumn

Basic first aid relevant to laboratory, plant and field situations; principles and practice of safe handling of common laboratory chemicals; safety aspects of laboratory design.

**Note:** This subject is incompatible with CHA440; credit may not be retained for both.

**Credit Points:** 4 **Contact Hours:** 2 per week

### ■ CHA520 CHEMICAL PROCESS PRINCIPLES II

**Offered:** Autumn

A lecture and laboratory course which deals with measurement systems, the principles of process control and the applications of process control in the chemical industry.

**Prerequisite:** CHA230

**Credit Points:** 8 **Contact Hours:** 3 per week

### ■ CHA550 ORGANIC CHEMISTRY III

**Offered:** Spring

This subject aims to give students an appreciation of the chemistry and uses of organic compounds encountered in industry, such as agricultural chemicals, fats and oils, waxes, detergents, dyes, drugs, elastomers, fibres, adhesives and cellulose derivatives.

**Prerequisite:** CHA350

**Credit Points:** 8 **Contact Hours:** 3 per week

### ■ CHA580 FOOD CHEMISTRY I

**Offered:** Autumn

Topics covered include the basic chemical components of food, fats and oils, proteins, carbohydrates, vitamins and minerals and factors affecting quality such as texture, flavour and colour. Measurements of food quality. A major assignment related to the dairy industry is incorporated.

**Prerequisites:** CHA240 & CHA250 & CHA218

**Co-requisites:** CHA350

**Credit Points:** 8 **Contact Hours:** 3 per week

### ■ CHA610 INDUSTRIAL ANALYSIS

**Offered:** Spring

A course involving the use of both qualitative (semi-micro) and quantitative techniques in the analysis of commercially important materials, including ores, cement, fertiliser, fats and oils and sugar products.

**Prerequisites:** CHA318, CHA319

**Credit Points:** 8 **Contact Hours:** 3 per week

### ■ CHA644 PROCESS MEASUREMENT & MONITORING I

**Offered:** Spring

A study of the physical and chemical measurements involved in: the analysis of raw and potable waters; and the determination of organic and microbiological pollution. Emphasis is placed on sampling and sample preservation laboratory techniques, interpretation of results and the significance of the measured parameters in the operation and control of water and wastewater treatment plants.

**Prerequisites:** CET365, CET775

**Co-requisite:** CHA140

**Credit Points:** 7 **Contact Hours:** 3 per week

### ■ CHA670 PHYSICAL CHEMISTRY III

**Offered:** Spring

This subject forms the third part of the integrated syllabus of physical chemistry of the Associate Diploma and covers the areas of applied electrochemistry, corrosion, distillation and extraction. Practical applications are emphasised.

**Prerequisite:** CHA370

**Credit Points:** 8 **Contact Hours:** 3 per week

### ■ CHA680 FOOD CHEMISTRY II

**Offered:** Spring

A more advanced unit covering the chemistry and principal methods of food processing and preparation. A further major assignment appropriate to the dairy industry is incorporated.

**Prerequisite:** CHA580

**Credit Points:** 8 **Contact Hours:** 3 per week

### ■ CHA744 PROCESS MEASUREMENT & MONITORING II

**Offered:** Autumn

The physical and chemical measurements involved in: the determination of inorganic and other selected pollutants; the analysis of sewage and other sludges; and the testing of sewage effluents together with an intro-



duction to specialised analytical techniques including atomic absorption spectrophotometry, chromatography and polarography. Emphasis is placed on sampling and sample preservation laboratory techniques, interpretation of results and the significance of the measured parameters in the operation and control of water and wastewater treatment plants.

**Prerequisite:** CHA644

**Credit Points:** 7      **Contact Hours:** 3 per week

#### ■ CHA844 TRADE WASTE CONTROL

**Offered:** Spring

A study of industrial wastes with respect to typical waste characteristics, effects on natural waters, sewers and treatment plants, methods of inhouse treatment and their achievable effluent levels, monitoring techniques, legislation and charging procedures.

**Prerequisites:** CET777, CHA744

**Credit Points:** 7      **Contact Hours:** 3 per week

#### ■ CHB001 INTRODUCTORY CHEMISTRY

**Offered:** Autumn

For students without a pass in Senior Chemistry. Scientific measurement, atomic structure, periodic table, chemical equations, stoichiometry and calculations, chemical bonding, chemical reactivity, acids and bases, redox systems, properties of matter, chemical thermodynamics, enthalpy, heat of reactions, organic chemistry.

**Credit Points:** 6      **Contact Hours:** 3 per week

#### ■ CHB002 INTRODUCTION TO ENGINEERING CHEMISTRY

**Offered:** Autumn

This subject provides a basis for understanding applications of chemistry in engineering, and introduces basic concepts of chemistry including: chemical equilibria, solution, chemistry and states of matter.

**Credit Points:** 2      **Contact Hours:** 1 per week

#### ■ CHB101 CHEMISTRY IA

**Offered:** Autumn

A series of lectures and tutorials introducing the important concepts in chemistry. Topics include principles of physical chemistry, chemical bonding and molecular geometry and an introduction to the chemistry of carbon compounds.

**Co-requisite:** CHB001, or Senior chemistry

**Credit Points:** 8      **Contact Hours:** 3 per week

**Note:** This subject is not compatible with CHB150, CHB180; credit may not be retained for more than one of these subjects.

#### ■ CHB102 CHEMISTRY IB

**Offered:** Autumn, Spring

A course in practical chemistry covering the experimental aspects of analytical chemistry, physical chemistry and organic chemistry. This is primarily an experimental program supported by appropriate lectures.

**Co-requisite:** CHB101 (+ CHB001 unless Senior Chemistry has been undertaken)

**Credit Points:** 6      **Contact Hours:** 3 per week

**Note:** This subject is not compatible with CHB101; credit may not be retained for both

#### ■ CHB110 ANALYTICAL CHEMISTRY I

**Offered:** Autumn

Introduction to analytical chemistry. Examples of acid base titrations, reduction-oxidation titrations and precipitation titrations are used to develop the theory and practice of volumetric analysis. Gravimetric analysis is introduced and both precipitometric and evolution methods are discussed. A coverage of methods available for handling experimental results

is given, including absolute and relative precision and accuracy, deviations, rejection of results, significant figures, sources of error and means by which they may be minimised.

**Credit Points:** 6      **Contact Hours:** 3 per week

#### ■ CHB150 ORGANIC CHEMISTRY I

**Offered:** Autumn, Spring

An introduction to the principles of organic chemistry. Topics include: principles of bonding and their effect on organic structure; nomenclature; influence of acidity, polarity and structure on reactivity; the major reaction types; properties of hydrocarbons and alkyl halides.

**Credit Points:** 8      **Contact Hours:** 4 per week

**Note:** This subject is not compatible with CHB101, CHB102; credit may not be retained for more than one of these subjects.

#### ■ CHB180 PHYSICAL & INORGANIC CHEMISTRY I

**Offered:** Autumn

The structure and bonding of atoms and molecules; elementary thermodynamics including the First Law and thermochemistry; the states of matter and the gas laws; homogeneous, heterogeneous and ionic equilibria; elementary kinetics and experimental methods. Principles of non-redox and redox ionic reactions involving oxygen compounds; Periodic Table and periodicity; chemistry of simple acids, bases and salts; chemistry of hydrogen and hydrides; applications.

**Credit Points:** 8      **Contact Hours:** 4 per week

**Note:** This subject is not compatible with CHB101, CHB102; credit may not be retained for more than one of these subjects.

#### ■ CHB201 CHEMISTRY IIA

**Offered:** Spring

A series of lectures and tutorials continuing the study of the principles of chemistry covered in CHB101.

**Prerequisite:** CHB101

**Credit Points:** 8      **Contact Hours:** 3 per week

**Note:** This subject is not compatible with CHB230, CHB250, CHB270; credit may not be retained for more than one of these subjects.

#### ■ CHB202 CHEMISTRY IIB

**Offered:** Spring

A course in practical chemistry covering experimental aspects of inorganic, physical and organic chemistry that expands on the techniques covered in CHB102.

**Prerequisite:** CHB102 **Co-requisite:** CHB201

**Credit Points:** 6      **Contact Hours:** 3 per week

**Note:** This subject is not compatible with CHB201; credit may not be retained for both.

#### ■ CHB210 ANALYTICAL CHEMISTRY II

**Offered:** Spring

Volumetric and gravimetric techniques introduced in the unit CHB110 are applied to more complex samples. Complexometric and back titration techniques are introduced; qualitative organic analysis is discussed with reference to separation methods based on functional groups and solubility; simple colorimetric methods are used as an introduction to instrumental analysis.

**Prerequisite:** CHB110

**Credit Points:** 6      **Contact Hours:** 3 per week

#### ■ CHB230 INORGANIC CHEMISTRY II

**Offered:** Autumn, Spring

A course of lectures and practical work in the area of general applied inorganic chemistry encompassing

the topics of the chemistry of the non-metals and anions; the chemistry of main group and transition metals; basic co-ordination chemistry.

**Prerequisite:** CHB180

**Credit Points:** 6      **Contact Hours:** 3 per week

### ■ CHB250 ORGANIC CHEMISTRY II

**Offered:** Autumn, Spring

Alkenes and alkynes - electrophilic and free radical addition. Benzene - aromatic character, electrophilic substitution. Alcohols, phenols and ethers - nucleophilic reactions, oxidation. Aldehydes and ketones - addition reactions, oxidation and reduction, active hydrogen reactions, synthesis from Grignard reagents. Simple spectroscopic properties (infrared and ultraviolet) of the above classes.

**Prerequisite:** CHB150

**Credit Points:** 8      **Contact Hours:** 4 per week

**Note:** This subject is not compatible with CHB201, CHB202; credit may not be retained for more than one of these subjects.

### ■ CHB270 PHYSICAL CHEMISTRY II

**Offered:** Spring

The Second Law of thermodynamics; introductory surface chemistry and electrochemistry; the properties of liquids and solutions and the phase chemistry of one component systems; molecular bonding and introductory spectroscopy.

**Prerequisite:** CHB180

**Credit Points:** 8      **Contact Hours:** 4 per week

**Note:** This subject is not compatible with CHB201, CHB202; credit may not be retained for more than one of these subjects.

### ■ CHB310 ANALYTICAL CHEMISTRY III

**Offered:** Autumn, Spring

Calculation of titration curves for redox, precipitometric and complexometric titrations, conditional stability constants, masking and demasking phenomena, organic analytical reagents, gravimetric theory, methods and theory of sampling, errors, sample dissolution, electrodeposition, potentiometric methods, ion selective electrodes, coulometry, polarography.

**Prerequisite:** CHB101 + CHB102 or CHB201 + CHB202 or CHB110 + CHB210 + CHB270

**Credit Points:** 8      **Contact Hours:** 4 per week

### ■ CHB327 CHEMICAL TECHNOLOGY III

**Offered:** Autumn

Introduction to chemical process industries. Economic significance. Flowsheets. Unit operations: basic concepts, a study of range of unit operations selected from: comminution, classification, leaching, solid-liquid separations, drying, fluid transport, agitation, liquid-liquid extraction, heat exchange, evaporation, distillation, gas absorption.

**Prerequisites:** CHB180 + PHB260 or CHB101 + CHB102 + PHB110 + PHB111

**Credit Points:** 6      **Contact Hours:** 3 per week

### ■ CHB340 SPECTROSCOPY

**Offered:** Autumn, Spring

The theory of rotational, vibrational and electronic spectroscopy. Instrumentation and spectroscopic methods of analysis.

**Prerequisites:** CHB180 or CHB110 or CHB101 + CHB102 + CHB201

**Credit Points:** 8      **Contact Hours:** 3 per week

### ■ CHB344 ENGINEERING CHEMISTRY M

**Offered:** Spring

This introductory subject in chemistry for mechanical engineers covers topics including fuels and their combustion, the chemistry of lubricants and lubrication, metallic corrosion and water treatment processes.

**Prerequisite:** CHB002

**Credit Points:** 4      **Contact Hours:** 2 per week

### ■ CHB350 ORGANIC CHEMISTRY III

**Offered:** Autumn, Spring

This unit continues the study of organic functional groups and extends the students' knowledge to include simple molecules of biological significance. A study of the stereochemical aspects of organic chemistry is included along with a more detailed examination of spectroscopic properties, including ultraviolet, infrared and nuclear magnetic resonance spectroscopy.

**Prerequisites:** CHB150, CHB250

**Credit Points:** 8      **Contact Hours:** 4 per week

**Note:** This subject is not compatible with CHB351; credit may not be retained for more both.

### ■ CHB351 ORGANIC CHEMISTRY IIIC

**Offered:** Autumn

This unit continues the study of organic functional groups and extends the students' knowledge of the mechanisms of simple organic and biochemical processes. A study of organic spectroscopy is also involved and includes ultraviolet, infrared and nuclear magnetic resonance spectroscopy.

**Prerequisites:** CHB101, CHB102, CHB202

**Credit Points:** 8      **Contact Hours:** 5 per week

**Note:** This subject is not compatible with CHB350; credit may not be retained for both.

### ■ CHB370 PHYSICAL CHEMISTRY III

**Offered:** Autumn

Experimental, theoretical and applied reaction kinetics; thermodynamics; real fluids; gas adsorption and heterogeneous catalysis; phase equilibria.

**Prerequisites:** CHB180, CHB270

**Credit Points:** 8      **Contact Hours:** 4 per week

**Note:** This subject is not compatible with CHB371; credit may not be retained for both.

### ■ CHB371 PHYSICAL CHEMISTRY IIIC

**Offered:** Autumn

Experimental, theoretical and applied reaction kinetics; thermodynamics; real fluids; gas adsorption and heterogeneous catalysis; phase equilibria.

**Prerequisites:** CHB101, CHB102, CHB201

**Credit Points:** 8      **Contact Hours:** 4 per week

**Note:** This subject is not compatible with CHB370; credit may not be retained for both.

### ■ CHB411 ENVIRONMENTAL ANALYTICAL CHEMISTRY

A course of lectures and practical work for students of biological sciences dealing with the principles and application of sampling, and electrometric/spectroscopic/flame separation methods to the analysis of materials from the biosphere.

**Prerequisites:** CHB101, CHB102, CHB201, CHB202

**Credit Points:** 8      **Contact Hours:** 4 per week

**Note:** This subject is not compatible with a major in Chemistry.

### ■ CHB427 CHEMICAL TECHNOLOGY IV

**Offered:** Spring

Numerical, graphical and computer aids to problem solving. Chemical process principles. Industrial stoichiometry, material balances for solids, liquids,

gases and vapours. Energy balances. Combined material and energy balances. Balances on reactive processes.

**Prerequisite:** CHB327

**Credit Points:** 8      **Contact Hours:** 4 per week

■ **CHB430 INORGANIC CHEMISTRY IV**

**Offered:** Autumn, Spring

A course of lectures and practical work relating to the topics of crystal field theory, solution chemistry of metal complexes, principles of bio-inorganic chemistry and the chemistry of post-transition elements.

**Prerequisites:** CHB230 or CHB201 + CHB202

**Credit Points:** 8      **Contact Hours:** 3 per week

■ **CHB440 SEPARATION METHODS**

**Offered:** Spring

Basic principles and applications of solvent extraction. Principles and practices of chromatography with reference to column chromatography, ion exchange chromatography, molecular sieves, gel permeation chromatography, thin layer chromatography, paper chromatography. Gas chromatography with particular reference to theory, instrumentation and applications including column selection, efficiency, detectors, resolution and temperature programming. Liquid chromatography with particular reference to instrumentation, columns, detector systems and applications.

**Prerequisites:** CHB210 + CHB250 + CHB270 or CHB201 + CHB202

**Credit Points:** 8      **Contact Hours:** 3 per week

■ **CHB450 ORGANIC CHEMISTRY IV**

**Offered:** Autumn, Spring

A study of the reactions and properties of polyfunctional organic compounds as well as heterocyclic compounds particularly naturally occurring and technically useful compounds. Rearrangement reactions and the chemistry of organometallic compounds also are studied.

**Prerequisites:** CHB250, CHB350

**Credit Points:** 8      **Contact Hours:** 4 per week

**Note:** This subject is not compatible with CHB451; credit may not be retained for both.

■ **CHB451 ORGANIC CHEMISTRY IVC**

**Offered:** Spring

A study of the reactions and properties of polyfunctional organic compounds as well as heterocyclic compounds, particularly naturally occurring and technically useful compounds. Rearrangement reactions and the chemistry of organometallic compounds also are studied.

**Prerequisite:** CHB351

**Credit Points:** 8      **Contact Hours:** 3 per week

**Note:** This subject is not compatible with CHB450; credit may not be retained for both.

■ **CHB470 PHYSICAL CHEMISTRY IV**

**Offered:** Autumn, Spring

Application of thermodynamics to phase transition and equilibria. Polymerisation processes. Homogeneous and heterogeneous catalysis. Introduction to reactors and reactor design.

**Prerequisites:** CHB270, CHB370

**Credit Points:** 8      **Contact Hours:** 4 per week

**Note:** This subject is not compatible with CHB471; credit may not be retained for both.

■ **CHB471 PHYSICAL CHEMISTRY IVC**

**Offered:** Spring

Thermodynamics of real gases and ideal solutions; surface chemistry; industrial chemical reactors; reaction rate theory and homogeneous catalysis.

**Prerequisites:** CHB201, CHB371

**Credit Points:** 8      **Contact Hours:** 3 per week

**Note:** This subject is not compatible with CHB470, CHB476; credit may not be retained for more than one of these subjects.

■ **CHB510 INSTRUMENTAL ANALYSIS**

**Offered:** Autumn

Scope of trace analysis, including method reliability, accuracy, precision, sensitivity and selectivity. Atomic absorption and atomic emission - theory and instrumentation. Determination of organic structure by mass spectrometry.

**Prerequisites:** CHB310, CHB340, CHB440, CHB351

**Credit Points:** 8      **Contact Hours:** 4 per week

**Note:** This subject is not compatible with CHB641; credit may not be retained for both.

■ **CHB527 CHEMICAL TECHNOLOGY V**

**Offered:** Autumn, Spring

Chemical engineering process analysis and its applications to selected industrial processes. An introductory study of basic economic principles and their applications to the chemical process industries. An introduction to process plant design.

**Prerequisites:** CHB327, CHB427, CHB470

**Credit Points:** 8      **Contact Hours:** 4 per week

■ **CHB530 INORGANIC CHEMISTRY V**

A course of lectures and practical work dealing with organometallic chemistry; lanthanides and nuclear chemistry; inorganic rings and cages including the chemistry polyanions and metal clusters.

**Prerequisite:** CHB430

**Credit Points:** 8      **Contact Hours:** 3 per week

■ **CHB550 ORGANIC CHEMISTRY V**

**Offered:** Autumn

A course in advanced organic chemistry which emphasises the solution of synthetic problems both in the laboratory and on the industrial scale. Topics may include choice of starting materials, major carbon-carbon bond forming procedures, selectivity and control, design of industrial organic processes, significance of reaction mechanism and structure activity relationships.

**Prerequisite:** CHB350, CHB450

**Credit Points:** 8      **Contact Hours:** 4 per week

**Note:** This subject is not compatible with CHB551; credit may not be retained for both.

■ **CHB551 ORGANIC CHEMISTRY VC**

**Offered:** Autumn

A course in advanced organic chemistry which emphasises the solution of synthetic problems. Topics may include choice of starting materials, major carbon-carbon bond forming procedures, selectivity and control, significance of reaction mechanism, and structure activity relationships.

**Prerequisite:** CHB451

**Credit Points:** 8      **Contact Hours:** 4 per week

**Note:** This subject is not compatible with CHB550; credit may not be retained for both.

■ **CHB570 PHYSICAL CHEMISTRY V**

Solid-liquid equilibria, ternary eutectics and industrial phase chemistry; equilibrium and dynamic electrochemistry and corrosion; kinetics of chain reactions.

**Prerequisites:** CHB370, CHB470

**Credit Points:** 8      **Contact Hours:** 4 per week

**Note:** This subject is not compatible with CHB571; credit may not be retained for both.

**■ CHB571 PHYSICAL CHEMISTRY VC**

Solid-liquid equilibria, ternary eutectics and industrial phase chemistry; equilibrium and dynamic electrochemistry; kinetics of chain reactions.

**Prerequisites:** CHB371, CHB471

**Credit Points:** 8      **Contact Hours:** 4 per week

**Note:** This subject is not compatible with CHB570; credit may not be retained for both.

**■ CHB590 MATERIALS SCIENCE**

**Offered:** Autumn, Spring

The nature of solids; crystalline materials; metals; non-metallic materials and organic polymers.

**Prerequisites:** CHB370 or CHB371, CHB470 or CHB471

**Credit Points:** 8      **Contact Hours:** 3 per week

**■ CHB600 PROJECT**

**Offered:** Spring

A laboratory-oriented investigation extending over one semester full-time or two semesters part-time under the supervision of a member of staff. The project will require a literature search, further study, continuing discussion with the project supervisor and a laboratory research program. The literature search, study and discussion component of CHB600 and CHB601 is aimed at developing student competence in search techniques and experience in experimental design. The laboratory program aims to develop student competence in the use of experimental techniques as a basis for problem solving. Completion of the project requires the submission of a written technical report.

**Prerequisites:** for CHJ129 - CHB510 or CHB527 and two of CHB530, CHB550 and CHB570 or, for ASJ226 - two of CHB601, CHB551 and CHB571

**Credit Points:** 20      **Contact Hours:** 10 per week

**■ CHB610 ADVANCED ANALYSIS**

**Offered:** Spring

Use of computers for on line data acquisition and instrument control. Microprocessor controlled instrumentation and dedicated data systems. Advanced instrumental techniques, with emphasis on trace techniques and associated sample-handling requirements. Techniques included for discussion will be electroanalytical techniques, nondestructive techniques and thermal methods.

**Prerequisite:** CHB510

**Credit Points:** 4      **Contact Hours:** 2 per week

**■ CHB618 LABORATORY AUTOMATION**

**Offered:** Spring

Current approaches to the use of computer facilities in commercial laboratories will be emphasised in the lecture course. Discussion will centre on planning to achieve an integrated network. Instrument types to include analogue output, BCD and serial digital interfaces (RS232C, IEEE, etc.). Incorporation of microprocessor controlled instruments and those instruments with dedicated data systems. Report generation and data communication systems. Polling (programmed I/O) and interrupt techniques.

**Prerequisite:** PHB504

**Credit Points:** 8      **Contact Hours:** 3 per week

**■ CHB627 CHEMICAL TECHNOLOGY VI**

**Offered:** Autumn, Spring

Measurement and control in large-scale chemical processing. An introduction to process modelling including strategies of process operations, optimisation methods, linear programming and dynamic programming.

**Prerequisites:** CHB327, CHB427

**Credit Points:** 4      **Contact Hours:** 2 per week

**■ CHB628 ENERGY TECHNOLOGY**

**Offered:** Spring

A study of energy conversion systems and energy economics including choice of fuels, distribution costs and net energy analysis.

**Prerequisite:** CHB527 **Co-requisite:** CHB627

**Credit Points:** 6      **Contact Hours:** 3 per week

**■ CHB631 ADVANCED INORGANIC CHEMISTRY**

**Offered:** Spring

Selected metals: the solution and solid state chemistry of metals such as titanium, zirconium, hafnium, chromium, molybdenum and tungsten with emphasis on structures, bonding and reaction mechanisms. Precious metals: the 'platinum group', silver and gold; high purity chemicals. Redox systems: hydrogen peroxide and related peroxo-compounds; dithionates and the oxo-sulphur system; sodium borohydride and other complex hydrides.

**Prerequisite:** CHB530

**Credit Points:** 8      **Contact Hours:** 3 per week

**■ CHB640 CHEMISTRY VI**

**Offered:** Spring

Celloid chemistry and rheology; Fourier transform, laser and time resolved spectroscopy; interpretative <sup>13</sup>C NMR spectroscopy; free radical and photochemistry and the organic chemistry of sulphur and phosphorus compounds.

**Prerequisites:** CHB450, CHB470, CHB550, CHB570

**Credit Points:** 4      **Contact Hours:** 2 per week

**Note:** This subject is not compatible with CHB641, CHB671; credit may not be retained for more than one of these subjects.

**■ CHB641 ADVANCED SPECTROSCOPY**

Atomic absorption and emission spectroscopy. Electron spin resonance spectroscopy. Lasers and laser spectroscopy. Mass spectrometry, particularly GC-MS. Fourier transform spectroscopy, particularly <sup>13</sup>C and multi-nuclei NMR. The role of dedicated computers in these techniques will be emphasised.

**Prerequisite:** CHB340

**Credit Points:** 8      **Contact Hours:** 3 per week

**Note:** This subject is not compatible with CHB510, CHB640; credit may not be retained for more than one of these subjects.

**■ CHB651 BIOLOGICAL CHEMISTRY**

**Offered:** Spring

Phosphoric acids and derivatives; addition and substitution reactions, reactivity relative to carbon esters. Condensation reactions, thiol esters, fatty acid synthesis. Hydration/dehydration, terpene biosynthesis. Biological oxidation, heterocyclic coenzymes. Bioinorganic systems investigation - metal ion probes, inhibitor studies, model compounds. Hydrolytic enzymes. Biological redox systems with transition metal ions.

**Prerequisite:** CHB551

**Credit Points:** 8      **Contact Hours:** 3 per week

**■ CHB660 INDUSTRIAL VISITS**

**Offered:** Spring

Visits to selected industries, for example, petroleum, industrial chemicals, sugar.

**Prerequisite:** CHB501

**Credit Points:** 2

### ■ CHB671 SOLIDS & SURFACES

Offered: Spring

Colloid chemistry and rheology. The surface chemistry of metals, polymers and other solid materials. Surface analysis techniques including FTIR, XPS, SAM and ESCA.

Prerequisite: CHB571

Credit Points: 8 Contact Hours: 3 per week

Note: This subject is not compatible with CHB640; credit may not be retained for both.

### ■ CHB690 ADVANCED MATERIALS SCIENCE

Offered: Spring

Advanced materials analysis; fibre reinforced composite materials; advanced alloys; inorganic polymers; applied polymer science.

Prerequisite: CHB590

Credit Points: 8 Contact Hours: 3 per week

### ■ CHB691 ENVIRONMENTAL CHEMISTRY

Offered: Spring

The nature and composition of natural and polluted waters; metal ions, gases, redox equilibria complexation and microbial transformation of chemicals in water; water pollution and trace-level substances in water. Environmental chemistry of soils; acid-base equilibria and ion-exchange; chemicals in soil. The nature and composition of the atmosphere; chemical and photochemical reactions in the atmosphere; the oxides of carbon, sulphur and nitrogen in the atmosphere; organic pollutants and photochemical smog; particulate matter. Water and atmospheric monitoring.

Prerequisites: CHB551, CHB571

Credit Points: 8 Contact Hours: 3 per week

### ■ CHN110 ANALYTICAL CHEMISTRY I

Offered: Autumn

General introduction to analytical chemistry, literature, including computer-oriented data bases. The analytical process, method selection, sampling, method validation, treatment of results, quality control, quality assurance, report presentation. Safety in the laboratory. Packaging, storage, transport and disposal of chemical materials. Instrumental methods for separation and identification: gas chromatography, including glass capillary. Liquid chromatography including ion exchange chromatography. Data handling systems. Electrophoresis. Mass spectrometry and GC/MS plus data system.

Credit Points: 18 Contact Hours: 6 per week

### ■ CHN210 ANALYTICAL CHEMISTRY II

Offered: Spring

This unit provides a theoretical background in spectroscopy and an appreciation of the applications, limitations and practice of modern methods of spectrochemical analysis. Topics include molecular spectrophotometry, atomic absorption and atomic emission, X-ray fluorescence and related techniques, nuclear magnetic resonance spectroscopy and electron spin resonance spectroscopy.

Prerequisite: CHN110

Credit Points: 18 Contact Hours: 6 per week

### ■ CHN310 ANALYTICAL CHEMISTRY III

Offered: Autumn

A study of modern electrochemical analytical techniques and an advanced level course in electrochemistry. Principles of interfacial electrochemistry, the ion double layer, electrocapillarity, electrode kinetics, evaluation of kinetic parameters, interfacial electrochemistry in chemical analysis. Thermal tech-

niques: thermogravimetry, differential thermal analysis, differential scanning calorimetry, enthalpimetry, pyrolysis.

Prerequisite: CHN210

Credit Points: 15 Contact Hours: 5 per week

### ■ CHN345 LABORATORY MANAGEMENT

Offered: Autumn

The unit introduces concepts of modern management appropriate to an analytical laboratory. The functions of management. The role of the laboratory manager. Analysis of management efficiency, decision making, management techniques for decision making. Installation of laboratory equipment, selection and maintenance of laboratory equipment, calibration of equipment and apparatus, replacement policy. Purchasing and financial control.

Credit Points: 3 Contact Hours: 1 per week

### ■ CHN410 ANALYTICAL CHEMISTRY IV

Offered: Spring

Specialised application of analytical techniques. Trace analysis: laboratory design and practice, sample collection, pretreatment and handling. Consideration and selection of techniques and methods. Accuracy, precision, sensitivity, selectivity, reliability. Forensic chemistry: special requirements of a forensic science laboratory - sample handling, unequivocal identification, comparative procedures, security. Consideration of typical examples of forensic analysis. Outline of the Queensland legal system, the expert witness, pretrial preparation facts vs. opinions.

Prerequisite: CHN310

Credit Points: 15 Contact Hours: 5 per week

### ■ CHN445 LABORATORY AUTOMATION

Offered: Spring

This unit is designed to give the student 'hands on' experience with on-line data acquisition and instrument control. It includes instruction in a language appropriate to the computer system to be used. Interfacing techniques. Serial and parallel data transmission. Interrupt facilities. Domain conversion and real time data acquisition and display. Digital techniques for signal smoothing. Peak recognition techniques. Analysis of microprocessor applications in analytical instrumentation.

Prerequisite: PHN350

Credit Points: 9 Contact Hours: 3 per week

### ■ CHN510 ANALYTICAL CHEMISTRY V

Offered: Autumn, Spring

This four semester unit includes some lecture, seminar and workshop activities, but the research/development project represents the major activity.

Prerequisite: CHN410, CHN345, MAN255

Credit Points: 24 Contact Hours: 8 per week

### ■ CHP150 BIOCHEMICAL ENGINEERING

Offered: Spring

The application of organisms, systems and processes to productive level activities. Specific areas are in fermentation, bioprocessing and enzyme technology. Topics include: fermentation processes; microbial physiology and environmental factors in processing operations; fermentation kinetics and modelling; aeration and agitation; sterilisation, bio-reactors and scale-up. It also covers enzymology; large-scale extraction and purification of enzymes; immobilised enzymes; application of enzymes; downstream processing; and bio-process economics.

Credit Points: 10 Contact Hours: 6 per week

### ■ CHP700 PROJECT

**Offered:** Full Year

All students undertaking Honours are required to select and undertake, in consultation with a supervisor, a substantial project in an appropriate area. Each project will be assessed on the basis of an extensive written report and an oral presentation.

**Credit Points:** 40

### ■ CMA133 COMMUNICATION TECHNIQUES

**Offered:** Autumn, Spring

An introduction to the techniques of technical writing appropriate to applied science vocations. Technical report writing, writing for non-technical audiences, media liaison, business communications. Application of communication principles in technical writing. Application of communication principles to non-written communications. Individual and group speaking. Speech writing. Oral delivery of technical papers. Formal meeting procedure. Conferences, forums, panels, interviews, symposia, debates. Use of film in scientific communication.

**Credit Points:** 4      **Contact Hours:** 2 per week

### ■ CMB012 SPEECH COMMUNICATION

The major aim of the course is to develop in the student the ability and confidence to successfully communicate in speaking in contemporary business and professional situations. The specific objectives are to develop an understanding of the concepts and skills required for effective participation in performance situations, such as: radio and television broadcasting, creative presentations to clients, creative presentations to the public, persuasive presentations to an audience, supportive bases for these methods of communication will include language and non-verbal aspects, listening and delivery and staging and use of visual aids.

**Credit Points:** 12      **Contact Hours:** 3 per week

### ■ CMB014 WRITING & COMMUNICATION THEORY

The subject provides a broad overview of the contemporary study of communication by introducing students to a wide range of theories, methods, and approaches. In addition, the subject deals with the ways in which different approaches may be applied to particular communicative situations by investigating the principles underlying interpersonal, small group, organisational, and mass communication situations. Emphasis is placed on mass communication theory and practice, with particular attention to the relevance of communication theory to professional practice. Theoretical approaches dealt with include rhetorical, process, interactive, and cultural studies perspectives.

**Credit Points:** 12      **Contact Hours:** 4 per week

### ■ CMB104 PROFESSIONAL COMMUNICATION

**Offered:** Autumn

Communicating successfully in writing and orally in contemporary professional situations. An understanding of the concepts and skills required for effective practices in formal reporting and persuasive writing, oral reporting and persuasive speaking, group decision making and meeting procedure, and leadership and participation.

**Credit Points:** 9      **Contact Hours:** 3 per week

### ■ CMB105 BUSINESS COMMUNICATION

To achieve standards of preparation and presentation in formal communication which are acceptable in contemporary organisations. It encompasses an intro-

duction to the techniques and objectives of communication in formal contexts. The processes of oral and written communication and their application within organisational settings to interviewing, presentational speaking, research papers, reports and correspondence.

**Credit Points:** 12      **Contact Hours:** 3 per week

### ■ CMB106 PROFESSIONAL COMMUNICATION

**Offered:** Autumn

Communicating successfully in writing and orally in contemporary professional situations. An understanding of the concepts and skills required for effective practices in formal reporting and persuasive writing, oral reporting and persuasive speaking, group decision making and meeting procedure, and leadership and participation.

**Credit Points:** 6      **Contact Hours:** 3 per week

### ■ CMB108 ENGLISH FOR TECHNOLOGISTS

**Offered:** Spring

A series of lectures and tutorials aimed at improving the student's ability to write sound paragraphs comprising economical sentences acceptable in grammar, syntax, punctuation and idiom.

**Credit Points:** 6      **Contact Hours:** 3 per week

### ■ CMB111 SOCIOLOGY

To develop an awareness of the impact of the social environment of human behaviour and to provide a contextual understanding of society for practice in the communication professions. Students will be introduced to some of the main theories which have been developed to gain insight into the operation of society, and to the basic concepts employed in those theories. Some of the topics to be addressed include such topics as culture and sub-cultures; the family; stratification; groups and communities; formal organisations; social deviance; social change.

**Credit Points:** 12      **Contact Hours:** 3 per week

### ■ CMB116 WRITING FOR DESIGNERS I

**Offered:** Autumn

The writing process; style, accuracy and simplicity in writing; the editing process.

**Credit Points:** 4      **Contact Hours:** 2 per week

### ■ CMB117 WRITING FOR DESIGNERS II

**Offered:** Spring

Writing for the design professional; review of organisation and mechanics; types, formats, styles and review of professional documents; problems of technical style, bibliographic conventions and use of graphics.

**Credit Points:** 4      **Contact Hours:** 2 per week

### ■ CMB119 SOCIOLOGY FOR PROFESSIONALS

To develop an awareness of the impact of the social environment of human behaviour and to provide a contextual understanding of society for practice in professional fields. Students will be introduced to some of the main theories which have been developed to gain insight into the operation of society, and to the basic concepts employed in those theories. Some of the topics to be addressed include: culture and sub-cultures; the family; stratification; groups and communities; formal organisations; social deviance; social change.

**Credit Points:** 12      **Contact Hours:** 3 per week

### ■ CMB134 COMMUNICATION

**Offered:** Autumn

This subject is designed to train students to communicate effectively with the public and with their peers by developing the skills of reading and writing and spoken communication with special reference to professional and administrative contexts.

Topics covered include the library paper; preparation and presentation of research papers; business correspondence: objectives, format, composition; report writing presentation, editing; and speech preparation.

**Credit Points:** 4      **Contact Hours:** 2 per week

### ■ CMB135 COMMUNICATION FOR ENGINEERS

**Offered:** Autumn

Development of confidence in the dissemination of knowledge, skills and information to both technical and nontechnical associates via written and oral communication resources. Oral presentation techniques. Effective written communication skills.

**Prerequisite:** CMB108

**Credit Points:** 2      **Contact Hours:** 1 per week

### ■ CMB136 TECHNICAL WRITING

**Offered:** Autumn

The prose, mechanical and graphical elements in reports, proposals, instructions and other technical literature are analysed and put into practice. The subject includes the preparation of routine correspondence, and presents modern developments in organisational communications.

**Credit Points:** 2      **Contact Hours:** 1 per week

### ■ CMB161 LITERATURE & COMMUNICATION

This course develops skills in written communication, and also develops critical and analytical skills in dealing with a variety of communicative and textual forms. Students will acquire an understanding of various forms of written communication, specifically, literary forms such as fiction and poetry, and performative, such as drama. This will entail understanding the theory behind such forms; students will therefore be introduced to literary theory as well as language and communication theory. The subject provides a theoretical background for students wishing to take electives in the Humanities area in later semesters.

**Co-requisite:** CMB014

**Credit Points:** 12      **Contact Hours:** 3 per week

### ■ CMB163 INTRODUCTION TO AUDIO-VISUAL COMMUNICATION

Introduction to the theory and practice of audio-visual communication, media consciousness, definition of operational objectives, analysis of audience characteristics; development of concept, selection of appropriate mediated form, basic scriptwriting; equipment, quality, and cost effectiveness; selection and operation of appropriate equipment; familiarity with still camera, audio and video equipment; techniques for slide-tape and video production. Production of a sound synchronised slide-tape programme.

**Credit Points:** 12      **Contact Hours:** 3 per week

### ■ CMB191 FUNDAMENTALS OF PHOTOGRAPHY

**Offered:** Autumn, Spring

Historical development of the photographic arts, role of the photographer in society, the principles of visual perception and design, photography as both art and craft; display photography, news photography, photo layout and design; the still camera, developing, printing and enlarging; creative use of camera and

darkroom. Fortnightly photographic assignments. Portfolio.

**Credit Points:** 12      **Contact Hours:** 3 per week

### ■ CMB211 COMMUNICATION RESEARCH

This subject aims to provide students with an understanding of qualitative and quantitative research methods used in the communication professions. The course will examine the basic assumptions and strategies of social research. Topics will include focus group interviews; questionnaire construction and sample surveys; experimental design.

**Co-requisite:** CMB111, CMB014

**Credit Points:** 12      **Contact Hours:** 3 per week

### ■ CMB212 AUSTRALIAN STUDIES

This subject provides the student with a greater awareness of the Australian social history. It examines the construction of Australian identity since white settlement.

**Prerequisite:** CMB111 or 5 subjects B.Bus degree program

**Credit Points:** 12      **Contact Hours:** 3 per week

### ■ CMB220 SPEECH & DRAMA

Students will be given a course of relaxation, vocal and expression exercises to increase their control of body language and vocal presentation. They will study the communication of an age by looking at the manners, values and attitudes of the culture reflected in its drama. Particular attention will be paid to twentieth century drama and its reflection of the communication of our society. Students' perception, especially auditory awareness and visual perspicacity will be extended by the use of video recording of their work. This subject has an equal balance of theoretical and practical components.

**Prerequisite:** CMB012 or CMB131

**Credit Points:** 12      **Contact Hours:** 3 per week

### ■ CMB241 INTRODUCTION TO ADVERTISING

This subject serves as an introduction to later subjects in the Communication course and is a prerequisite for further advertising subjects. It is also a useful elective subject for management and accounting students. Introduction to Advertising presents students with an overview of the advertising industry. It traverses the inter-relationship of the institutions of advertising - the advertisers, the advertising agencies and the media. It details methods of determining advertising budgets, establishing target audiences, interpreting audience ratings and circulation figures and enables students to gain a preliminary understanding of the creative functions of the advertising industry. It also shows the ethical and legal side of advertising and its important role in today's society.

**Prerequisite/Co-requisite:** MNB253

**Credit Points:** 12      **Contact Hours:** 3 per week

### ■ CMB291 AUSTRALIAN LITERATURE & FILM

A survey of the development of Australian literature and film with an emphasis on modern works. The relationship between literary and cinematic treatment of particular themes and situations will be examined, with special attention to translation of works from literature to film.

**Prerequisite:** CMB212

**Credit Points:** 12      **Contact Hours:** 3 per week

### ■ CMB311 CONTEMPORARY SOCIAL ISSUES

A study of social trends and contemporary issues in Australian society from a sociological perspective. Media treatment and presentation of issues, in the form of news, current affairs and documentaries, is examined and discussed and individual, community and governmental responses analysed. Topics vary according to social events, but include such subjects as family crises, environmental issues, deviance, minority groups, health and welfare concerns, leisure and entertainment.

**Prerequisite:** CMB111

**Credit Points:** 12 **Contact Hours:** 3 per week

### ■ CMB321 COMMUNICATION IN SMALL GROUPS

The application of communication theory and the refinement of practical speech communication skills. Business and media interviewing, role-playing, and simulated group problem-solving will be practised and analysed. Topics relating to Public Relations, Advertising and Journalism will form a base for these projects. Student's perception, especially auditory awareness and visual perspicacity will be extended by the use of video recording of their work.

**Prerequisite:** Three communication degree subjects including CMB012 or CMB131

**Credit Points:** 12 **Contact Hours:** 3 per week

### ■ CMB351 COMMUNITY RELATIONS

Specialist public relations subject which examines strategies used to relate an institution or individual to communities through community relations programs; fund raising and special events; and the setting up of community groups. The subject is designed to increase intellectual depth of understanding as well as practical knowledge of a significant and growing area of public relations. Practical work will be undertaken in planning community relations programs, fund raising campaigns and special events. Presentations of their programs are made by student groups.

**Prerequisite/Co-requisite:** CMB651

**Credit Points:** 12 **Contact Hours:** 3 per week

### ■ CMB359 NEWSWRITING

Students, through lectures and workshops, learn how to evaluate and select information to write news stories. Students are thus exposed to journalistic style, grammar, spelling, punctuation and syntax.

**Credit Points:** 12 **Contact Hours:** 3 per week

### ■ CMB360 REPORTING PRINCIPLES

Students go into the community to cover rounds and news stories. They receive individual attention from tutors in weekly conferences in which each story is critiqued. Students rewrite their stories to bring them up to publishable standard. All stories are made available for possible publication in the School newspaper.

**Prerequisite:** CMB359

**Credit Points:** 12 **Contact Hours:** 3 per week

### ■ CMB363 ADVERTISING COPYWRITING - PRINT

This subject is an important base for further study in advertising. Students are introduced to the principles, theory and practice relating to the creation of advertisements. The role of the copywriter in the advertising process is examined as is the relationship between copy and art. Practical work involves the writing, setting and presentation of copy for print advertising for manufacturers, service industries and the retail sector. Case briefs for assignments are presented to students by advertisers or advertising

agency executives. Finished presentations are then made to these specialists.

**Prerequisite:** CMB241

**Credit Points:** 12 **Contact Hours:** 3 per week

### ■ CMB364 ADVERTISING COPYWRITING - ELECTRONIC

Students continue their studies of the principles and practice of copywriting. Practical work concentrates on the electronic media. This includes the writing and production of commercials for both radio and television and other industry requirements.

**Prerequisite:** CMB363 and CMB464

**Credit Points:** 12 **Contact Hours:** 3 per week

### ■ CMB371 SUB-EDITING & LAYOUT

An examination of the principal functions of editors and sub-editors in the print media. An introduction to sub-editing. An examination of the theories of newspaper and magazine design and of current and likely future practices. Practice in basic sub-editing, including on-line subbing of Australian Associated Press stories, introduction to Desktop Publishing, design and layout. The class produces a School newspaper. Students are expected to devote 6 hours per week to assigned sub-editing and layout activities.

**Prerequisite:** CMB571 and 80 wpm Teeline

**Credit Points:** 12 **Contact Hours:** 3 per week

### ■ CMB422 PROFESSIONAL SPEECHWRITING

The context for speeches - environmental, relational and linguistic; issues for targeting speeches; rhetorical principles for developing personal language style; methods of interpreting and evaluating speeches; study of exemplars and writing of various types of speeches - occasional addresses; informative speeches; persuasive speeches; modern campaign speeches; using speeches for advance release and promotional purposes; reports on speech writing projects.

**Prerequisite:** CMB552

**Credit Points:** 12 **Contact Hours:** 3 per week

### ■ CMB423 AUSTRALIAN MEDIA INSTITUTIONS

The aim of the course is to introduce students to the major media institutions within Australia. This will involve examination of industry development and structure, and industry practices in the press, television, advertising and radio. Outside specialists will be used to augment the expertise of Communications staff.

**Prerequisite:** CMB011

**Credit Points:** 12 **Contact Hours:** 3 per week

### ■ CMB441 RETAIL ADVERTISING

Topics of study include the examination and study of the advertising objectives, requirements, strategies and practices of the different segments of the retail industry. These are compared and contrasted with the same aspects of national advertising. Workshop sessions and assignments accent practical work on retail advertising.

**Prerequisite:** CMB363, CMB364 or MNB491

**Credit Points:** 12 **Contact Hours:** 3 per week

### ■ CMB442 MOTIVATION AND ETHICS IN ADVERTISING

The subject will provide an introduction to those areas of psychology particularly appropriate to advertising. It will relate these to classical and modern theories of the motivational aspects of advertising. The ethical standards of the Advertising Institute of Australia, the Australian Association of National Advertisers, the



Advertising Federation of Australia and the Direct Marketing Association will be examined and compared with motivational practice and requirements. Emphasis will be placed on the examination of current campaigns against motivational and ethical backgrounds.

**Prerequisite:** CMB241

**Credit Points:** 12 **Contact Hours:** 3 per week

### ■ CMB451 INDUSTRIAL PRESS

An examination of the requirements for communication with employees, shareholders, customers and other specific publics through specialist publications. Analysis of requirements for house magazines, newspapers and newsletters, customer brochures, pamphlets and newsletters, and financial reports to shareholders and staff. Use desk-top publishing and examination of new technology.

**Prerequisite:** CMB552

**Credit Points:** 12 **Contact Hours:** 3 per week

### ■ CMB452 INTRODUCTION TO PUBLIC RELATIONS

An introduction to the concept and practice of public relations. The subject surveys the history, theories, models, and management of public relations activities and processes. Modes of communication are analysed in relationship to reaching different levels of society. A number of guest practitioners discuss their programs and areas of specialisation, such as community, internal, media, and government relations.

**Credit Points:** 12 **Contact Hours:** 3 per week

### ■ CMB461 CREATIVE WRITING

Creative writing is a highly skilled form of communication, involving the communication of ideas and values within a social framework. Students will examine the creative writing process from first draft to final product, with particular emphasis on the short story form. The problems of publishing and marketing as a professional writer will be considered.

**Prerequisite:** CMB161

**Credit Points:** 12 **Contact Hours:** 3 per week

### ■ CMB462 MAGAZINE & FEATURE WRITING

Study of reporting and writing techniques for magazine articles and newspaper human interest stories; analysis of content and style of publications; markets for publication; practical writing and production assignments.

**Prerequisite:** CMB360 and 40 w.p.m. Teeline

**Credit Points:** 12 **Contact Hours:** 3 per week

### ■ CMB463 MODERN LITERATURE & FILM IN SOCIETY

This course will offer an integrated study of contemporary literature and film and show how both media provide an insight into topical issues of the day. Various critical approaches to literary and filmic texts will be analysed and the concepts of genre, authorship and structure will be considered.

**Prerequisite:** CMB161

**Credit Points:** 12 **Contact Hours:** 3 per week

### ■ CMB464 VIDEO PRODUCTION TECHNIQUES

Analysis of audio-visual media in terms of markets served and cost effectiveness; the technology of video. Principles of production - conversion of script to finished product; introduction to budgeting and production management, hiring and casting. Principles and practice of directing and editing; pictorial

composition, lighting, colour, camera; sound and sound recording; animation and graphics. Production of a colour video program.

**Prerequisite:** CMB163

**Credit Points:** 12 **Contact Hours:** 3 per week

### ■ CMB465 LITERATURE, LANGUAGE & SOCIETY

Novels will be considered as both influenced by, and influencing the society in which they are produced. Students will be shown that literature can provide a detailed and complex analysis of society and ideologies. As with the prerequisite subject Literature and Composition, emphasis will be placed on critical and analytical skills through close textual analysis, applying contemporary literary and linguistic theory.

**Prerequisite:** CMB161

**Credit Points:** 12 **Contact Hours:** 3 per week

### ■ CMB521 COMMUNICATION & PUBLIC OPINION

The processes of public opinion are studied from the perspective of sociological theory. Within this framework, the operation of the media will be examined in some detail. Specific topics to be considered include opinion polling in Australia; the association between demographic characteristics and opinions; the role of the media in the 'social construction of reality'; the conceptual and operational relationships between attitudes and opinions; cognitive dissonance and communication strategies for opinion change; the role of uninstitutionalised forms of community agitation in influencing public opinion and public policy; social stability and social change. Students analyse opinion poll data from a number of sources using statistical software on a main-frame computer.

**Prerequisite:** CMB211

**Credit Points:** 12 **Contact Hours:** 3 per week

### ■ CMB541 MEDIA STRATEGY

Topics of study include the following: costing and scheduling media, qualitative and quantitative factors affecting media selection and use, market targeting, researching the media plan, planning media strategy, co-ordinating media, media options, concepts of media decision making, media exposure, media comparisons, media trends, media and the computer.

**Prerequisite:** CMB241 or MNB253

**Credit Points:** 12 **Contact Hours:** 3 per week

### ■ CMB542 ADVERTISING MANAGEMENT

The purpose of the subject is to provide the students with an understanding of the managerial side of the advertising profession, and to equip them with the tools they need to make executive decisions in advertising. Students will examine the process of setting appropriate advertising objectives, designing a program of advertising research, the social environment and regulation of advertising, managerial participation in the creative and media planning process, account management in an advertising agency, client-company management and the advertising process, competing theoretical concepts of 'how advertising works'.

**Prerequisite:** CMB241 or CMP125

**Credit Points:** 12 **Contact Hours:** 3 per week

### ■ CMB543 ADVANCED ADVERTISING

This subject will build upon the knowledge and skills gained by students in either Advertising Copywriting or Media Strategy and build them to be fully operative at copywriter or media planner level. While theoretic-

cal perspectives will be expanded, there will be a heavy emphasis on practical work.

**Prerequisite:** CMB363, CMB364 or CMB541

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ CMB544 DIRECT RESPONSE ADVERTISING

This subject will cover the underlying principles and practice of direct response advertising in its various forms. Ethical considerations will be considered against a background of Australian societal norms. Skills in the appropriate areas will be taught and practised. Practitioners will lecture on current procedures and brief students on assignments, which will be presented to them. There will be a considerable emphasis on practical work.

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ CMB552 PUBLICITY & PROMOTION (PRINT)

Focus is on communication with media. The skills and knowledge necessary to deal with, write and produce materials for print media are developed. Guest speakers in mass media present techniques for working with and in newspapers, and magazines. Practitioners provide information on special events, community relations, political campaigns, and promotions, which students can apply to field assignments.

**Prerequisites/Co-requisites:** CMB452, CMB359

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ CMB553 PUBLICITY & PROMOTION (ELECTRONIC)

Concentrates on development of production skills in video as they apply to public relations in organisations. Students will produce a complex video news magazine for a client organisation. This includes scripting, presenting, studio management, special effects, graphics, field operation of video equipment and video editing. Techniques for producing community service announcements are also taught.

**Prerequisite:** CMB552, CMB464

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ CMB561 FILM & TELEVISION SCRIPT WRITING

Wide scope and approach to writing through analysis of such forms as features, documentaries, and drama; depth approach to writing through analysis of audiences and the industry; corporate video, documentary, drama; analysis of scripts and script requirements in contemporary markets. Students will be required to write a major script or script treatment.

**Prerequisite:** 12 subjects in a degree program

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ CMB562 MEDIA TEXT ANALYSIS

The aim of the course is to enable students to better understand the nature of film and television as forms of communication. It uses the general range of cultural studies approaches structuralism, psychoanalysis, linguistics, film theory and narrative theory. It examines media productions as 'texts', subjecting them to close analysis in order to read from them possible meanings for their audiences.

**Prerequisite:** CMB423

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ CMB571 RADIO/TELEVISION JOURNALISM I

The purpose of this subject is to train students to explore theoretical problems related to radio and television news and to provide them with practical experience in writing/production/reading broadcast

news. Students will study the theoretical aspects of broadcast news writing and production. They will man the 4EB news throughout the semester and the following between-semester months. Students will prepare television reports and present them in class for criticism. Students will be required to develop an understanding of the workings of the radio broadcast equipment. They will assist in the production of current affairs programs for 4EB.

**Prerequisite:** CMB462 and 60 wpm Teeline

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ CMB572 COMPARATIVE JOURNALISM

Development of national press systems. The journalist as a mass communicator. Functions of the press in different societies. Foreign press systems. International and inter-cultural communication.

**Prerequisite:** 16 communication degree subjects

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ CMB592 FILM & VIDEO TAPE EDITING

Orientation to film and television editing; the place of editing in the production; the role of the editor; affective aspects; the scope and limits of creative editing; correlation of image, sound, music, pace, and tone in the total design; editing in workshops throughout the semester of materials provided on 16mm film and video tape.

**Prerequisite:** CMB464

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ CMB622 PROFESSIONAL COMMUNICATION PRACTICE

The aim of this elective subject will be to provide the communication student with an opportunity to observe, and gain insight into, the applications of communication theory to communication practice. The student will be placed with an approved employer. The lecturer in charge of the subject will obtain reports from the student at regular intervals. The student will be required to complete a progressive assessment programme. The student's result will be determined on the basis of reports, continuous assessment and the employer's report.

**Prerequisite:** EITHER CMB363/CMB364 and CMB542 and CMB541 OR CMB371 or CMB672 OR CMB451 and CMB553

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ CMB641 ADVERTISING CAMPAIGNS

Students will be briefed to prepare and document three advertising campaigns. The subjects of these campaigns will be drawn from actual industry marketing situations.

**Prerequisite:** CMB542

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ CMB651 ADVANCED PUBLIC RELATIONS

An advanced approach to public relations submissions by means of the case study method. The subject provides practical experience in problem solving, strategic planning, analysis, and implementation of public relations programs. Guest practitioners present problems they deal with in government and financial relations, from which students derive underlying principles and devise model plans that offer solutions to these societal problems.

**Prerequisite/Co-requisite:** CMB451

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ CMB662 AUDIO-VISUAL SEMINAR

Analysis of the process and effects of mediated communication; budgeting and production management;

effective presentation methods; innovation and special media events; advanced production techniques; working as a part of a crew to produce a significant film or television production. Students are required to discuss script preparation in consultation with the lecturer prior to the commencement of the semester.

**Prerequisite:** CMB464

**Credit Points:** 12 **Contact Hours:** 3 per week

#### **■ CMB666 PUBLIC RELATIONS CONSULTING & MANAGEMENT**

Covers operation of a consultancy and the management of a public relations department in various types of organisations. Guest speakers in specialised areas provide cases on budgeting, staff development, client relations, computer utilisation, management liaison, and group campaigns.

**Prerequisite:** CMB351 or CMB651

**Credit Points:** 12 **Contact Hours:** 3 per week

#### **■ CMB671 PUBLIC AFFAIRS REPORTING**

An advanced reporting subject dealing with four main areas of news coverage: finance, industrial, government and social issues. Students do in-depth reporting on the facts behind financial, industrial, political, scientific and social issues. Students undertake practical assignments and participate in publications and broadcasts.

**Prerequisite:** CMB371

**Credit Points:** 12 **Contact Hours:** 3 per week

#### **■ CMB672 RADIO/TELEVISION JOURNALISM II**

In this subject students will explore the theory underlying current affairs and TV news broadcasting. They will consider all aspects of current affairs and TV news production, and at the same time produce current affairs programs for radio throughout the semester and on roster between semesters. The radio programs will be aired on 4EB. Students will also read news and do more advanced interviewing segments of the news on 4EB during the semester and on roster between semesters.

**Prerequisite:** CMB571 and 80 wpm Teeline

**Credit Points:** 12 **Contact Hours:** 3 per week

#### **■ CMB673 JOURNALISM ETHICS & ISSUES**

This is a seminar subject in which lectures serve as starting points for discussion and panels. Students are challenged on journalistic practices and are asked to make decisions. Experts and professionals are invited to take part in seminars and panel discussions. Students produce a School newspaper and radio news and current affairs programs.

**Prerequisite:** CMB371 and CMB672

**Credit Points:** 12 **Contact Hours:** 3 per week

#### **■ CMN709 CONCEPTS IN COMMUNICATION**

Prepares students in the foundation theories and perspectives of human communication, and in the application to modern professional practice, in order to proceed to advanced theoretical study.

**Credit Points:** 12 **Contact Hours:** 3 per week

#### **■ CMN710 Mass Communication A**

An advanced exploration of the theories of mass communication, as a process, and its impact in society. It studies the role of mass media, and their relationships from one to another, to major institutions and to individuals and groups. It gives a theoretical basis for research in mass communication, including the structure, process and effects of mass media.

**Credit Points:** 12 **Contact Hours:** 3 per week

#### **■ CMN711 MASS COMMUNICATION B**

Examines further the relationship between mass media and society through analysis of the practices, conventions and forms of mass communication, especially film and television. It relates the impact of mass media upon society to cultural formations such as ideology and politics. This subject provides additional theoretical bases for analysis of mass communication messages and reception, through the application of discourse analysis involving semiotic, structural and signification theories.

**Credit Points:** 12 **Contact Hours:** 3 per week

#### **■ CMN720 COMMUNICATION EVALUATION**

Introduces students to the conceptual skills of communication evaluation at an advanced level. It provides the knowledge and skills in both quantitative and qualitative methods. It is intended to prepare people who will commission, supervise and use research and research, not as an end in itself but as a means to solving communication problems.

**Credit Points:** 12 **Contact Hours:** 3 per week

#### **■ CMN723 SEMINAR IN COMMUNICATION RESEARCH**

Allows advanced students to undertake research in order to develop special expertise in a selected methodology, including specific methods and techniques, appropriate to each student's own research interests. It is designed for advanced study in the methods of interpretive or empirical research, quantitative or qualitative. Students may undertake one or more research projects under the direction of their supervisor. They progressively present their work in a seminar of advanced students for review. It can be used to advance a thesis or project.

**Credit Points:** 12 **Contact Hours:** 3 per week

#### **■ CMN810 COMMUNICATION & SOCIETY**

On completing this subject the student should have an appreciation of the social trends and issues which influence the operation of mass communication. Students will study a diversity of social environments which are the setting for communication technology and policy. Students will be assisted in investigating specific fields of interest. Suggested topics may include: social impact of communication technology (home computer, video, access radio, cable television, Aussat); patterns of personal communication in networks and neighbourhoods; cross-cultural communication, multiculturalism and the media; social change in industrial and developing countries; media presentation and the social construction of reality; audience research in mass media and live, performing arts; and communication in urban and rural setting.

**Credit Points:** 12 **Contact Hours:** 3 per week

#### **■ CMN811 COMMUNICATION & CULTURE**

Deals primarily with written forms of discourse in mass culture. Topics include: the concept of mass culture and cultural formations; the growth of written mass culture/popular literature; the relationship between language and reality (reality formed by language, rather than vice versa); the modern debate about mass culture versus 'high' culture literary journalism; mass culture and ideology (fictional and non-fictional prose, scripts). Theory will be related to textual analysis. This subject follows on from Mass Communication B.

**Credit Points:** 12 **Contact Hours:** 3 per week

### ■ CMN813 COMMUNICATION STRATEGIES

A study of putting communication theory into practice. Students may take policy and plans formed either in the subject Communication Policy and Planning, or elsewhere, and consider how to produce the appropriate change. The ethics of persuasion and the problems of co-operation are explored. Students must take into account the social implications of producing change, the role of the change agent and ways to monitor the effects in Australian as well as developing societies. Alternative perspectives for strategic thinking will be compared for application in the environments of marketing, advertising, editorial journalism, public relations, public affairs, public information.

**Credit Points:** 12    **Contact Hours:** 3 per week

### ■ CMN814 MODERN COMMUNICATION TECHNOLOGIES

This subject is designed to give students who are non-engineers a working understanding of modern and emerging communication technologies and their use by individuals and social institutions, with regard for their social consequences. Particularly, it aims to investigate the access to these technologies by citizens and to give students basic technological literacy. It overviews the state of the art and studies current and future applications, basic models and theories, the common technical terms, the economics and the fundamental electronics behind the research and practice of telecommunications, other hardware delivery systems and information technology.

**Credit Points:** 12    **Contact Hours:** 3 per week

### ■ CMN821 ADVANCED ORGANISATIONAL COMMUNICATION

A seminar with a focus on how people relate to each other in modern organisational settings, from small businesses to multi-national organisations in the public and private sector. It addresses communication up, down and across the organisation, among divisions and work units, among different professional and vocational specialties and within work teams. It has a problem-solving, interdisciplinary approach with reference to, at least, social psychology, sociology, culture theory, systems thinking and network analysis.

**Credit Points:** 12    **Contact Hours:** 3 per week

### ■ CMN823 CURRENT ISSUES IN COMMUNICATION

Allows students, after an exposure to the diverse field of study in human communication, to review aspects of this field in depth. It investigates current issues in the theory and practice of human communication. Student and lecturing staff use the various perspectives, theories and applications explored in the program.

**Credit Points:** 12    **Contact Hours:** 3 per week

### ■ CMN824 COMMUNICATION POLICY & PLANNING

Introduces students to the principles and processes of policy development and planning for communication delivery systems, such as a telecommunications system, national satellite broadcasting service or a television network, and for planning and regulating authorities. Students become familiar with the complex range of social environments, stakeholders, issues and options, and compare industrial and developing countries. It critically examines case studies of communication policy and planning.

**Credit Points:** 12    **Contact Hours:** 3 per week

### ■ CMN825 AUSTRALIAN COMMUNICATION CONTEXTS

This subject is designed to analyse specific aspects of the interaction between mass media and the Australian cultural context. It will approach this relationship through cultural studies methodologies - discourse analysis, semiotics, structuralism and theories of cultural production. Much of the theoretical content will follow on from Mass Communication B and Communication and Culture. Following examination of various theoretical and methodological approaches to the analysis of the contexts in which mass communication occurs, students will prepare a case study of a substantial media campaign involving representations of national identity.

**Credit Points:** 12    **Contact Hours:** 3 per week

### ■ CMN830 SEMINAR IN COMMUNICATION

A series of seminars comprising postgraduate students, teaching staff, and variously, visiting scholars and practitioners, for the purpose of sharing knowledge of human communication across the range of perspectives, theories, research and applications. It allows students to pursue, review and compare their own personal interests and readings.

**Credit Points:** 12

### ■ CMN831 INDIVIDUAL RESEARCH

Permits students to conduct independent research in an area not covered by a substantive subject in their program. It is an opportunity to study an area of personal interest or use it as a pilot study for a thesis or project.

**Credit Points:** 12

### ■ CMN910 AND CMN911 DISSERTATION

Taken in conjunction with, or subsequent to, a subject in the CMN800-899 series; normally a 10,000 word investigation of a communication concept using secondary research relevant to that subject.

**Prerequisite:** CMN710, CMN711, CMN720

**Credit Points:** 24 (each)

### ■ CMN950 THESIS/PROJECT

Students may complete a thesis or a project. A thesis is a scholarly work which provides an opportunity to combine an appropriate theory or perspective, and appropriate research methodology to examine a significant communication problem or issue. Main text will not normally exceed 20,000 words. A project is an approved program of substantive work leading to a report, communication program, printed or audio-visual production, disc or some other product in which theories of communication are applied to some problem or issue.

**Credit Points:** 24 per semester

### ■ CMP007 COMMUNICATION CONCEPTS

Prepares students in the foundation theories and perspectives of human communication, and in the application to modern professional practice, in order to proceed to advanced theoretical study.

**Credit Points:** 12    **Contact Hours:** 3 per week

### ■ CMP352 FUNDRAISING PRINCIPLES

This subject is designed to cover the fundamentals of fundraising. It starts with the preparation of the case statement, introduces planning methods, and then moves through the various techniques of fundraising. Introductory segments on public relations, advertising, marketing and management also form part of this subject. Major topics include philosophy of fundrais-

ing, its role in society, organising annual funds, major gift and capital campaigns, planned giving, researching and establishing prospect bases, procedures of solicitation, team building of boards and volunteers, role of foundations, introductory principles of public relations, advertising, marketing and management.  
**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ **CMP421 NATIONAL MEDIA INSTITUTIONS**

The aim of this course is to introduce students to the major media institutions within Australia. The organisation of the subject matter falls into two main categories. Industry development and structure: this includes ownership of radio, television, newspapers, and advertising agencies; networking; government control and regulation; intra-industry organisations such as FACTS and the unions, technological developments, future changes in technology. Industry practices: these are highly specialised, and some use will be made of media professionals. Topics covered could include the presentation of news, the difference between radio and television advertising, TV programming schedules, radio's response to FM and V, the impact of satellites. Also important here are the roles played by the interaction between an industry and its audiences, audience research and ratings.

**Prerequisite:** CMB161

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ **CMP562 ADVANCED TEXT ANALYSIS**

This unit focuses on the products of the media, particularly film and television. The aim of the course is to enable students to better understand the nature of film and television as forms of communication. It uses the general range of cultural studies approaches: semiotics, structuralism, psychoanalytic theory, linguistics, film theory, and narrative theory. It examines media productions as 'texts', subjecting them to close analysis in order to read from them possible meanings for their audiences. The aim is for this methodology to complement more empirical approaches undertaken elsewhere in the course. Audiences, in particular, become key concepts for analysis. Unlike other approaches to the audience, this subject infers audiences from text analysis as well as talking about audiences as products of the particular medium of communication under analysis.

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ **CSA165 COMPUTING**

**Offered:** Spring

A course in the BASIC language. Computer utilisation and organisation. Problem solving. Analysis of numerical and non-numerical problems. A brief introduction to FORTRAN and the differences between it and BASIC.

**Credit Points:** 7    **Contact Hours:** 3 per week

#### ■ **CSA259 INTRODUCTION TO COMPUTING**

**Offered:** Spring

This subject (which assumes no previous knowledge of computing) is intended to give the student a broad overview of the many facets of computing - ranging from the impact of computers on society through to the details involved in data base organisation and the inter-relationship between these facts. The emphasis of the course is on demystifying computers - the student will gain an understanding of the abilities of computers and, in particular, their role in health science.

**Credit Points:** 6    **Contact Hours:** 2 per week

#### ■ **CSB100 INTRODUCTION TO COMPUTER SCIENCE**

**Offered:** Autumn, Spring

This subject establishes a basis for the major computing topics to be covered in later subjects. It provides students with a disciplined and structured approach to algorithm design, and introduces a range of problem-solving methods and a variety of programming languages which can be used to process information in a computer.

**Credit Points:** 9    **Contact Hours:** 3 per week

#### ■ **CSB101 COMPUTER SYSTEMS I**

**Offered:** Spring

This subject aims to provide an understanding of the physical organisation of a computer system, the control and flow of information within the system, the representation of data in a computer system, and the design of elementary digital electronic circuits. Topics covered include boolean algebra; state concepts; data representation; processor organisation; memory organisation; input/output devices; machine language; and assembly language.

**Credit Points:** 9    **Contact Hours:** 3 per week

#### ■ **CSB110 PROGRAMMING PRINCIPLES**

**Offered:** Spring

Extending material introduced in CSB100, this subject develops structured program design techniques, and introduces advanced algorithms and methods of proving program correctness. **Prerequisite:** CSB100

**Credit Points:** 9    **Contact Hours:** 3 per week

#### ■ **CSB155 INTRODUCTION TO COMPUTING**

**Offered:** Autumn, Spring

The computer as a processor of information. An overview of computers, computer organisation, systems software, programs and the range of programming languages. The design of algorithms using structured techniques and stepwise refinement. Implementation and execution of such algorithms using PASCAL.

**Credit Points:** 8    **Contact Hours:** 3 per week

#### ■ **CSB181 INTRODUCTION TO COMPUTER SCIENCE**

This subject is designed to provide students with a disciplined and structured approach to algorithm design and problem-solving methods. It introduces a variety of programming languages which can be used to process information in a computer. On completion of the subject, students should be able to solve a variety of problems in different application areas.

**Credit Points:** 12    **Contact Hours:** 4 per week

#### ■ **CSB191 INTRODUCTION TO COMPUTING**

**Offered:** Autumn

This subject introduces students to technical computer programming, teaching programming techniques for the writing of correct and efficient programs for limited, but typical engineering problems; and using structured programming techniques to write, modify and enhance program applications on selected computer systems using the PASCAL programming language.

**Co-requisites:** MAB193, CEB184

**Credit Points:** 4    **Contact Hours:** 2 per week

#### ■ **CSB200 FOUNDATIONS OF COMPUTING I**

**Offered:** Autumn, Spring

A central theme of this subject is the study of abstraction: data abstraction as a technique for dealing with

complex data inter-relationships, and procedural abstraction as a way of expressing complex operations on such structures. It focusses on the concept of the abstract data type (ADT) and introduces a number of important examples of ADTs and associated algorithms. The subject also includes topics such as the analysis of algorithmic complexity, and proofs of correctness.

**Prerequisite:** CSB110

**Credit Points:** 9      **Contact Hours:** 3 per week

#### ■ CSB201 COMPUTER SYSTEMS II

**Offered:** Autumn

This subject encompasses organisation of simple computer systems, and the way in which hardware provides the basic facilities for the machine. It introduces techniques involved in the programming of input-output operations, and the interrupt structure which underlies operating system organisation in uniprocessor systems.

**Prerequisite:** CSB101

**Credit Points:** 9      **Contact Hours:** 3 per week

#### ■ CSB210 FOUNDATIONS OF COMPUTING II

**Offered:** Spring, Autumn

In this subject, special emphasis is given to the analysis of algorithms, the various styles of programming language and the abstractions which they support. It covers languages with notable features designed for special computer classes of problems; searching and sorting algorithms; recursion and iteration; algorithms; and space and time requirements.

**Prerequisite:** CSB200

**Credit Points:** 9      **Contact Hours:** 3 per week

#### ■ CSB212 LANGUAGES & LANGUAGE PROCESSING

**Offered:** Spring

An introduction to the theory and practice of language processing; the design and recognition of small languages for command processors and other interactive programs; and advanced data structures and algorithm design.

**Prerequisite:** CSB200

**Credit Points:** 9      **Contact Hours:** 3 per week

#### ■ CSB213 SCIENTIFIC APPLICATIONS

**Offered:** Autumn, Spring

The aim of this subject is to give students a thorough knowledge of FORTRAN and C, and to teach the solving of advanced scientific (e.g., mathematical and engineering) problems.

**Prerequisite:** CSB110

**Credit Points:** 9      **Contact Hours:** 3 per week

#### ■ CSB259 LABORATORY COMPUTING I

**Offered:** Autumn, Spring

This subject, which assumes no previous knowledge of computing, gives a broad overview of the many facets of computing. It introduces computer organisation; hardware, software; computer-programming including BASIC; data organisation, information storage and retrieval; computer systems including hospital and clinical systems; and social implications.

**Credit Points:** 6      **Contact Hours:** 2 per week

#### ■ CSB262 COMPUTING

**Offered:** Autumn

This subject is intended to provide students with a basic understanding of computer programming and with the ability to program simple applications in the BASIC language. Topics studied include: computer utilisation; computer organisation; programming in

BASIC; problem solving; analysis of numerical and non-numerical problems; introduction to FORTRAN.  
**Credit Points:** 6      **Contact Hours:** 2 per week

#### ■ CSB280 PROGRAMMING PRINCIPLES

**Offered:** Spring

This subject forms a continuation of the material introduced in CSB155. It develops structured program design techniques, and introduces advanced algorithms and methods of proving program correctness.

**Prerequisite:** CSB155

**Credit Points:** 12      **Contact Hours:** 4 per week

#### ■ CSB281 COMPUTER SYSTEMS I

**Offered:** Spring

An understanding of the physical organisation of, the control and flow of information in, and the representation of data in, a computer system. The topics covered are: boolean algebra, state concepts, data representation, processor organisation, memory organisation, input/output devices, machine language, and assembly language.

**Credit Points:** 12      **Contact Hours:** 4 per week

#### ■ CSB282 COMPUTER SYSTEMS II

**Offered:** Autumn

This subject provides an understanding of the organisation of simple computer systems, and the way in which the hardware provides the basic facilities for the machine. It introduces the techniques involved in the programming of input-output operations, and the interrupt structure which underlies operating system organisation in uniprocessor systems.

**Prerequisite:** CSB281

**Credit Points:** 12      **Contact Hours:** 4 per week

#### ■ CSB283 SCIENTIFIC APPLICATIONS

**Offered:** Autumn, Spring

The subject aims to give a thorough knowledge of FORTRAN, and to teach the solving of advanced scientific (e.g., mathematical and engineering) problems. It covers FORTRAN programming to an advanced level including aspects of portability arising from differences in standards and compiler implementation, and mathematical software.

**Prerequisite:** CSB155

**Credit Points:** 9      **Contact Hours:** 4 per week

#### ■ CSB290 FOUNDATIONS OF COMPUTING I

**Offered:** Autumn, Spring

A central theme of this subject is the study of abstraction: data abstraction as a technique for dealing with complex data inter-relationships, and procedural abstraction as a means of expressing complex operations on such structures. It focuses on the concept of the abstract data type (ADT) and introduces a number of important examples of ADTs and associated algorithms. The subject also includes topics such as the analysis of algorithmic complexity, and proofs of correctness.

**Prerequisite:** CSB280

**Credit Points:** 12      **Contact Hours:** 4 per week

#### ■ CSB291 INTRODUCTION TO FORTRAN

**Offered:** Spring

The subject aims to extend the student's knowledge of mainframe and industry standard micro-based systems, applying the programming techniques acquired in CSB191 to the FORTRAN programming language.

**Prerequisite:** CSB191

**Credit Points:** 4      **Contact Hours:** 2 per week

## ■ CSB292 FOUNDATIONS OF COMPUTING II

**Offered:** Spring, Autumn

Special emphasis is given in this subject to the analysis of algorithms, the various programming languages styles, and the abstractions which they support. It covers languages with notable features designed for special computer classes of problems; searching and sorting algorithms; recursion and iteration; algorithms; and space and time requirements.

**Prerequisite:** CSB290

**Credit Points:** 12      **Contact Hours:** 4 per week

## ■ CSB294 COMPUTER PROGRAMMING

**Offered:** Autumn

An introduction to algorithms, programs and computers. Basic programming. Program structure. Programming and computing systems. Debugging and verification of programs. Data presentation. Special programming topics.

**Co-requisite:** SVB121

**Credit Points:** 6      **Contact Hours:** 3 per week

## ■ CSB301 OPERATING SYSTEMS

**Offered:** Autumn, Spring

This subject explores the structure of operating systems and real-time software. It examines the process and resource management functions of such software and its realisation in terms of a hierarchy of abstract machines, each of which depends on the set of facilities provided by the abstract machine immediately below it in the hierarchy. While the subject focusses on the hardware-software interface, there is considerable emphasis also on practical work.

**Prerequisites:** CSB201 OR CSB282 and CSB290

**Credit Points:** 9      **Contact Hours:** 3 per week

## ■ CSB302 SOFTWARE ENGINEERING

**Offered:** Autumn

This unit presents the techniques essential to the production of software systems which are reliable, within budget, fully documented, and well tailored to their uses. Practical work provides the means to apply these techniques in the organisation, management and development of software projects with emphasis on modern programming languages supporting software engineering (e.g., Ada, Modula-2).

**Prerequisites:** CSB210 and CSB212 OR CSB290

**Credit Points:** 9      **Contact Hours:** 3 per week

## ■ CSB311 ADVANCED COMPUTER ARCHITECTURES

**Offered:** Spring

The organisation of contemporary computer systems, and the variety of different structures which may be used for specific tasks. The subject presents a mixture of theory and case studies based on existing machines of practical or theoretical importance.

**Prerequisite:** CSB201 OR CSB282

**Credit Points:** 9      **Contact Hours:** 3 per week

## ■ CSB320 SPECIAL STUDIES

**Offered:** Autumn, Spring

Covers aspects of current scientific interest; and makes allowances for significant developments or emphasis in computing not included in the remainder of the course program. Check School noticeboards for further details.

**Prerequisite:** Completion of at least half of the normal program of the Bachelor of Applied Science (Computing) OR completion of at least half of the Graduate Diploma in Computing Science OR 60 points in computing subjects in the Science major program.

**Credit Points:** 9      **Contact Hours:** 3 per week

## ■ CSB321 GRAPHICS

**Offered:** Autumn, Spring

To acquaint students with the nature of computer graphics hardware and software; to provide a thorough grounding in the design and implementation of computer graphics software so as to enable students to implement graphic systems in their particular application areas.

**Prerequisites:** CSB213 OR CSB110 and INB252 OR CSP213 OR CSB283

**Credit Points:** 9      **Contact Hours:** 3 per week

## ■ CSB323 DATA SECURITY

**Offered:** Spring

Data Security is an area which combines the subjects of complex computer systems and data communications. This final year elective topic will therefore build upon the data communications and computer systems material and provide students with an insight into an area of rapidly expanding career opportunities.

**Prerequisite:** INB270 OR INP270 OR INB285

**Credit Points:** 9      **Contact Hours:** 3 per week

## ■ CSB324 ARTIFICIAL INTELLIGENCE

**Offered:** Autumn

This subject deals with the increasingly important role of artificial intelligence in the computing industry. In particular, aspects of artificial intelligence which have given rise to commercial products are reviewed as well as the background research efforts which promise to have major impact on the use of computers in the near future.

**Prerequisite:** CSB210 OR CSP214 OR CSB292

**Credit Points:** 9      **Contact Hours:** 3 per week

## ■ CSB325 EXPERT SYSTEMS

**Offered:** Spring

Expert systems in the AI context. Knowledge representation techniques. Inference methods. Uncertainty. The expert system development process. Case studies of existing expert systems. The human/expert system interface. Limitations and social implications of expert systems. Current international knowledge-based system programs and future perspectives.

**Prerequisites/Co-requisites:** CSB210 OR CSP214 OR CSB292

**Credit Points:** 9      **Contact Hours:** 3 per week

## ■ CSB326 SYSTEMS PROGRAMMING

**Offered:** Spring, Autumn

The subject introduces students to the UNIX operating system at the user and systems programming levels: a study of shell programming and of the UNIX/C programming environment; a detailed examination of UNIX process and device management, UNIX security and UNIX administration; and some time is spent relating the parallelism and inter-process communication features of UNIX/C to similar features in the languages Modula-2 and Ada.

**Prerequisite:** CSB301 OR CSP213

**Credit Points:** 9      **Contact Hours:** 3 per week

## ■ CSB350 MISCELLANEOUS STUDIES

**Offered:** Spring, Autumn

Selected theoretical and/or practical work to complement and/or supplement other subjects studied.

**Credit Points:** 3      **Contact Hours:** 1 per week

## ■ CSB482 PROGRAMMING LANGUAGES & STRUCTURES

**Offered:** Spring

The syntax of programming languages. Data structures, including lists, graphs and trees. Data abstraction and the use of procedures.

**Prerequisite:** CSB280

**Credit Points:** 9      **Contact Hours:** 3 per week

## ■ CSB490 SOFTWARE ENGINEERING

**Offered:** Autumn

Using examples from the C and UNIX, the student are introduced to the structure and syntax of well designed programs as well as programming techniques for use in electronics, communications and electrical engineering.

**Prerequisite:** CSB190 [R]\*

**Credit Points:** 6      **Contact Hours:** 3 per week

## ■ CSB960 PROJECT WORK

**Offered:** Spring

Students will undertake a substantial project which is relevant to the needs of industry. Each project is carried out under the supervision of a staff member whose interests lie in the field of the project.

**Credit Points:** 12      **Contact Hours:** 3 per week

## ■ CSN100 THEORY OF COMPUTING I

**Offered:** Autumn

Formal properties of programs and automata. The view of programs as predicate transformers is developed as a method of constructing provably correct algorithms. Methods of software development based on formal specifications are introduced. The relationship between computational problems posed as questions of language recognition and the operation of automata is developed, and the implications for computational complexity explored.

**Prerequisite:** CSB210 (or equivalent)

**Credit Points:** 12      **Contact Hours:** 3 per week

## ■ CSN110 COMPILER CONSTRUCTION

**Offered:** Spring

The organisation and structure of language translators and compilers. Some emphasis is placed on those parts of these software tools which are amenable to formal analysis. The material extends undergraduate studies in algorithm design and in the semantics of formal languages. Special attention is paid to techniques which are applicable in the implementation of special purpose languages such as database query languages and production systems.

**Prerequisite:** CSB212 (or equivalent)

**Credit Points:** 12      **Contact Hours:** 3 per week

## ■ CSN200 COMPUTER SECURITY

**Offered:** Autumn

This postgraduate subject introduces the graduate to the major topics in computer and data network-related security with the potential, if required, for specialisation in this growing area. Development of a security plan; risk analysis; access control; cryptography, network encryption; key management; database security. **Prerequisite:** An appropriate and recognised degree according to postgraduate requirements of QUT or equivalent qualifications and/or experience as determined by the Faculty.

**Credit Points:** 12      **Contact Hours:** 3 per week

## ■ CSN210 DISTRIBUTED SYSTEMS

**Offered:** Autumn

This subject is intended to provide a thorough understanding of the rationale for distributed computer systems, their domain of application and the prin

\* See note, page 374.

ciples of distributed control underlying their construction. A number of representative systems will be examined throughout the subject.

**Prerequisites:** CSB301 (or equivalent) AND CSB311 (or equivalent)

**Credit Points:** 12      **Contact Hours:** 3 per week

## ■ CSN220 ARTIFICIAL INTELLIGENCE

**Offered:** Spring

This subject deals with the increasingly important role of artificial intelligence in the computing industry. In particular, aspects of artificial intelligence which have given rise to commercial products are reviewed as well as the background research efforts which promise to have major impact on the use of computers in the near future.

**Prerequisite:** An undergraduate level artificial intelligence or expert systems subject.

**Credit Points:** 12      **Contact Hours:** 3 per week

## ■ CSN300 THEORY OF COMPUTING II

**Offered:** To be advised

The ideas developed in CSN110 Theory of Computing I are extended towards a more complete grounding in language theory. Modern developments such as methods of semantic specification and extensions of context-free grammars are covered.

**Prerequisite:** CSN100

**Credit Points:** 12      **Contact Hours:** 3 per week

## ■ CSN310 PARALLEL PROCESSING

**Offered:** To be advised

Parallel Processing is concerned with the architecture and performance of parallel computer systems. The subject consequently deals at length with the modelling of parallel systems and the design methodologies used in their construction. A range of applicable software systems and methodologies is examined. The formal analysis of concurrent systems is based on the theory of Communicating Sequential Processes.

**Prerequisite:** CSN210

**Credit Points:** 12      **Contact Hours:** 3 per week

## ■ CSN320 FORMAL SECURE SYSTEMS

**Offered:** To be advised

The purpose of this subject is to explore the formal mechanisms required in the design of secure systems. It will commence with a study of formal models of secure systems, e.g. Bell La Padula model and then explore the relationship between formal methods of computer science and the design of formally verifiable computer systems.

**Prerequisites:** CSN100 AND CSN200

**Credit Points:** 12      **Contact Hours:** 3 per week

## ■ CSN330 NATURAL LANGUAGE PROCESSING

**Offered:** To be advised

This subject treats an important specialisation within the field of artificial intelligence and its applications. **Prerequisite:** An introductory subject in natural language processing.

**Credit Points:** 12      **Contact Hours:** 3 per week

## ■ CSN340 COMPILER LABORATORY

**Offered:** Autumn, Spring

This subject allows for in-depth treatment of topics of contemporary translator construction in a practical setting. Particular emphasis will be placed on code generation methods for advanced computer architectures.

**Prerequisite:** CSN110

**Credit Points:** 12      **Contact Hours:** 3 per week



### ■ CSN350 ADVANCED GRAPHICS I

**Offered:** Autumn

This subject provides an advanced level extension of the material in the undergraduate curriculum. Particular emphasis is placed on the use of facilities provided by existing graphics systems.

**Prerequisite:** CSB321 (or equivalent)

**Credit Points:** 12    **Contact Hours:** 3 per week

### ■ CSN360 ADVANCED GRAPHICS II

**Offered:** Spring

This subject provides coverage of specialised areas of computer graphics. Topics will be agreed between staff and students.

**Prerequisite:** CSN350

**Credit Points:** 12    **Contact Hours:** 3 per week

### ■ CSN370 SPECIAL TOPIC

**Offered:** Autumn, Spring

Covers at each offering aspects of scientific interest at that time. See School noticeboards for further information.

**Prerequisite:** To be advised

**Credit Points:** 12    **Contact Hours:** 3 per week

### ■ CSP112 SOFTWARE PRINCIPLES

**Offered:** Autumn

This subject introduces students to the study and use of efficient data structures and to a number of languages illustrating the variety of features found in computer programming languages. Structured program design techniques; advanced algorithms and methods of providing program correctness.

**Prerequisite:** Completion of a qualifying PASCAL programming subject prior to entry to the course.

**Credit Points:** 12    **Contact Hours:** 3 per week

### ■ CSP211 SYSTEMS ARCHITECTURE & OPERATING SYSTEMS

**Offered:** Spring

To provide students with an understanding of computer organisation, the nature and role of system software and the nature of micro-computers and computer graphics. Computer systems architecture, micro-operations, instruction formats, microprocessor types, machine language, system software including operating systems features, assemblers, compilers, loaders.

**Prerequisites:** CSP112

**Credit Points:** 12    **Contact Hours:** 3 per week

### ■ CSP212 LANGUAGES & LANGUAGE PROCESSING

**Offered:** Spring

An introduction to the theory and practice of language processing; the design and recognition of small languages for command processors and other interactive programs; advanced data structures and algorithm design.

**Prerequisite:** CSP214

**Credit Points:** 12    **Contact Hours:** 3 per week

### ■ CSP213 SCIENTIFIC APPLICATIONS

**Offered:** Autumn

The aim of this subject is to give students a thorough knowledge of FORTRAN and C, and to teach them to solve advanced scientific (e.g., mathematical and engineering) problems.

**Prerequisites:** CSP112

**Credit Points:** 12    **Contact Hours:** 3 per week

### ■ CSP214 PROGRAMMING LANGUAGES & STRUCTURES

**Offered:** Spring

This subject forms a continuation of the material introduced in the prerequisite subjects. Special em-

phasis is given to the analysis of algorithms, the various styles of programming languages and the abstractions which they support.

**Credit Points:** 12    **Contact Hours:** 3 per week

### ■ CSP960 PROJECT WORK

**Offered:** Spring

Students, either individually or in small groups, undertake a substantial project relevant to the needs of industry and designed to give insight into industrial requirements. Each project is carried out under the supervision of a staff member whose interests lie in the field of the project. Before work commences on the project, student(s) and supervisor must agree on the topic of the project and the scope of the work to be attempted.

**Prerequisites:** Successful completion of all other core subjects of the Graduate Diploma in Computing Science.

**Credit Points:** 12    **Contact Hours:** 3 per week

### ■ CSP970 PROJECT WORK A

**Offered:** Autumn

Students, either individually or in small groups, undertake a substantial project relevant to the needs of industry and designed to give insight into industrial requirements. Each project is carried out under the supervision of a staff member whose interests lie in the field of the project. Before work commences on the project, student(s) and supervisor must agree on the topic of the project and the scope of the work to be attempted.

**Prerequisites:** Completion of at least half of the Graduate Diploma in Computing Science.

**Credit Points:** 12    **Contact Hours:** 3 per week

### ■ CST390 COMPUTER PROGRAMMING I

**Offered:** Autumn

A first course on computers, including brief introductions to operating systems and utilities. The major emphasis of the subject is on design of algorithms and their implementation in a structural language.

**Credit Points:** 7    **Contact Hours:** 3 per week

### ■ EEB101 CIRCUITS & MEASUREMENTS

**Offered:** Autumn

Lectures and practical sessions covering the concepts of voltage, current and electrical impedance, simple electrical circuits (R, L and C) and the measurement of electrical quantities using the oscilloscope, meters and bridges. Introduction to AC theory, errors in measurement, traceability of measurement.

**Credit Points:** 7    **Contact Hours:** 3 per week

### ■ EEB202 ELECTROMAGNETICS

**Offered:** Autumn, Spring

Introducing engineering applications of current flow, electrostatic and electromagnetic fields. Ideal and loosely coupled transformers - instrument and high frequency transformers. Electrical power supply and safety. Introduction to all types of rotating electrical machines.

**Credit Points:** 6    **Contact Hours:** 3 per week

### ■ EEB203 CIRCUIT ANALYSIS

**Offered:** Spring

Network theorems, mesh and nodal analysis, complex power. Introduction to the concept of steady-state response. Introduction to transient response of RL, RC and RCL circuits with step forcing functions. Mutual inductance, three phase systems.

**Prerequisite:** EEB101

**Credit Points:** 5    **Contact Hours:** 3 per week

**■ EEB209 ELECTRICAL ENGINEERING IIM****Offered:** Autumn

A series of lectures and practical sessions to introduce students in mechanical engineering to the basic principles of microprocessors, microprocessor systems, electrical machines, power control and tariffs. The subject material is presented at a basic level with heavy emphasis on practical applications.

**Credit Points:** 6      **Contact Hours:** 3 per week**■ EEB272 DIGITAL PRINCIPLES****Offered:** Spring

Binary variables, number systems, Boolean algebra, minimisation of logic functions, logic gates, analysis and synthesis of combinational logic functions.

**Credit Points:** 3      **Contact Hours:** 1.5 per week**■ EEB273 MICROCOMPUTERS IN ENGINEERING****Offered:** Spring

Introduction to the physical, virtual and application levels of a microcomputer system. I/O devices and interfacing. Operating systems. Programming and software packages. Transducers and peripheral devices. Hardware and software integration.

**Credit Points:** 4      **Contact Hours:** 2 per week**■ EEB302 ELECTROTECHNOLOGY****Offered:** Autumn

Magnetic circuits, magnetic materials, transformers and electro-magnetic devices. Heating and cooling of electrical equipment and plant, protection. Power distribution, three phase, balanced and unbalanced loads, power and measurement.

**Prerequisites:** EEB202, EEB203**Credit Points:** 6      **Contact Hours:** 3 per week**■ EEB303 NETWORK THEORY I****Offered:** Autumn

A detailed study of the basic theory of network analysis covering Laplace and Fourier analysis, four terminal network theory, frequency behaviour and transient response of networks.

**Prerequisites:** EEB203, MAB193**Co-requisite:** MAB493**Credit Points:** 7      **Contact Hours:** 3 per week**■ EEB361 SIGNALS & SYSTEMS****Offered:** Autumn

A detailed study of Fourier theory applied to signals. An overview of systems and their representation, response of systems to signals.

**Prerequisites:** EEB203, MAB193**Co-requisite:** MAB493**Credit Points:** 7      **Contact Hours:** 3 per week**■ EEB371 ELECTRONIC DEVICES****Offered:** Autumn

Theory of operation and characteristics of semiconductor devices including various types of diodes, the bipolar junction transistor and the field effect transistor. Development and practical applications of small signal models.

**Prerequisite:** EEB101**Credit Points:** 5      **Contact Hours:** 3 per week**■ EEB372 SEQUENTIAL LOGIC****Offered:** Autumn

Flip-flops, counters, shift registers, asynchronous and synchronous sequential machines. Realisation of sequential machines using PROMs, GALs, etc.

**Prerequisite:** EEB272 **Co-requisite:** EEB371**Credit Points:** 7      **Contact Hours:** 3 per week**■ EEB400 ELECTRICAL POWER SYSTEMS****Offered:** Autumn

This subject gives students an overall introduction to electrical power systems calculations and covers the technology of overhead lines and cables. Elementary electrical engineering economics are also introduced at this stage.

**Prerequisite:** EEB302**Credit Points:** 6      **Contact Hours:** 3 per week**■ EEB401 NETWORK THEORY II****Offered:** Spring

General transform theory. Stability and realisability of networks. The synthesis of networks and filters. An introduction to non-linear analysis techniques for simple networks.

**Prerequisite:** EEB303 **Co-requisite:** EEB361**Credit Points:** 6      **Contact Hours:** 3 per week**■ EEB404 ELECTRICAL MACHINES****Offered:** Autumn

In this subject students are introduced to the fundamentals of torque production in rotating machines. The theory of operation and characteristics of most commonly used machines are then derived from common foundations.

**Prerequisite:** EEB302**Credit Points:** 6      **Contact Hours:** 3 per week**■ EEB430 ENGINEERING FIELDS****Offered:** Spring

Electrostatic and magnetic fields, Maxwell's equations and electromagnetic waves.

**Prerequisites:** MAB193, PHB132, PHB232**Credit Points:** 6      **Contact Hours:** 3 per week**■ EEB471 ELECTRONICS****Offered:** Spring

A detailed study of transistor circuits and their applications. Circuits, fundamental to the understanding of integrated circuit amplifiers, are studied in detail.

**Prerequisite:** EEB371**Credit Points:** 7      **Contact Hours:** 3 per week**■ EEB472 MICROPROCESSORS****Offered:** Spring

Microprocessor architecture, instruction sets, assembly language programming. Memories, input/output devices and interrupt systems.

**Prerequisite:** EEB372**Credit Points:** 6      **Contact Hours:** 3 per week**■ EEB473 INTEGRATED CIRCUITS****Offered:** Autumn

This subject provides the fundamental theory of operation of integrated circuits and the generalised concepts of feedback in electronic circuits. Various operational amplifier configurations are analysed. Oscillators and timing circuits are also studied.

**Prerequisite:** EEB471**Credit Points:** 6      **Contact Hours:** 3 per week**■ EEB520 CONTROL ENGINEERING****Offered:** Autumn

Survey of measurement transducers, amplifiers, signal processors and final control elements. Selection of system components. Application of micro-computers to closed-loop control. Examples of closed-loop systems. System transfer function and time domain performance.

**Prerequisite:** EEB302 **Co-requisite:** EEB401**Credit Points:** 6      **Contact Hours:** 3 per week

## ■ EEB531 ELECTRICAL POWER TRANSMISSION

**Offered:** Spring

Equivalent circuits of power equipment. The pu method. Power flows in networks, solution by Gauss Siedel. Sequence components, fault analysis by sequence methods. Power system harmonics. Transients due to switching. Transmission plant parameters.

**Prerequisite:** EEB400

**Credit Points:** 6 **Contact Hours:** 3 per week

## ■ EEB553 ELECTRICAL POWER EQUIPMENT

**Offered:** Spring

Ratings of equipment, insulation, distribution switchgear and protection, a.c. generators, power measurement and metering, power conversion.

**Prerequisite:** EEB400

**Credit Points:** 6 **Contact Hours:** 3 per week

## ■ EEB561 ANALOGUE COMMUNICATIONS

**Offered:** Spring

Analogue modulations and demodulations hardware, including discrete and integrated electronic methods. AM-SSB-FM modulation and demodulation methods. Heterodyne receivers - image and spurious responses of double and single conversion receivers. Distributed networks - radio and transmission-line links effects and modulated signals.

**Prerequisites:** EEB361, EEB303

**Credit Points:** 6 **Contact Hours:** 3 per week

## ■ EEB562 TRANSMISSION & PROPAGATION

**Offered:** Autumn

Transmission line theory, terminated line, Smith Circle Chart usage and lattice diagram. Propagation modes in wave guides and optical fibres. Free-space propagation, ionospheric and ground wave propagation. Basic antenna parameters.

**Prerequisites:** EEB361, EEB430

**Credit Points:** 6 **Contact Hours:** 3 per week

## ■ EEB573 INDUSTRIAL ELECTRONICS

**Offered:** Autumn

The study of a wide range of modern electronic devices and circuits with particular emphasis to industrial application.

**Prerequisite:** EEB471

**Credit Points:** 6 **Contact Hours:** 3 per week

## ■ EEB587 DESIGN I

**Offered:** Autumn

General principles of electronic circuit and electrical equipment design and the realisation of typical electronic circuits and equipment.

**Prerequisites:** EEB401, EEB361, EEB400

**Credit Points:** 6 **Contact Hours:** 3 per week

## ■ EEB591 SYSTEMS PROGRAMMING LANGUAGES

**Offered:** Autumn

The syntax and facilities of the C programming language are studied and applied to systems programming.

**Prerequisite:** EEB472

**Credit Points:** 6 **Contact Hours:** 3 per week

## ■ EEB600 STARTING A TECHNOLOGY BASED BUSINESS

**Offered:** Spring

The subject covers introduction to business structures, forming a business team, marketing and market re-

search, financing new high risk business, selling yourself with business plans and presentation skills, product development, manufacturing and distribution, inventions, useful people to talk to.

**Credit Points:** 4 **Contact Hours:** 2 per week

## ■ EEB601 REALTIME OPERATING SYSTEMS

**Offered:** Spring

Theory and practical aspects of the use of microprocessors and computers as components in time critical engineering applications. Methods of guaranteeing computer response within a specifiable time. Applications related to embedded systems and some business applications. Design of new systems and study of existing systems.

**Prerequisite:** EEB591

**Credit Points:** 6 **Contact Hours:** 3 per week

## ■ EEB602 SIGNAL PROCESSING

**Offered:** Spring

Sampling and reconstruction, z-transforms description of discrete-time signals. Digital filtering - FIR, IIR. Discrete Fourier transform and relationship with z-plane. Leakage effects and window functions. Discrete Hilbert transform relationships.

**Prerequisites:** EEB361, EEB401, MAB893,

**Credit Points:** 6 **Contact Hours:** 3 per week

## ■ EEB620 CONTROL SYSTEMS ANALYSIS

**Offered:** Spring

Time-domain, frequency-domain, and complex-domain analysis of systems. Closed-loop control system performance and system compensation. Digital computer control of closed-loop systems. Analogue and digital simulation of systems.

**Prerequisite:** EEB520

**Credit Points:** 6 **Contact Hours:** 3 per week

## ■ EEB621 ADVANCED CONTROL SYSTEMS

**Offered:** Spring

System performance specification format. Selection of control system elements. Design of linear system compensation using analogue and digital techniques. Techniques for dealing with system non-linearities and non-linear system analysis and design. Examples of typical control systems.

**Prerequisite:** EEB620

**Credit Points:** 6 **Contact Hours:** 3 per week

## ■ EEB652 POWER ELECTRONICS

**Offered:** Autumn

Review of modern switching components, characteristics and device control methods. Principles of operation of controlled rectifiers and chopper techniques for d.c. motor control; quasisquare and PWM invertors for induction and synchronous motor control; static switches for induction motor soft start control and static VAR compensation; induction motor drive and d.c. motor drive control strategies; harmonic analysis and waveform modelling analysis.

**Prerequisite:** EEB573

**Credit Points:** 7 **Contact Hours:** 3 per week

## ■ EEB661 INFORMATION THEORY & NOISE

**Offered:** Autumn, Spring

Information in discrete and continuous channels, coding efficiency, statistical description of noise, effects of transformations on signal parameters, error rates, effect of noise in information transfer.

**Prerequisites:** MAB493, EEB361

**Credit Points:** 6 **Contact Hours:** 3 per week

### ■ EEB662 MICROWAVE & ANTENNA TECHNOLOGY

**Offered:** Autumn

Propagation in rectangular and circular guides, guide components, microwave active devices, high frequency techniques, various types of antennas, antenna arrays, computer aided antenna design, antenna measurements.

**Prerequisite:** EEB562

**Credit Points:** 7      **Contact Hours:** 3 per week

### ■ EEB741 POWER SYSTEMS ANALYSIS

**Offered:** Spring

Economic operation of power systems, system stability, power system control. HVDC power transmission. Advanced harmonic analysis. Surge phenomena in machine and transmission lines.

**Prerequisite:** EEB531 [R]\*

**Credit Points:** 8      **Contact Hours:** 3 per week

### ■ EEB742 POWER SYSTEMS ENGINEERING

**Offered:** Autumn

Substation engineering, protection of plant, substation earthing, system overvoltages, insulation co-ordination, HV switchgear.

**Prerequisite:** EEB531

**Credit Points:** 7      **Contact Hours:** 3 per week

### ■ EEB761 STATISTICAL COMMUNICATIONS

**Offered:** Autumn, Spring

PCM quantisation noise in uniform and non-uniform quantisation. Effects of channel noise on S/N. Delta modulation and delta-sigma modulations. Threshold extensions, spread spectrum, matched filtering and correlation.

**Prerequisite:** EEB661

**Credit Points:** 7      **Contact Hours:** 3 per week

### ■ EEB788 DESIGN II

**Offered:** Autumn

Design principles and practice of more complex electronic circuits and electrical equipment and systems used in industry.

**Prerequisites:** EEB587, EEB561, EEB520, EEB400

**Credit Points:** 8      **Contact Hours:** 3 per week

### ■ EEB789 PROJECT

**Offered:** Full year

An individual engineering project on a specified subject. The work requires design, computing, construction, experimental work and practical testing with the submission of appropriate reports. The subject is selected from any area which involves electronics, computing, control, communication and educational power and may include programming, circuit and system design.

**Co-requisite:** This subject must be done in the final year of course.

**Credit Points:** 15      **Contact Hours:** 6 per week

### ■ EEB820 ENGINEERING MANAGEMENT

**Offered:** Spring

Economic analysis of electrical engineering projects. Present worth and annual cost calculations. Assessment of tenders. Project management, critical paths and linear programming methods. Contract administration. Engineering case studies.

**Credit Points:** 8      **Contact Hours:** 3 per week

\* See note, page 374.

### ■ EEB821 PRODUCTION TECHNOLOGY & QUALITY

**Offered:** Autumn

The methodology of electronic system design, the range of production processes in electronic manufacture, and the quality control procedures required in electronic manufacturing at both prototype and full production stages.

**Prerequisites:** EEB587, EB788

**Credit Points:** 6      **Contact Hours:** 3 per week

### ■ EEB887 DESIGN III

**Offered:** Spring

Detailed design and realisation of typical electronic and power based sub-systems used in all areas of electronic systems and power systems engineering.

**Prerequisites:** EEB788, EEB602, EEB620, EEB472, EEB400, EB971, or EEB531

**Co-requisites:** EEB968 or EEB742

**Credit Points:** 6      **Contact Hours:** 3 per week

### ■ EEB888 DESIGN IV

**Offered:** Spring

System design techniques and practice in these techniques on typical electronic systems and power systems, taking into account such factors as realisability, reliability, complexity, economic considerations and optimisation.

**Prerequisite:** EEB887

**Credit Points:** 10      **Contact Hours:** 3 per week

### ■ EEB890 ADVANCED INFORMATION TECHNOLOGY TOPICS

**Offered:** Spring

The content of this subject depends on current technology and availability of suitable specialist lecturers. Subjects could include artificial intelligence, computer graphics, database systems, computer aided engineering, super computing and parallel processing.

**Prerequisite:** EEB591

**Credit Points:** 8      **Contact Hours:** 3 per week

### ■ EEB922 COMPUTER CONTROLLED SYSTEMS

**Offered:** Autumn, Spring

Computer control of typical process control systems. Numerical control of machine tools and an introduction to robotics. Optimal control and self-adaptive control systems. Sequential control systems.

**Prerequisites:** EEB621, EEB620

**Credit Points:** 7      **Contact Hours:** 3 per week

### ■ EEB944 POWER STATION ENGINEERING

**Offered:** Autumn, Spring

This subject deals with the electrical and mechanical plant found in power stations and with associated instrumentation and control equipment.

**Credit Points:** 7      **Contact Hours:** 3 per week

### ■ EEB951 HIGH VOLTAGE EQUIPMENT

**Offered:** Autumn, Spring

Review of modern insulating materials. High voltage test methods and apparatus. Characteristics of electrical insulation theories of breakdown in dielectrics. Non-destructive testing methods dielectric loss angle, partial discharge. Voltage surge distribution in power equipment. Overhead line insulation and lightning.

**Co-requisite:** EEB742

**Credit Points:** 7      **Contact Hours:** 3 per week

### ■ EEB954 ELECTRICAL ENERGY UTILISATION

Offered: Autumn, Spring

Power reticulation in building, energy management, fire protection systems, illumination technology, air-conditioning plant, building supervising and control systems, lifts.

Prerequisite: EEB553

Credit Points: 7      Contact Hours: 3 per week

### ■ EEB961 COMMUNICATION TECHNIQUES

Offered: Autumn, Spring

Modern communication techniques including switched networks, broadcast, point-to-point systems; microwave and optical links; radio navigation and radar; associated electronic devices.

Prerequisite: EEB661

Credit Points: 7      Contact Hours: 3 per week

### ■ EEB962 MICROWAVE SYSTEMS ENGINEERING

Offered: Autumn, Spring

Microwave thermionic and semiconductor devices, amplifier design using scattering parameters. Passive microwave devices including non-linear networks and ferrites. Array theory and design, microwave antennae.

Prerequisite: EEB662

Credit Points: 7      Contact Hours: 3 per week

### ■ EEB967 DIGITAL COMMUNICATIONS

Offered: Autumn

Topics in the theory and applications of digital communications technology. Baseband digital signals are introduced; pulse shaping, signal regeneration, measurement techniques, and the digital coding of analogue signals are treated. Such applications as digital radio systems, digital telephone and computer networks, error control in digital networks and ISDN are analysed.

Credit Points: 6      Contact Hours: 3 per week

### ■ EEB968 DIGITAL SIGNAL PROCESSING

Offered: Autumn

Adaptive digital filtering and applications, spectral estimation techniques, speech analysis and synthesis. Realtime implementation of signal processing systems.

Prerequisite: EEB602

Credit Points: 7      Contact Hours: 3 per week

### ■ EEB971 APPLIED ELECTRONICS

Offered: Autumn

Analysis of the characteristics and applications of a variety of integrated devices. Particular attention is given to new products. Emphasis is placed on errors and quality of design.

Prerequisite: EEB573

Credit Points: 6      Contact Hours: 3 per week

### ■ EEB972 INTEGRATED ELECTRONIC TECHNIQUES

Offered: Autumn, Spring

Study of a wide range of commercially available integrated circuits and their typical applications in industry. Design rules, limitations and methods of VLSI fabrication.

Prerequisite: EEB573 Co-requisite: EEB602

Credit Points: 7      Contact Hours: 3 per week

### ■ EEP101 ALGORITHMS FOR CONTROL & SIGNAL PROCESSING

Offered: Spring

The application of numerical analysis methods, equation solving and signal processing; the design of digital computer algorithms for the processing of

signals and the control of continuous and discrete processes; and the application of optimisation techniques to system control.

Credit Points: 12      Contact Hours: 3 per week

### ■ EEP102 UNIX & C FOR ENGINEERING

Offered: Autumn

The C language. Use of C for program development. Use of C as a substitute for assembly language to produce ROMable code with methods and particular problems. The UNIX operating system and its use as an engineering work station operating system.

Credit Points: 12      Contact Hours: 3 per week

### ■ EEP103 COMPUTER HARDWARE & INTERFACING

Offered: Spring

State-of-the-art digital devices. Design and implementation of digital systems. Microprocessors and microcontroller systems and interfacing. Computer architectures, subsystems and peripherals.

Credit Points: 12      Contact Hours: 3 per week

### ■ EEP104 REALTIME OPERATING SYSTEMS

Offered: Autumn

Definition and review of realtime operating systems. Detailed examination of the structure of realtime operating system. The development of programming skills, orientated towards realtime applications. Programming exercises for realtime applications using assembler and highlevel languages.

Co-requisite: EEP102

Credit Points: 12      Contact Hours: 3 per week

### ■ EEP120 NETWORKS & DISTRIBUTED COMPUTING

Offered: Spring

A thorough treatment of the ISO OSI model of computer interconnections and common techniques for layers 3 to 7. This includes protocols, software and packages and the computers which support these layers. A lighter treatment of layers 1 and 2 is also included.

Prerequisites: EEP103, EEP104

Credit Points: 12      Contact Hours: 3 per week

### ■ EEP121 PARALLEL & SUPER COMPUTING

Offered: Spring

An open ended subject covering the latest in vector processing and parallel computing technology. Students will have access to parallel computer development systems, and may be required to undertake a small research project.

Credit Points: 12      Contact Hours: 3 per week

### ■ EEP122 GRAPHICS & COMPUTER VISION

Offered: Autumn

This subject provides an introduction to the human visual system and the modelling of digital images. It also provides an introduction to a range of digital image process systems, transforms, image enhancement, image structural operations and pattern recognition.

Credit Points: 12      Contact Hours: 3 per week

### ■ EEP123 PROCESS CONTROL & ROBOTICS

Offered: Autumn

A thorough survey of computers as applied to manufacturing, encompassing hardware and software methods and state-of-the-art products. Material includes robots, computer numerically controlled

machine tools, distributed process control, networks and computers.

**Prerequisite:** EEP101

**Credit Points:** 12    **Contact Hours:** 3 per week

### ■ EEP124 DATA COMMUNICATIONS

**Offered:** Autumn

The subject covers characteristics of transmission channels, synchronous and asynchronous modems and interfaces, fibre optic and satellite links, local and wide area networks, encoding and security.

**Credit Points:** 12    **Contact Hours:** 3 per week

### ■ EEP125 ADVANCED ENGINEERING SOFTWARE TOOLS

**Offered:** Spring

The subject covers selected numerical techniques and computer software tools available in procedural and non-procedural languages as well as specialised commercial applications packages for the analysis and design of data transmission systems.

**Credit Points:** 12    **Contact Hours:** 3 per week

### ■ EEP300 RESEARCH PROJECT

A computer engineering research project in the student's chosen field encompassing a literature search, design, hardware construction or writing of software, testing and publication of a thesis.

**Credit Points:** 24 per semester

**Contact Hours:** 168

### ■ EET100 ELECTRICAL ENGINEERING COMPUTATIONS

**Offered:** Autumn

Study of and practice in manipulating complex numbers, vectors, determinants and matrices, statistics, differential equations. Fourier analysis. Examples in electrical engineering applications using calculators.

**Credit Points:** 7    **Contact Hours:** 3 per week

### ■ EET111 ELECTRICAL ENGINEERING I

**Offered:** Autumn

SI units, d.c. circuits including: parallel and series resistor combinations, temperature coefficient of resistance, and circuit theorems. Electrostatics and capacitance. Self inductance. Transients RL and RC circuits.

**Credit Points:** 7    **Contact Hours:** 3 per week

### ■ EET211 ELECTRICAL ENGINEERING II

**Offered:** Autumn, Spring

Introduction to alternating quantities. Sinusoidally time varying sources. Phasor diagrams. RL, RC and RLC series and parallel circuits. Resonance, j notation. Complex power. Application of circuit theorems to a.c. circuits.

**Prerequisite:** EET111

**Credit Points:** 7    **Contact Hours:** 3 per week

### ■ EET270 ELECTRONICS I

**Offered:** Spring

An introduction to the fundamentals of electronic devices and transistor circuits. Emphasis is placed on characterising and applying these devices to basic electronic circuits. Applications include: transistor amplifiers including differential and tuned stages, current sources, oscillators and simple fault finding techniques.

**Prerequisites:** EET111, EET100

**Co-requisite:** EET211

**Credit Points:** 7    **Contact Hours:** 3 per week

### ■ EET350 ELECTRICAL ENGINEERING III

**Offered:** Autumn, Spring

Magnetic circuits, single phase transformers equivalent circuits, power losses, regulation and efficiency. Three phase theory balanced and unbalanced loads, measurement of power. Electrical safety earthing, fault levels and protection equipment. Electrical machines review of principles of operation and characteristics of a range of a.c. and d.c. machines. Costs of electricity tariffs.

**Prerequisite:** EET211

**Credit Points:** 7    **Contact Hours:** 3 per week

### ■ EET420 CONTROL SYSTEMS I

**Offered:** Spring

Distinction between open and closed loop, discrete and continuous control. Typical nonlinearities. Transducers for temperature, pressure, fluid flow rate, level, velocity, position, strain. Survey of summation and amplifying techniques for electronics (revision), pneumatic and hydraulic systems. Motors, control valves, actuators and brief survey of commercial controllers. The use of negative feedback; improvement in linearity, speed of response, etc. Survey of hardware employing negative feedback. Philosophy of mathematical modelling. Introduction to differential equations. Laplace transforms and transfer functions. Block diagrams. Responses in the time domain. Introduction to frequency domain analytical techniques.

**Prerequisite:** EET211

**Credit Points:** 7    **Contact Hours:** 3 per week

### ■ EET460 TELECOMMUNICATIONS

**Offered:** Autumn

Topics include: the nature of signals; elementary Fourier analysis; the concept of modulation; amplitude and angle modulation; pulse modulation; multiplexing; signal processing and noise; the nature of links; noise and links; mixing and superheter principles; digital and data transmission and fibre optics.

**Prerequisites:** EET100, EET211

**Credit Points:** 7    **Contact Hours:** 3 per week

### ■ EET490 COMPUTER PACKAGES

**Offered:** Spring

A brief study and use of packages such as word processors, spreadsheets, database packages and commonly used engineering packages such as Mathlab and Spice hardware interconnection.

**Credit Points:** 7    **Contact Hours:** 3 per week

### ■ EET500 ELECTRICAL TECHNOLOGY

**Offered:** Autumn

Introduction to electric motors, generators, transformers and three phase systems.

**Credit Points:** 6    **Contact Hours:** 3 per week

### ■ EET522 CONTROL SYSTEMS II

**Offered:** Autumn

Process control system terminology and symbols. Review of hardware as necessary. Chart recorders. Sizing of control valves. Measurement of mass flowrate, humidity and chemical composition. Analogue data transmission standards. Three term controllers and other appropriate techniques. Examples of process control configurations, such as cascade, ratio and feedforward control. Controller tuning. System performance for reference, noise and load disturbances. Accuracy, steady state errors, effect of type number on performance. Stability and more advanced frequency domain analysis. Machine control systems, such as D.C. motor speed controllers,

variable frequency controllers, servosystems, performance of machine control systems.

**Prerequisite:** EET420

**Credit Points:** 7      **Contact Hours:** 3 per week

### ■ EET560 COMMUNICATIONS ENGINEERING I

**Offered:** Autumn

Areas covered include: advanced signal analysis using Fourier methods; AM generation and detection, the effects of filtering and noise; FM and PM generation and demodulation, effects of noise, FM threshold, SSB methods; phase locked loop principles; radio receiver circuits, double conversion, spurious responses; pulse analogue modulation, PAM, PWM, PPM, circuits and spectra.

**Prerequisites:** EET270, EET460

**Credit Points:** 7      **Contact Hours:** 3 per week

### ■ EET570 ELECTRONICS II

**Offered:** Autumn

This subject introduces the student to integrated circuit amplifiers and their applications. Other areas of study include: power amplifiers; optoelectronic devices; voltage regulators and a survey of semiconductor switching devices.

**Prerequisite:** EET270

**Credit Points:** 7      **Contact Hours:** 3 per week

### ■ EET590 MICROPROCESSOR SYSTEMS

**Offered:** Autumn

Assembly language programming and use of microprocessors as electrical engineering hardware. Interfacing of microprocessors to instrumentation and external equipment.

**Prerequisites:** CST390, EET676

**Credit Points:** 7      **Contact Hours:** 3 per week

### ■ EET642 ELECTRICAL POWER SYSTEMS I

**Offered:** Autumn

Single line diagrams, pu systems, transmission line equivalent circuits, fault balanced calculations, power flow calculations, overhead line and underground cable characteristics, power system insulation.

**Prerequisite:** EET350

**Credit Points:** 7      **Contact Hours:** 3 per week

### ■ EET650 ELECTRICAL EQUIPMENT

**Offered:** Spring

Three phase transformers, multiwinding, auto. Special types of a.c. machines including three phase and single phase induction motors, synchronous machine construction and operation.

**Prerequisite:** EET350

**Credit Points:** 7      **Contact Hours:** 3 per week

### ■ EET676 DIGITAL ELECTRONICS

**Offered:** Autumn, Spring

This subject introduces the basic concepts of digital combinational and sequential logic circuits. Logic gates, Boolean algebra, minimisation of logic functions, counters, shift registers, address, ADCs, DACs and logic families. Code converters and binary arithmetic.

**Co-requisite:** EET270

**Credit Points:** 7      **Contact Hours:** 3 per week

### ■ EET678 APPLIED ELECTRONICS

**Offered:** Spring

The subject introduces the integrated circuit approach to electronic systems design. The subject is highly practical and utilises the basic fundamentals of ICs given in integrated circuits. Further treatment of in-

tegrated circuits with practical applications: amplifiers (all the common configurations), oscillators, special purpose circuits such as peak detectors, sample and hold circuits, active filters.

**Prerequisite:** EET570

**Credit Points:** 7      **Contact Hours:** 3 per week

### ■ EET690 COMPUTER ORGANISATION

**Offered:** Spring

A comparative study of computer architectures and operating systems from microprocessors up to super computers. Virtual machines, interpreters, compilers, linkers, loaders, disc operating systems and executive. Instruction sets, addressing modes and instruction pre fetch cycles. A survey of memory management techniques such as memory maps, virtual memory, cache memory, and interleaving. Exception processing methods such as interrupts, autovectors, bus errors and supervisor states. Multi processor systems and computer communications standards, networks and protocols. Parallel computing, pipelines, single instruction multiple data and multiple instruction multiple data machines.

**Prerequisites:** CST390, EET676

**Credit Points:** 7      **Contact Hours:** 3 per week

### ■ EET720 MODERN CONTROL TECHNOLOGY

**Offered:** Autumn

Onstream analysers; intelligent analytical equipment. Sequence control and programmable logic controllers. Robot sensors and control systems. Computer numerical controlled machines. Distributed control systems. Sampling theory and algorithm development. Communication between intelligent control systems (such as MAP and TOP). Adaptive and automatic tuning controllers. Advanced testing instruments.

**Prerequisite:** EET420 Co-requisite: EET522

**Credit Points:** 7      **Contact Hours:** 3 per week

### ■ EET737 TRANSMISSION & PROPAGATION

**Offered:** Spring

Transmission lines study of waves; reflections; matching; using Smith circle and computer aided techniques. Electromagnetic waves in free space and at the boundary between media. Basic antenna parameters and properties, waveguide theory and microwave techniques and an introduction to optical fibre technology.

**Prerequisite:** EET460

**Credit Points:** 7      **Contact Hours:** 3 per week

### ■ EET753 TESTING & COMMISSIONING TECHNIQUES

**Offered:** Autumn

This subject covers the philosophy of testing, the concepts of quality assurance and the principles of commissioning. Test methods and techniques for various electrical tests; application of test methods and techniques to a range of electrical plant; principles of earthing in a power system; safety procedures.

**Prerequisite:** EET350

**Credit Points:** 7      **Contact Hours:** 3 per week

### ■ EET760 COMMUNICATIONS ENGINEERING II

**Offered:** Autumn

Topics include: sampling, reconstruction, spectra; quantisation, dynamic range and noise; PCM methods and circuitry, companding; delta modulation; digital transmis-

sion, TDM, FDM, modulation methods. Data coding for error correction and data communication protocols.

**Prerequisite:** EET560

**Credit Points:** 7      **Contact Hours:** 3 per week

#### ■ EET790 COMPUTER PROGRAMMING I

**Offered:** Autumn

Digital computers, their construction and operation, description of machine languages and the various programming languages in common use such as FORTRAN, COBOL, ALGOL. Program writing in FORTRAN and other languages, use of flow charts, debugging, the development of algorithms and preparation of data, to be selected from a range of areas.

**Credit Points:** 7      **Contact Hours:** 3 per week

#### ■ EET791 COMPUTER PROGRAMMING II

**Offered:** Autumn

Development of the concepts introduced in CST390 to include the full range of features in this language. An introduction to the features of FORTRAN.

**Prerequisite:** CST390

**Credit Points:** 7      **Contact Hours:** 3 per week

#### ■ EET840 SUBSTATIONS & PROTECTION SYSTEMS

**Offered:** Spring

Insulation co-ordination principles, substation layout and equipment including circuit breakers, current and voltage transformers and their characteristics. An introduction to sequence components and fault calculations. A description of different types of protection systems and their integration with the power system, especially substations.

**Prerequisite:** EET642

**Credit Points:** 7      **Contact Hours:** 3 per week

#### ■ EET860 COMMUNICATIONS TECHNOLOGY

**Offered:** Spring

Broadcast radio and TV, terrestrial and satellite. Specialised broadcast systems, e.g., police, taxi; point to point radio communications; telemetry; switched systems, circuit and packet switching, exchangers, traffic. Use of different frequency ranges, VLF, MF, HF, VHF, UHF and SHF for radio communications. A number of compulsory industrial visits are arranged.

**Prerequisites:** EET570, EET676

**Credit Points:** 7      **Contact Hours:** 3 per week

#### ■ EET870 INDUSTRIAL ELECTRONICS

**Offered:** Spring

This subject studies a wide range of electronic devices and circuits associated with industrial control systems. A wide range of power switching devices and their applications are studied together with electronic measurement systems and their associated transducers.

**Prerequisite:** EET570

**Credit Points:** 7      **Contact Hours:** 3 per week

#### ■ EET880 DESIGN

**Offered:** Spring

The student is introduced to the main concepts of electrical designs and to relevant specifications and standards. Further work is in the form of design projects in which a written report must be submitted.

**Prerequisites:** Major subjects in selected modules

**Co-requisites:** Major modules 1(d) and 2(d)

**Credit Points:** 7      **Contact Hours:** 3 per week

#### ■ EET891 ADVANCED COMPUTING TECHNIQUES

**Offered:** Spring

Applications of computers and microprocessor systems to data collection supervisory and active control functions. Realtime operating systems and software development in both low level languages and appropriate high level language such as C or MODULA 2.

**Prerequisite:** CST390

**Credit Points:** 7      **Contact Hours:** 3 per week

#### ■ ESA310 GEOLOGY

**Offered:** Autumn

An introduction to geological materials, emphasising chemical concepts and processes. Aspects studied include the origin and constitution of the earth, introductory mineralogy, igneous, sedimentary and metamorphic petrology, study of physical and structural geology, geomorphology, stratigraphy and economic geology. Field excursions as required.

**Credit Points:** 8      **Contact Hours:** 3 per week

#### ■ ESA510 MINERALOGY TECHNIQUES

**Offered:** Spring

Fundamental crystallography including crystal systems, forms and symmetry. Stereographic projection of crystals. Systematic treatment of mineral groups, covering aspects of structure, chemistry, properties and uses. Introduction to ore genesis. Techniques of mineral identification.

**Credit Points:** 8      **Contact Hours:** 3 per week

#### ■ ESB101 EARTH SCIENCE IA

**Offered:** Autumn

Basic geological principles, origin and general constitution of earth and solar-system, global geology, economic geology. Practical work includes orthographic and stereographic solution of structural problems and identification of economic minerals. Field excursion (one day) to local areas of interest.

**Credit Points:** 8      **Contact Hours:** 3 per week

#### ■ ESB102 EARTH SCIENCE IB

**Offered:** Autumn

Crystallography; mineralogy; formation, texture and classification of igneous, sedimentary and metamorphic rocks. Practical work includes study of crystal models, mineral and rock specimens. Field excursions (one day) to local areas of interest.

**Credit Points:** 8      **Contact Hours:** 3 per week

#### ■ ESB201 EARTH SCIENCE IIA

**Offered:** Spring

Physical geology, geomorphology, erosion, weathering. Topographic maps and interpretation of land forms. Study of major soil groups and soil formation. Hydrology. Practical work includes exercises based on interpretation of geologic, topographic and orthographic maps. Field excursions as required.

**Prerequisites:** ESB101 or ESB102

**Credit Points:** 8      **Contact Hours:** 3 per week

#### ■ ESB202 EARTH SCIENCE IIB

**Offered:** Spring

Palaeontology, including classification and nomenclature of major phyla in animal and plant kingdoms. Stratigraphy of Australia, in particular of Queensland. Practical work involves study of fossils and map interpretation. Field excursions as required.

**Prerequisites:** ESB101 or ESB102

**Credit Points:** 8      **Contact Hours:** 3 per week



## ■ ESB220 MINERALOGY

**Offered:** Spring

Basic crystallography. Physical and optical properties of minerals and their origin. Classification of minerals. Systematic treatment of mineral groups in terms of structure, composition, properties, occurrence and use. Common rock-forming minerals. Common 'economic' minerals. Practical work includes examination of crystal models, hand specimen examination and description of minerals, elementary optical examination of minerals in thin and polished sections and grains.

**Credit Points:** 8 **Contact Hours:** 3 per week

## ■ ESB317 OPTICAL MINERALOGY

**Offered:** Autumn

The theory and method of optical identification of minerals in both transmitted and incident light. Chemistry, structure, properties and occurrence of selected mineral groups. Practical work involves the identification of minerals in thin section, polished section, and grain mounts.

**Prerequisite:** ESB102

**Credit Points:** 8 **Contact Hours:** 3 per week

**Note:** This subject is not compatible with ESB313, ESB413; credit may not be retained for more than one of these subjects.

## ■ ESB320 MINERAL ASSEMBLAGES

**Offered:** Autumn

The geological and geochemical cycle. Origin, emplacement and composition of igneous rocks. Weathering processes. Origin and composition of sedimentary rocks and metamorphic rocks. Methods of mineral beneficiation; problems related to mineral assemblages and textures. Practical work: hand specimen examination of rocks and ores. Elementary microscopic examination of thin and polished sections. Exercises in mineral separation.

**Prerequisite:** ESB220

**Credit Points:** 8 **Contact Hours:** 3 per week

**Note:** This subject is not compatible with ESB313, ESB413; credit may not be retained for more than one of these subjects.

## ■ ESB357 STRUCTURAL GEOLOGY

**Offered:** Autumn

Stress-strain relationships, rock deformation by brittle fracture and by ductile flow, metamorphic textures; geometric, kinematic and dynamic analysis of folded rocks. Techniques for structural analysis.

**Prerequisite:** ESB201

**Credit Points:** 8 **Contact Hours:** 3 per week

**Note:** This subject is not compatible with ESB353; credit may not be retained for both.

## ■ ESB367 ECONOMIC MINERAL DEPOSITS

**Offered:** Autumn

The distribution of metalliferous and industrial mineral deposits of economic value, in Australia and the rest of the world. Geological occurrence, genetic models, supply and demand, extraction methods. Laboratory techniques for evaluating mineral deposits.

**Prerequisite:** ESB101 & ESB102

**Credit Points:** 8 **Contact Hours:** 3 per week

**Note:** This subject is not compatible with ESB363; credit may not be retained for more than one of these subjects.

## ■ ESB397 FIELD TECHNIQUES

**Offered:** Autumn

Methods used in the accumulation, analysis and interpretation of geological field data. Geological

mapping, sampling and presentation of reports. Excursions and day trips to areas of geological interest are assessable by means of a combination of reports, assignments, and examinations.

**Prerequisites:** ESB101 and/or ESB201

**Co-requisites:** ESB357 or ESB353

**Credit Points:** 8 **Contact Hours:** 3 per week

**Note:** This subject is not compatible with ESB397; credit may not be retained for both.

## ■ ESB403 GEOCHEMISTRY

**Offered:** Spring

Distribution of elements in nature. Geochemical associations, mobility and dispersion. Sampling methods and design. Data processing, presentation and interpretation. Preparation of geochemical maps and reports. Practical aspects based on field work in selected localities.

**Prerequisite:** 12 hrs first level chemistry

**Credit Points:** 8 **Contact Hours:** 3 per week

## ■ ESB411 EARTH RESOURCES

**Offered:** Spring

An assessment of known resources and future alternatives. Topics discussed include crustal abundances and geochemical distributions; energy sources; metaliferous and non-metalliferous economic resources; geopolitics, realities of mineral distribution; limits of earth resources, conservation versus exploitation; waste disposal control; environmental pollution; future technological developments and their possible effects on mineral demands.

**Credit Points:** 8 **Contact Hours:** 3 per week

## ■ ESB417 IGNEOUS & METAMORPHIC PETROLOGY II

**Offered:** Spring

The composition, origin, and petrogenesis of igneous rocks, with particular reference to basaltic and calc-alkali kindreds. A study of metamorphic processes and facies with emphasis being placed on contact metamorphism. Megascopic and microscopic examination of igneous and metamorphic rocks. Textures and mineralogy are emphasised. Field excursions of short duration are normally required.

**Prerequisites:** ESB317 or ESB313

**Credit Points:** 8 **Contact Hours:** 3 per week

**Note:** This subject is not compatible with ESB320, ESB413; credit may not be retained for more than one of these subjects.

## ■ ESB437 GEOPHYSICS

**Offered:** Spring

An introduction to the theory of exploration geophysics. Gravity, magnetic, radiometric, well logging, seismic refraction and reflection, electrical resistivity, induced polarisation and electromagnetic techniques. Practical studies of the main techniques, together with limited field work.

**Prerequisites:** 3 hrs first level physics and ESB101, ESB102

**Credit Points:** 8 **Contact Hours:** 3 per week

**Note:** This subject is not compatible with ESB433; credit may not be retained for both.

## ■ ESB447 PETROLEUM GEOLOGY

**Offered:** Spring

Origin and physio-chemical characteristics of petroleum (oil and gas). Principles of petroleum generation, migration and accumulation through time and space. Development of structural, stratigraphic combination traps. Reservoir rock characteristics. Use of geophysical, geochemical and radiometric techni-

ques in petroleum exploration and reservoir characterisation. Drilling techniques, well log interpretation and modern seismic-stratigraphic correlation in petroleum exploration and development. Methods of primary, secondary and tertiary oil and gas recovery. Review of economics of petroleum production.

**Co-requisite:** ESB499

**Credit Points:** 8

**Contact Hours:** 3 per week

**Note:** This subject is not compatible with ESB603; credit may not be retained for both.

#### ■ ESB453 APPLIED GEOMORPHOLOGY

**Offered:** Spring

The nature, origin and development of landforms and their relationships to underlying structures. The applied aspects concern problems related to economic alluvial deposits, landslides, coastal erosion, river development and environmental geology. Terrain evaluation by aerial photograph interpretation and satellite imagery is central to the practical work.

**Prerequisites:** ESB201, ESB202

**Credit Points:** 8

**Contact Hours:** 3 per week

#### ■ ESB477 LAND LAW & MINING APPLICATIONS

**Offered:** Spring

Introduction to English law, legal reasoning and the different legal systems. Contracts, torts and land law. The historical background and political framework of mining law. The legal meaning of 'mine' and 'minerals'. Mining Acts and Miner's Rights. Licensing procedures for prospecting, search and exploration. Mining leases on Crown Lands and mining on private land. The enforcement of mining interests. Petroleum legislation in Australia. Professional ethics. Environmental impact studies. Practical work involves applications for exploration licences, claim and leases.

**Credit Points:** 8

**Contact Hours:** 3 per week

**Note:** This subject is not compatible with ESB473; credit may not be retained for both.

#### ■ ESB487 GEOLOGICAL FIELD STUDIES

**Offered:** Spring

An extended excursion (five or more days) with the possible addition of weekend commitments to areas of geological interest. The main emphasis is on mapping. For the extended excursion, students will be required (individually or in groups) to map the geology of an assigned area. Assessment will be based on the production of a geological map to the prescribed scale, together with supporting explanatory notes.

**Prerequisites:** ESB397 or ESB393

**Credit Points:** 8

**Contact Hours:** 3 per week

**Note:** This subject is not compatible with ESB483; credit may not be retained for both.

#### ■ ESB497 SEDIMENTOLOGY

**Offered:** Spring

Principles of sedimentation, including processes of generation, accumulation and redistribution of sedimentary deposits. Sedimentary depositional environments and the role of tectonism and diagenetic processes in redistribution and lithification of sedimentary deposits. Sedimentary basins, their geometric and structural components. Study of primary sedimentary structures and textures, and their application to environmental interpretation. Economic geology as related to sedimentary rocks, including both minerals and energy resources.

**Prerequisites:** ESB317 + ESB201 + ESB202

**Credit Points:** 8

**Contact Hours:** 3 per week

**Note:** This subject is not compatible with ESB493, ESB593; credit may not be retained for more than one of these subjects.

#### ■ ESB513 ECONOMIC GEOLOGY V

**Offered:** Autumn

Detailed studies of the genesis, discovery, exploitation and use of economic materials. The following topics are introduced and references supplied for further reading - exploration programs, crustal evolution and mineralisation, ore distribution in space and time, stratiform and stratabound ores, wall rock alteration, gossans, mineral potential of the sea bed, magmatic geochemistry, isotope studies, geothermometry, clay technology. Additional miscellaneous topics are dealt with in seminars.

**Prerequisite:** ESB363

**Credit Points:** 8

**Contact Hours:** 4 per week

**Note:** This subject is not compatible with ESB517; credit may not be retained for both.

#### ■ ESB517 MINERAL EXPLORATION

**Offered:** Autumn

An introduction to a range of relevant aspects and references to develop an awareness of their importance, and to provide a foundation for further development during the students' future professional lives. The aspects introduced are: exploration programs, crustal evolution and mineralisation, ore distribution in space and time, wall rock alteration, gossans, mineral potential of the sea bed, isotope studies, geothermometry, clay technology. Additional topics are dealt with in seminars.

**Prerequisite:** ESB367

**Credit Points:** 8

**Contact Hours:** 3 per week

**Note:** This subject is not compatible with ESB513; credit may not be retained for more than one of these subjects.

#### ■ ESB519 GEOLOGY FOR ENGINEERING

**Offered:** Autumn

An introduction to the basic principles and theories of geology, emphasising the way in which mineralogy and petrology, geologic structures, geomorphology and groundwater interact with, and are related to engineering design and construction. The engineering properties of rock are considered, and the effect of geologic hazards on engineering construction are examined. The course incorporates a number of case histories to demonstrate and extend the relevance of various aspects of geology to the civil engineer's workplace.

**Credit Points:** 6

**Contact Hours:** 3 per week

#### ■ ESB520 APPLIED GEOCHEMISTRY

**Offered:** Autumn

Techniques for establishing regional geochemical patterns. The application of geochemistry to the discovery of ore deposits and to the solution of environmental problems. Primary and secondary dispersion patterns. Optimum design of geochemical surveys and statistical rationalisation of geochemical data. The application of multipurpose regional geochemical mapping to land use evaluation and environmental impact studies. The relation of selected trace elements to health and disease in plants and animals. Practical work includes an industry oriented field project requiring several days of field work and also case history assignments based upon environmental and exploration problems.

**Prerequisites:** ESB321 or ESB421 or ESB403

**Credit Points:** 8

**Contact Hours:** 3 per week

**Note:** This subject is not compatible with ESB533; credit may not be retained for more than one of these subjects.

### ■ ESB523 HYDROGEOLOGY

**Offered:** Spring

A continuation of ESB443, with the emphasis on practical aspects. The analysis of pumping tests made under a wide variety of geological conditions is studied, together with flow net analysis and the prediction of safe long term pumping rates.

**Prerequisite:** ESB443

**Credit Points:** 6 **Contact Hours:** 3 per week  
**Note:** This subject is not compatible with ESB527; credit may not be retained for both.

### ■ ESB527 HYDROGEOLOGY

**Offered:** Spring

Introduction to the hydrological cycle, groundwater, aquifers, chemistry and usage of water. Exploration, evaluation and exploration of aquifers is followed by assessment of resources, recharge problems and contamination including sea water intrusion. Practical work includes evaluation of aquifers by pump tests, flow nets finite element analysis; seepage problems and dewatering of mines and excavations.

**Credit Points:** 8 **Contact Hours:** 3 per week  
**Note:** This subject is not compatible with ESB443, ESB523; credit may not be retained for both.

### ■ ESB533 EXPLORATION GEOCHEMISTRY

**Offered:** Autumn

Techniques for establishing regional geochemical patterns. The application of geochemistry to the discovery of ore deposits and to environmental problems. A field project is a major component of the practical work. Students are required to attend appropriate field trips which may involve one or two overnight/weekend commitments.

**Prerequisite:** ESB403

**Credit Points:** 8 **Contact Hours:** 4 per week  
**Note:** This subject is not compatible with ESB520; credit may not be retained for both.

### ■ ESB543 PETROLOGY V

**Offered:** Autumn

Extension of the concepts studied in ESB413 with emphasis on the less abundant rock types. Assignments and a seminar form an integral part of this unit. Practical work includes the study of selected rock suites. Field excursions of short duration as required.

**Prerequisite:** ESB413

**Credit Points:** 6 **Contact Hours:** 3 per week  
**Note:** This subject is not compatible with ESB547; credit may not be retained for both.

### ■ ESB547 IGNEOUS & METAMORPHIC PETROLOGY III

**Offered:** Autumn

An extension of the information covered in ESB417 with an emphasis on the economically important, but less abundant, rock types. Igneous petrology concentrates on concepts involving rock suites. Metamorphic petrology concentrates on regional aspects. The study of suites and the interpretation of petrographic features is emphasised. Field excursions of short duration are normally required.

**Prerequisite:** ESB417 or ESB413

**Credit Points:** 8 **Contact Hours:** 3 per week  
**Note:** This subject is not compatible with ESB543; credit may not be retained for both.

### ■ ESB563 PROJECT V

Students are required to produce an original detailed geological map of an area, prepare a preliminary geological report, and deliver a seminar. Extensive

field work is required. Project V must be followed by Project VI (ESB663).

**Prerequisites:** ESB413 + ESB493 + ESB353 + ESB393 + SVB303

**Co-requisites:** ESB533, ESB633

**Credit Points:** 6 **Contact Hours:** 3 per week  
**Note:** This subject is not compatible with ESB687; credit may not be retained for both.

### ■ ESB573 FIELD EXCURSIONS V

**Offered:** Autumn

An extended (five or more days) excursion or a series of weekend excursions to selected areas of geological interest. Students must submit assignments based on these excursions.

**Prerequisite:** ESB483

**Credit Points:** 4 **Contact Hours:** 2 per week  
**Note:** This subject is not compatible with ESB687, ESB577; credit may not be retained for more than one of these subjects.

### ■ ESB577 FIELD EXCURSIONS V

**Offered:** Autumn

An extended (five or more days) excursion, with the possible addition of weekend commitments, to areas of petrologic interest with the emphasis on igneous and metamorphic petrology together with related mineralisation. Assessed on the bases of field attitude, formal examination, and the production of an individually original written report.

**Prerequisites:** ESB417 + ESB487

**Credit Points:** 8 **Contact Hours:** 3 per week  
**Note:** This subject is not compatible with ESB573; credit may not be retained for both.

### ■ ESB593 SEDIMENTARY PETROLOGY

**Offered:** Autumn

Provenance, lithification and diagenesis of sediments. Sandstones: principles of classification and the concept of maturity, petrology, diagenesis. Carbonate rocks: composition, classification and environment of deposition of recent and ancient carbonates. Diagenesis of carbonate sediments. Dolomites and other carbonate rocks. Characteristics and origin of other biogenic and chemical sedimentary rocks such as chert, phosphorite and ironstone.

**Prerequisites:** ESB493 + ESB313

**Credit Points:** 6 **Contact Hours:** 3 per week  
**Note:** This subject is not compatible with ESB497; credit may not be retained for both.

### ■ ESB597 STRATIGRAPHY

**Offered:** Autumn

Historical geology and principles of stratigraphy. Stratigraphic subdivision and nomenclature. The facies concepts and their application to regional stratigraphic correlation. Aspects of transgression and regression (sea-level changes) through geologic time. Principles of micro-palaeontology and palynology, and their application to bio-stratigraphic correlation and basin analysis. Review of stratigraphy of Australia, based on the tectonic evolution of the continent. Field and laboratory work as required.

**Prerequisites:** ESB201 + ESB202

**Credit Points:** 8 **Contact Hours:** 3 per week  
**Note:** This subject is not compatible with ESB493; credit may not be retained for both.

### ■ ESB603 PETROLEUM & COAL GEOLOGY

**Offered:** Spring

Regional geophysical methods relevant to petroleum and coal exploration; drilling techniques and geophysical and lithological well logging as applied

to petroleum and coal; qualitative well log interpretation and correlation; subsurface mapping techniques and sedimentary basin interpretation. Coal properties, classification genesis and analysis; hydrocarbon generation from coal and oil shale. Coalfield geology. Oil field development and production; methods of primary, secondary and tertiary recovery. Petroleum and coal production and economics. Coal hand specimen study and microscopy. Short field excursions as required.

**Prerequisites:** ESB443 and ESB493

**Credit Points:** 10 **Contact Hours:** 5 per week

**Note:** This subject is not compatible with ESB477, ESB607; credit may not be retained for more than one of these subjects.

### ■ ESB607 COAL GEOLOGY

**Offered:** Spring

Coal properties, classification genesis and analysis; hydro-carbon generation from coal and oil shale. Coalfield geology. Basin analysis and subsurface mapping techniques, coal production and economics. Coal hand specimen study and microscopy. Field excursions of short duration as required, together with practical assignments.

**Prerequisites:** ESB101 + ESB102 + ESB201 + ESB202

**Credit Points:** 8 **Contact Hours:** 3 per week

**Note:** This subject is not compatible with ESB603; credit may not be retained for both.

### ■ ESB613 MINERAGRAPY & MINING GEOLOGY

**Offered:** Spring

Methods of mineral search, ore prediction, exploratory drilling and mining geology. Mineral economics: fiscal conditions, financing, development and production costing. Principles of sampling and evaluation, processing of mapping, drill log and assay data. Ore reserve assessment and classification. Mining methods, grade control, comminution and beneficiation. Mineragraphy: optical properties of ore minerals, theory of reflected light, growth structures, deformation, twinning and annealing; textural interpretation, gossans. Detailed examination of ore mineral suites and host rocks. Field excursions as required.

**Prerequisite:** ESB363

**Credit Points:** 6 **Contact Hours:** 3 per week

**Note:** This subject is not compatible with ESB617; credit may not be retained for both.

### ■ ESB617 MINING GEOLOGY

**Offered:** Spring

Search methods for economic materials, ore prediction, reserve assessment techniques. Interpretation of drilling information. Mining economics, case studies. Field excursions as required.

**Prerequisite:** ESB367

**Credit Points:** 8 **Contact Hours:** 3 per week

**Note:** This subject is not compatible with ESB613; credit may not be retained for both.

### ■ ESB633 EXPLORATION GEOPHYSICS

**Offered:** Autumn

The reduction and manipulation of geophysical data, and their interpretation in geological terms. Also included are field data acquisition and laboratory analogue modelling. Experience in a variety of geophysical methods is gained during a field excursion.

**Prerequisites:** ESB433 or ESB437

**Credit Points:** 8 **Contact Hours:** 3 per week

### ■ ESB643 STRUCTURAL GEOLOGY VI

**Offered:** Spring

Geotectonics. Structure of the earth's crust. World structural patterns. Salt tectonics. Deformation of lineations in folded rocks. Folding of inclined surfaces, unconformities, superimposed folding. Structural methods for exploration.

**Prerequisite:** ESB353

**Credit Points:** 6 **Contact Hours:** 3 per week

**Note:** This subject is not compatible with ESB647; credit may not be retained for both.

### ■ ESB647 STRUCTURAL GEOLOGY & GEOTECTONICS

**Offered:** Spring

Geotectonics. Structure of the earth's crust. World structural patterns. Salt tectonics. Deformation of lineations in folded rocks. Folding of inclined surfaces, unconformities, superimposed folding. Structural methods for exploration.

**Prerequisite:** ESB357

**Credit Points:** 8 **Contact Hours:** 3 per week

**Note:** This subject is not compatible with ESB643; credit may not be retained for both.

### ■ ESB653 ENGINEERING GEOLOGY

**Offered:** Spring

The application of geology to engineering, including an introduction to soil and rock mechanics, geological factors influencing engineering design and construction and the use of geological materials in construction. Foundation conditions and site investigation techniques. Case histories of various construction projects, including dams, bridges, buildings, roads, railways, tunnels and slopes. Field excursions to appropriate construction sites.

**Prerequisites:** ESB413 + ESB493 + ESB353 or ESB417 + ESB497 + ESB357

**Credit Points:** 8 **Contact Hours:** 3 per week

### ■ ESB663 PROJECT VI

**Offered:** Spring

The detailed analysis and interpretation of samples and information resulting from work done in ESB563. Preparation and presentation of a final detailed report. Some field work is required.

**Prerequisite:** ESB563

**Credit Points:** 8 **Contact Hours:** 4 per week

**Note:** This subject is not compatible with ESB687; credit may not be retained for both.

### ■ ESB673 FIELD EXCURSIONS VI

**Offered:** Spring

An extended (five or more days) excursion or a series of weekend excursions to selected areas of geological interest. Students must submit assignments based on these excursions.

**Prerequisite:** ESB573 **Credit Points:** 4

**Note:** This subject is not compatible with ESB677; credit may not be retained for both.

### ■ ESB677 FIELD EXCURSIONS

**Offered:** Spring

An extended (five or more days) excursion, with the possible addition of weekend commitments, to areas of geological interest, the emphasis being on economic geology. Students will be assessed on the bases of field attitude, the production of their individual original written report, and any other requirements of the examiner (c.g. oral or written examination, seminar, etc.).

**Prerequisites:** ESB577 or ESB573

**Credit Points:** 8

**Note:** This subject is not compatible with ESB673; credit may not be retained for both.

## ■ ESB687 GEOLOGICAL INVESTIGATIONS

**Offered:** Spring

Students are required to produce an original detailed map of a designated area, collect representative samples, observe and collate relevant information (e.g., structures, mineralisation, lithological variation, geomorphic variations, etc.). Appropriate laboratory and office work follows from the initial field work. Assessment based on the production of a final detailed report which will include maps. Each student is assigned to an adviser.

**Prerequisite:** ESB357 + ESB517 + ESB547 + ESB497 + ESB437

**Credit Points:** 8      **Contact Hours:** 3 per week

**Note:** This subject is not compatible with ESB663, ESB563; credit may not be retained for more than one of these subjects.

## ■ ESB693 MINING PROPERTY EVALUATION

**Offered:** Spring

Solutions of problems involving the concepts of present value of money, place value, unit value, recoverable value, cash flow, discounted cash flow, DCFROI, payback, discounted payback, net present value, depreciation, depletion, sinking fund, annuity, diminishing annuity, compound interest, taxation and its effect on ore reserves, price forecasting, metal marketing, sampling and tonnage grade calculation, ore reserves and sensitivity analyses.

**Prerequisite:** MNB025

**Credit Points:** 4      **Contact Hours:** 2 per week

## ■ ESP700 PROJECT

**Offered:** Full Year

All students undertaking Honours are required to select and undertake, in consultation with a supervisor, a substantial project in an appropriate area. Each project will be assessed on the basis of an extensive written report and an oral presentation.

**Credit Points:** 20 per semester

## ■ EST219 ENGINEERING GEOLOGY

**Offered:** Spring, evening only

A brief introduction to the definitions and principles of geology, an appreciation of the range of rock types and the effects of weathering leading to soil formation. Identification of common mineral and rock types, the occurrence and nature of rock defects or discontinuities; the flow and control of groundwater by stratigraphy; rock structure and surface profile; and the effects of rivers and coastal wave action in erosional/sedimentary cycles.

**Credit Points:** 7      **Contact Hours:** 3 per week

## ■ IFB880 PROJECT

**Offered:** Autumn

Each student will undertake a project requiring research, investigation or design of some topic or problem of interest to the profession.

**Prerequisite:** Successful completion of subjects totalling not less than 120 hours of weekly contact time

**Credit Points:** 12      **Contact Hours:** 3 per week

## ■ IFP222 PROJECT

**Offered:** Spring

This subject aims at developing a student's capacity for managing his/her own work and for persistence within a circumscribed area. The project will normally involve presentation of a seminar in addition to the preparation of a full report. The topic selected will have regard to available expertise and selected field of special interest to the candidate. In particular, it is expected that project work will be conducted across the wide variety of

applications in areas serviced by the course. Most projects will be work-related and will have associate supervision from commercial/industrial sources. It is envisaged that, where appropriate, projects may be jointly supervised by staff of the Schools or Departments involved in the course.

**Credit Points:** 8      **Contact Hours:** 2 per week

## ■ INB099 ENGLISH FOR ACADEMIC PURPOSES

**Offered:** Autumn

Written and oral English for tertiary purposes. Extension of structure and grammatical knowledge as well as vocabulary.

**Prerequisite:** Approval from Dean of Faculty

**Credit Points:** 9      **Contact Hours:** 3 per week

## ■ INB100 PRACTICE 1 (INJ232)

## ■ INB150 PRACTICE 2 (INJ232)

## ■ INB200 PRACTICE 3 (CSJ128)

## ■ INB201 PRACTICE 3 (ISJ210)

## ■ INB202 PRACTICE 3 (ISJ243)

## ■ INB250 PRACTICE 4 (CSJ128)

## ■ INB251 PRACTICE 4 (ISJ210)

## ■ INB252 PRACTICE 4 (ISJ243)

**Offered:** Autumn, Spring

Designed to co-ordinate the practical aspects of the lecture material presented each semester so that students both develop essential practical skills and benefit from cross fertilisation of the individual subjects. The importance of all aspects of personal communication will be emphasised throughout and students will also be strongly encouraged to perceive the social implications of computing activities and systems.

**Co-requisite:** Core topics in appropriate semester

**Credit Points:** 12      **Contact Hours:** 4 per week

## ■ INB105 PRACTICE 1A (INJ232)

## ■ INB110 PRACTICE 1B (INJ232)

## ■ INB125 PRACTICE 1A (IFJ222)

## ■ INB130 PRACTICE 1B (IFJ222)

## ■ INB155 PRACTICE 2A (INJ232)

## ■ INB160 PRACTICE 2B (INJ232)

## ■ INB180 PRACTICE 2B (IFJ222)

## ■ INB205 PRACTICE 3A (CSJ128)

## ■ INB206 PRACTICE 3A (ISJ210)

## ■ INB207 PRACTICE 3A (ISJ243)

## ■ INB210 PRACTICE 3B (CSJ128)

## ■ INB211 PRACTICE 3B (ISJ210)

## ■ INB212 PRACTICE 3B (ISJ243)

## ■ INB225 PRACTICE 3A (CSJ128)

## ■ INB255 PRACTICE 4A (CSJ128)

## ■ INB256 PRACTICE 4A (ISJ210)

## ■ INB257 PRACTICE 4A (ISJ243)

## ■ INB260 PRACTICE 4B (CSJ128)

## ■ INB261 PRACTICE 4B (ISJ210)

## ■ INB262 PRACTICE 4B (ISJ243)

## ■ INB275 PRACTICE 4A (IFJ222)

## ■ INB281 PRACTICE 4B (IFJ222)

**Offered:** Autumn, Spring

Designed to co-ordinate the practical aspects of the lecture material presented each semester so that stu-

dents both develop essential practical skills and benefit from cross fertilisation of the individual subjects. The importance of all aspects of personal communication will be emphasised throughout and students will also be strongly encouraged to perceive the social implications of computing activities and systems.

**Co-requisites:** Core topics in appropriate semester  
**Credit Points:** 6      **Contact Hours:** 2 per week

#### ■ INB270 DATA COMMUNICATIONS

**Offered:** Autumn, Spring

The subject describes the role of data communications and on-line systems in a modern computing environment and examines the design, implementation and management of data communications networks. It covers basic concepts and terminology; the International Standards Organisation reference model for open systems interconnection; communications equipment; data communications network design and management; network architectures; local area networks; Telecom facilities; transaction processing systems; distributed processing systems.

**Prerequisite:** CSB281

**Credit Points:** 9      **Contact Hours:** 3 per week

#### ■ INB285 DATA COMMUNICATIONS

This subject describes the role of data communications in a modern computing environment. It examines in some detail, aspects of the design, implementation and management of data communications networks. Topics to be discussed include basic telecommunications concepts, communications protocols, the ISO Reference Model for Open Systems Interconnection, wide area networks, local area networks and communications network security.

**Prerequisite:** CSB281 OR CSB181 OR CSB155

**Credit Points:** 12      **Contact Hours:** 4 per week

#### ■ INB300 PROJECT WORK

**Offered:** Autumn, Spring

Students, either individually or in small groups, undertake a substantial 12 month project relevant to the needs of industry and designed to give insight into industrial requirements. Each student/group is supervised by a member of staff. In addition, there is a teaching contribution - of one hour per week throughout the first semester from the School of Communication - designed to develop the student's communication skills.

**Prerequisite:** Successful completion of at least the equivalent of two-thirds of either the Bachelor of Applied Science (Computing) or Bachelor of Business (Computing) AND CMB104

**Credit Points:** 12 per semester

**Contact Hours:** 4 per week

#### ■ INN200 RESEARCH METHODOLOGY

**Offered:** Autumn

Topic of research by agreement between the student and a Faculty staff member acting as project supervisor. Students must attend lectures/seminars of approximately 1 hour every two weeks (on average). They will also engage in literature search and generally other design aspects of their research project.

**Credit Points:** 12      **Contact Hours:** Not applicable

#### ■ INN210 HONOURS PROJECT II

**Offered:** Spring

This is a continuation and completion of the research project initiated for the subject INN200 Research Methodology.

**Prerequisite:** INN200

**Credit Points:** 12      **Contact Hours:** Not applicable

#### ■ INN300 MINOR PROJECT

#### ■ INN301 MINOR PROJECT

#### ■ INN302 MINOR PROJECT

#### ■ INN303 MINOR PROJECT

**Offered:** Autumn, Spring

Students may undertake a number of minor projects so that they can pursue specialised areas of interest, or broaden their knowledge in areas of relevance to their employment. Topics are to be decided by agreement between the student and a Faculty staff member acting as supervisor.

**Credit Points:** 12      **Contact Hours:** 3 per week

#### ■ INN310 ADVANCED DATA COMMUNICATIONS

**Offered:** Spring

This subject deals with advanced material in data communications. Topics covered include data communications network design and management (techniques and case studies); performance modelling of communications networks; comparative evaluations of data communications products and services; data communications software design and implementation; provision of integrated communications services (voice, data, video, etc.); network security; communications industry policy (e.g. deregulation vs regulation).

**Prerequisite:** INB270 (or equivalent)

**Credit Points:** 12      **Contact Hours:** 3 per week

#### ■ INN400 MAJOR PROJECT-PART I

**Offered:** Autumn

This subject comprises the first semester of a two semester subject and enables students to pursue a specialised topic in greater depth than is possible in a single semester. Topics are to be decided by agreement between the student and a Faculty member acting as supervisor.

**Prerequisite:** Completion of eight subjects of the Master of Applied Science (Computing)

**Credit Points:** 12      **Contact Hours:** 3 per week

#### ■ INN450 MAJOR PROJECT-PART II

**Offered:** Spring

This subject forms the second half of the major project component of the Master of Applied Science (Computing) course, and is a continuation of the same topic commenced in INN400.

**Prerequisite:** INN400 Major Project-Part I

**Credit Points:** 12      **Contact Hours:** 3 per week

#### ■ INP270 DATA COMMUNICATIONS

**Offered:** Autumn, Spring

This subject describes the role of data communications in a modern computing environment. It examines in some detail, aspects of the design, implementation and management of data communications networks. Topics to be discussed include basic telecommunications concepts, communications protocols, the ISO Reference Model for Open Systems Interconnection, wide area networks, local area networks and communications network security.

**Prerequisite:** CSP112 OR ISP100

**Co-requisite:** ISP100 (for students in the Graduate Diploma in Commercial Computing)

**Credit Points:** 12      **Contact Hours:** 3 per week

#### ■ ISB101 APPLICATION SYSTEMS

**Offered:** Autumn, Spring

This subject examines the way business operates and the nature of business application systems. It also

examines the features of some non-business applications. On completion of the subject, students will be able to describe the generalised applications needed to support of business; be aware of the need for custom designed systems; and be aware of career prospects in the information technology industry in Australia.  
**Credit Points:** 9      **Contact Hours:** 3 per week

#### ■ **ISB102 REPRESENTATION OF INFORMATION**

**Offered:** Autumn

This subject will provide students with the ability to develop an abstract model of a real situation, being the first step in the process of creating a computer-based information system. The subject therefore forms a basis for the subsequent development of the concepts associated with the design and implementation of information systems.

**Credit Points:** 9      **Contact Hours:** 3 per week

#### ■ **ISB113 PRINCIPLES OF INFORMATION MANAGEMENT**

**Offered:** Autumn

This subject serves as an introduction to the core elements of information management and emphasises information as an essential organisational resource required by management to meet organisational goals and objectives. The subject examines the nature and creation of information, storage media, organisation for storage, retrieval techniques, transfer, effects of internal and external environments, security and obsolescence.

**Credit Points:** 9      **Contact Hours:** 3 per week

#### ■ **ISB156 MANAGEMENT INFORMATION SYSTEMS**

**Offered:** Spring

This subject will examine the principles and technologies involved in the collection, analysis and presentation of information to aid management decision making. It will provide an overview of effective management information systems; and cover decision making underlying effective MISs; computer hardware and software for effective MISs; development, implementation and control of effective MISs. It will include a case study on major subsystems comprising a MIS.

**Credit Points:** 12      **Contact Hours:** 3 per week

#### ■ **ISB180 COMPUTER APPLICATIONS**

**Offered:** Spring

This subject will provide a basic understanding of commercial microcomputer systems as they apply to building and exposure to microcomputer applications, specifically a spreadsheet and a database package. This will include the design and implementation of spreadsheet models and creation of reusable templates; the use of a database management system (DBMS) including design of data files, creation of data views and reports; an introduction to problem definition, solution design and modular programming in conjunction with the DBMS.

**Credit Points:** 4      **Contact Hours:** 2 per week

#### ■ **ISB182 REPRESENTATION OF INFORMATION**

**Offered:** Autumn

This subject will provide students with the ability to develop an abstract model of a real situation, being the first step in the process of creating a computer-based information system. The subject therefore

forms the basis for the subsequent development of the concepts associated with the design and implementation of information systems.

**Credit Points:** 9      **Contact Hours:** 3 per week

#### ■ **ISB201 INFORMATION SYSTEMS ANALYSIS & DESIGN I**

**Offered:** Autumn, Spring

This subject provides a grounding in the methodology and techniques of systems analysis and design.

**Prerequisites:** CSB101, ISB102

**Credit Points:** 9      **Contact Hours:** 3 per week

#### ■ **ISB202 DATABASE AND PROCEDURAL LANGUAGES**

**Offered:** Autumn, Spring

The fundamentals and syntax of a procedural computer programming language (eg COBOL) and its use in the implementation of information systems (in particular database systems). Apart from developing techniques in commercial programming, the subject provides an appreciation of the advantages and disadvantages of a database approach.

**Prerequisite:** CSB110

**Credit Points:** 9      **Contact Hours:** 3 per week

#### ■ **ISB203 ADVANCED DATABASE**

**Offered:** Autumn

This subject covers relational and network database architectures and the facilities provided by a database management system. The issues in the database area which impinge on online systems design will be discussed and students will be introduced to the relationship between database management systems and 4GL software.

**Prerequisite:** ISB102

**Credit Points:** 9      **Contact Hours:** 3 per week

#### ■ **ISB210 INFORMATION SYSTEMS ANALYSIS & DESIGN II**

**Offered:** Autumn, Spring

This subject teaches a complete method for developing an Information System, from initial analysis of the problem through to a working computer system. Emphasis is given to the practical application of the techniques, using a wide range of real life problems.

**Prerequisite:** ISB201

**Credit Points:** 9      **Contact Hours:** 3 per week

#### ■ **ISB214 THE INFORMATION RESOURCE**

**Offered:** Spring

This subject covers the management of information within an organisation, with some consideration of the problems associated with sharing information between organisations and the identification and targeting of information users as clients.

**Prerequisite:** MNB103

**Credit Points:** 9      **Contact Hours:** 3 per week

#### ■ **ISB215 EXTERNAL SOURCES OF INFORMATION**

**Offered:** Autumn

This subject encompasses the scanning of the environment using various information sources, technologies, avenues and methodologies. It will also provide practical skills including online searching. It will cover the definition of external information sources (personal and recorded); types of information provided by Government sources, industrial sources, academic sources and business sources; the publishing industries; online searching techniques; storage and retrieval media; computer conferencing.

**Credit Points:** 9      **Contact Hours:** 3 per week

■ **ISB216 POLITICAL & SOCIAL ASPECTS OF INFORMATION TECHNOLOGY**

**Offered:** Autumn

This subject introduces the major political and legal aspects of information technology. Government policies relevant to the information industry will be examined and comparisons drawn between policies adopted by different countries. The social consequences of technological convergence with particular emphasis on the changing nature of work and the evolution of the information professions will be discussed.

**Credit Points:** 9      **Contact Hours:** 3 per week

■ **ISB219 ADVANCED COBOL**

**Offered:** Spring

This subject provides students with the opportunity of gaining greater proficiency in writing complex commercial programs in the COBOL language. A major programming project will be implemented to facilitate the above.

**Prerequisite:** ISB202

**Credit Points:** 9      **Contact Hours:** 3 per week

■ **ISB263 INTRODUCTION TO COMPUTERS & INFORMATION SYSTEMS**

**Offered:** Spring

This subject is designed to enable students to identify the necessary computing concepts involved in the design and use of information systems; to apply computing concepts in the area of nursing practice; and to demonstrate competence in using systems creation and retrieval techniques via a computer-based project.

**Credit Points:** 6      **Contact Hours:** 2 per week

■ **ISB281 INFORMATION SYSTEMS ANALYSIS & DESIGN I**

**Offered:** Autumn, Spring

This subject provides a grounding in the methodology and techniques of systems analysis and design; and aims to develop competence in techniques and application of methodologies of information systems development.

**Prerequisites:** CSB155 + ISB282

**Credit Points:** 12      **Contact Hours:** 3 per week

■ **ISB283 DATABASE & PROCEDURAL LANGUAGES**

**Offered:** Autumn, Spring

This subject introduces the fundamentals and syntax of a procedural computer programming language (e.g. COBOL) and examines its use in the implementation of information systems (and in particular database systems). Apart from developing techniques in commercial programming, the subject provides an appreciation of the advantages and disadvantages of a database approach.

**Prerequisite:** CSB280

**Credit Points:** 12      **Contact Hours:** 3 per week

■ **ISB290 INFORMATION SYSTEMS ANALYSIS & DESIGN II**

**Offered:** Autumn, Spring

This subject extends coverage of techniques of analysis and design to further develop competence in methodologies, skills and techniques used by systems analysts. It will teach a complete method for developing an information systems, from initial analysis of the problem through to a working computer system. Emphasis will be given to the practical application of

the techniques, using a wide range of real life problems.

**Prerequisites:** ISB281 OR ISB492

**Credit Points:** 12      **Contact Hours:** 4 per week

■ **ISB301 ADVANCED INFORMATION SYSTEMS**

**Offered:** Autumn

This subject introduces students to the concept and practice of Decision Support Systems (DSS). It covers foundations architecture and developing DSS; the DSS environment, applications of DSS and the role of DSS in an organisation; end-users and DSS; human factors in DSS; DSS and Management Information Systems; intelligent DSS.

**Prerequisite:** ISB281

**Credit Points:** 9      **Contact Hours:** 3 per week

■ **ISB302 DATABASE MANAGEMENT**

**Offered:** Autumn

The subject focuses on the practical issues associated with the implementation and management of the database designs developed in previous subjects. It specifically addresses issues such as relational design and the performance and tuning of databases, as well as control issues such as integrity. It is intended to provide students with an appreciation of some of the more significant commercial implementations of database architectures.

**Prerequisite:** ISB283

**Credit Points:** 9      **Contact Hours:** 3 per week

■ **ISB303 OFFICE INFORMATION SYSTEMS**

**Offered:** Autumn, Spring

This subject examines the development and implementation of information systems in the office context. It includes an assessment of the computer hardware, software and telecommunications products available to support the automated office. The subject is intended to extend students' competence in the design and management of data communications networks and to examine techniques and systems contributing to automation of the modern office.

**Prerequisite:** INB270 OR INP270

**Credit Points:** 9      **Contact Hours:** 3 per week

■ **ISB305 PROJECT**

**Offered:** Spring

Students, either individually or in small groups, undertake a substantial six month project relevant to the needs of industry and designed to give insight into industrial requirements. Each student, or group of students, undertakes a different project and is supervised generally by a member of staff who provides guidance throughout the duration of the project.

**Prerequisite:** Successful completion of at least the equivalent of two-thirds of the normal course program and CMB104 OR ISB492

**Credit Points:** 12      **Contact Hours:** 4 per week

■ **ISB313 EXPERT INFORMATION SYSTEMS**

**Offered:** Spring

This subject examines the role of expert systems in the commercial area and their impact on business information systems; provides an understanding of how expert systems could be used in the development of advanced business information systems; and gives some practical experience in developing and implementing information systems containing such techniques; includes discussion on social implications of expert systems.

**Prerequisite:** ISB301

**Credit Points:** 9      **Contact Hours:** 3 per week



### ■ ISB314 INFORMATION SYSTEMS MANAGEMENT

**Offered:** Spring

This subject is designed to develop a knowledge of the functions and practices of management in a computer installation, and to give competence in the evaluation and acquisition of a computer system. It will cover the data processing management process; criteria and techniques for selecting computer hardware, software and services; the RFP, project and operations management; site selection, and evaluation of computing contracts.

**Prerequisite:** Completion of two-thirds of the Bachelor of Business (Computing) course

**Credit Points:** 9      **Contact Hours:** 3 per week

### ■ ISB316 INFORMATION SUPPORT SYSTEMS

**Offered:** Spring

This subject examines the computer data base environment and the organisational superstructure around it as one coherent unit. Students will be introduced to issues varying from planning and administering the information centre to understanding the politics and mechanics of information centre implementation and its interaction with the organisation.

**Prerequisite:** ISB203

**Credit Points:** 9      **Contact Hours:** 3 per week

### ■ ISB317 SPECIAL TOPIC - INFORMATION MANAGEMENT

**Offered:** Spring

This subject will cover at each offering aspects of information management of specific interest at that time. The subject makes allowance for significant developments or emphasis in information management not included in the remainder of the course program.

**Prerequisite:** To be advised

**Credit Points:** 9      **Contact Hours:** 3 per week

### ■ ISB318 STRATEGIC INFORMATION MANAGEMENT

**Offered:** Spring

This subject integrates all learning occurring throughout the Information Management degree in the context of the working environment. The importance of strategic planning by organisations and the contribution of the information manager to this process is stressed. The subject covers methods of intelligence analysis and environmental scanning in support of strategic planning. The value of information to the strategic positions being adopted by the organisations is also covered.

**Prerequisite:** ISB214

**Credit Points:** 9      **Contact Hours:** 3 per week

### ■ ISB382 MICROCOMPUTER APPLICATIONS

**Offered:** Spring

This subject aims to provide a basic understanding of commercial microcomputer systems as they apply to Science. It includes an introduction to three major microcomputer applications; the design and implementation of spreadsheet models and creation of reusable templates; the use of a database management system (DBMS) including design of data files, creation of data views and reports; an introduction to problem definition, solution design and modular programming in connection with the DBMS; understanding the basic capabilities of word processing packages and their applications.

**Credit Points:** 9      **Contact Hours:** 3 per week

### ■ ISB385 MICROCOMPUTER SOFTWARE APPLICATIONS

**Offered:** Autumn, Spring

This subject is designed to provide a basic understanding of commercial microcomputer systems as they apply to Applied Science. It will include an introduction to three major microcomputer applications; the design and implementation of spreadsheet models and creation of reusable templates; the use of a database management system (DBMS) including design of data files, creation of data views and reports; an introduction to problem definition, solution design and modular programming in conjunction with the DBMS; and an understanding of the basic capabilities of word processing packages and their applications.

**Credit Points:** 4      **Contact Hours:** 2 per week

### ■ ISB392 BUSINESS COMPUTING

**Offered:** Autumn, Spring

This subject is designed to provide an understanding of commercial computing, its terminology, hardware and software components; familiarity with specific electronic data processing applications, an ability to design a simple business system and an ability to describe manipulation of information to produce a desired result; an exposure to microcomputer applications, specifically a spreadsheet package; and an introduction to information analysis techniques and database design concepts.

**Credit Points:** 12      **Contact Hours:** 4 per week

### ■ ISB393 COMPUTER BASED INFORMATION SYSTEMS

**Offered:** Spring

The subject is designed to introduce engineering students to commercial computer applications. Some time will be spent on introducing systems concepts, file management and database systems. As practical work, the combination of database/spreadsheet package 'VP-Planner' has been selected.

**Credit Points:** 4      **Contact Hours:** 3 per week

### ■ ISB492 COMPUTERISED ACCOUNTING SYSTEMS

**Offered:** Autumn, Spring

This subject is designed to introduce students planning a career in accounting to the nature and operation of computerised accounting systems. Students will study the basic concepts underlying such systems, features of common applications (eg general ledger, sales) and the process of analysing and designing such systems. Practical experience in the use of the SYBIZ microcomputer accounting package will be provided.

**Prerequisite:** ISB392

**Credit Points:** 12      **Contact Hours:** 4 per week

### ■ ISB493 BUSINESS COMPUTER PROGRAMMING

**Offered:** Autumn

This subject introduces COBOL as a business programming language and develops competence in modern commercial programming techniques. It examines programming principles, structured design, fundamentals of COBOL, commercial data processing systems, algorithms for business applications, data structures and file processing. It includes practical projects in COBOL on HP3000 or VAX.

**Prerequisites:** CSB155, ISB392

**Credit Points:** 9      **Contact Hours:** 4 per week

**Note:** This subject is not compatible with CSB306; credit may not be retained for both.

■ **ISB998 SPECIAL TOPIC - BUSINESS COMPUTING**

■ **ISB999 SPECIAL TOPIC - BUSINESS COMPUTING**

**Offered:** Spring

These subjects are designed to allow for the significant development of or emphasis in business computing not dealt with in other course subjects. Selected topics and study areas will be offered as required and when the necessary expertise is available. See School announcements for full details of special topics being offered.

**Prerequisite:** See School announcements

**Credit Points:** 9      **Contact Hours:** 3 per week

■ **ISN100 INFORMATION SYSTEMS I**

**Offered:** Spring

This subject deals with advances in information system development approaches and techniques. It examines the theoretical basis underlying current approaches to decision support. A special focus is on the impact on information systems development of increased user involvement.

**Prerequisite:** ISB201 (or equivalent)

**Credit Points:** 12      **Contact Hours:** 3 per week

■ **ISN156 MANAGEMENT INFORMATION SYSTEMS**

**Offered:** Spring

This subject examines the principles and technologies involved in the collection, analysis and presentation of information to aid management decision making. It provides insight into current principles and technology appropriate to effective practice in the areas of Managerial Accounting and Finance.

**Credit Points:** 12      **Contact Hours:** 3 per week

■ **ISN300 INFORMATION SYSTEMS II**

**Offered:** To be advised

This subject provides an advanced treatment of contemporary issues of information system development. It deals particularly with the issues of development of corporate information systems.

**Prerequisite:** ISN100

**Credit Points:** 12      **Contact Hours:** 3 per week

■ **ISP100 THE COMPUTER SYSTEM**

**Offered:** Autumn

This subject is designed to provide an overview of the computer as a tool to be applied to a variety of problems concentrating on applications in commerce; to develop the perception for the process necessary in systems development: software engineering; and to develop skills in program development and a basic competence in algorithm development and implementation using PASCAL. It will cover computer hardware and software; an introduction to software engineering; computational linguistics; algorithm development and implementation in PASCAL.

**Credit Points:** 12      **Contact Hours:** 3 per week

■ **ISP101 DATA DESIGN & PROCESSING**

**Offered:** Autumn

This subject is designed to introduce the theory of data modelling and the techniques associated with development of database solutions for a variety of information problems and in conjunction with the above, to familiarise students with modern post-procedural approaches to database retrieval and manipulation.

**Co-requisite:** ISP100 OR CSP112

**Credit Points:** 12      **Contact Hours:** 3 per week

■ **ISP113 PRINCIPLES OF INFORMATION MANAGEMENT**

**Offered:** Autumn

This subject serves as an introduction to the core elements of information management and emphasises information as an essential organisational resource required by management to meet organisational goals and objectives. The subject examines the nature and creation of information, storage media, organisation for storage, retrieval techniques, transfer, effects of internal and external environments, security and obsolescence.

**Credit Points:** 12      **Contact Hours:** 3 per week

■ **ISP200 SYSTEMS ANALYSIS & DESIGN**

**Offered:** Autumn, Spring

This subject is designed to give students an understanding of methodologies for undertaking the development of a computer-based business system; to develop competence in the use of a number of techniques of systems analysis and design; to develop understanding of design considerations related to important business application areas; and to extend the understanding of the application of data modelling.

**Prerequisite:** ISP101

**Credit Points:** 12      **Contact Hours:** 3 per week

■ **ISP301 ADVANCED DATABASE**

**Offered:** Spring

On completion of this subject, students should be able to accomplish the following: discuss the functions of a DBMS; describe the relational and network approaches to database construction; describe one DBMS in detail; design a database to support the outputs required of some information system; distinguish between databases and knowledge bases, and describe the features expected of a 4GL and how they facilitate the use of prototyping.

**Prerequisite:** ISP101

**Prerequisite/Co-requisite:** ISP400 (for students in the Graduate Diploma Commercial Computing)

**Credit Points:** 12      **Contact Hours:** 3 per week

■ **ISP303 PROGRAMMING**

**Offered:** Autumn

This subject is designed to develop: advanced algorithms and implement these algorithms; structured program design techniques for commercial applications; practical aspects of program testing, debugging and style; and competence in the 'C' programming language. The subject will cover structured program design (top-down development); advanced data structures and algorithm development; and sound program development, testing and debugging using Pascal and C. It will include practical work on VAX, PCs or HP9000.

**Prerequisites:** ISP100 and ISP101

**Credit Points:** 12      **Contact Hours:** 3 per week

■ **ISP313 EXPERT INFORMATION SYSTEMS**

**Offered:** Spring

This subject examines the role of expert systems in the commercial area and their impact on business information systems. It provides an understanding of how expert systems could be used in the development of advanced business information systems, and gives some practical experience in developing and implementing information systems containing such techniques. It includes discussion on the social implications of expert systems.

**Prerequisite:** ISP381

**Credit Points:** 12      **Contact Hours:** 3 per week

### ■ ISP314 INFORMATION SYSTEMS MANAGEMENT

**Offered:** Spring

This subject is designed to develop a knowledge of the functions and practices of management in a computer installation, and to give competence in the evaluation and acquisition of a computer system. It will cover the data processing management process; criteria and techniques for selecting computer hardware, software and services; the RFP, project and operations management; site selection, and evaluation of computing contracts.

**Prerequisite:** Completion of one-half of the Graduate Diploma in Commercial Computing

**Credit Points:** 12     **Contact Hours:** 3 per week

### ■ ISP380 QUALITY INFORMATION SYSTEMS

**Offered:** Autumn

This subject examines methodologies and techniques for achieving a high level of quality in business information systems, relating these to broader principles of quality control and quality assurance. Areas covered include: types of information systems; information as a resource; past and current approaches to information systems; decision making based on information systems; analysis and design; prototype concepts; information system modelling.

**Credit Points:** 6     **Contact Hours:** 3 per week

### ■ ISP381 ADVANCED INFORMATION SYSTEMS

**Offered:** Autumn

This subject is designed to introduce students to the concept and application of Decision Support Systems (DSS), to study the development and architecture of DSS; and to introduce students to the role and relationship of the user and the organisation to DSS. It will cover foundations architecture and developing DSS; the DSS environment, applications and the role in an organisation; end-users and DSS; human factors; DSS and Management Information Systems (MIS); and intelligent DSS.

**Prerequisite:** ISB281

**Credit Points:** 12     **Contact Hours:** 3 per week

### ■ ISP383 OFFICE INFORMATION SYSTEMS

**Offered:** Spring

This subject examines the development and implementation of information systems in the office context. It includes an assessment of the computer hardware, software and telecommunications products available to support the automated office. The subject is intended to extend students' competence in the design and management of data communications networks and to examine techniques and systems contributing to automation of the modern office.

**Prerequisite:** INB285 OR INP270

**Credit Points:** 12     **Contact Hours:** 3 per week

### ■ ISP400 ADVANCED PROGRAMMING

**Offered:** Spring

This subject is designed to examine and study the implementation of business information systems in COBOL. It will cover a review of programming principles; fundamentals of COBOL; commercial data processing systems; data structures, serial and random file processing; and will include extensive practical projects in COBOL.

**Prerequisite:** ISP100

**Credit Points:** 12     **Contact Hours:** 3 per week

### ■ ISP401 COMPUTER PROJECT

**Offered:** Spring

A major project allocated to or proposed by the student in any of the specialist areas (covered or otherwise) in the course, e.g., a development of project, software implementation, or the solution to a particular problem in computer business applications.

**Prerequisite:** Completion of six subjects of the Graduate Diploma in Commercial Computing

**Credit Points:** 12     **Contact Hours:** 3 per week

### ■ ISP410 COLLECTION BUILDING & USE I

**Offered:** Autumn

On completion of this subject, students will be able to demonstrate an understanding of the characteristics of various print and non-print resources as channels for the communication of ideas; an ability to use the major tools of selection for both print and non-print resources; an understanding of the processes of acquisition of resources; an ability to operate a wide range of media equipment; an understanding of the economic basis of decision-making in the selection, acquisition, storage and exploitation of resources.

**Credit Points:** 8     **Contact Hours:** 2 per week

### ■ ISP411 INFORMATION STORAGE & RETRIEVAL I

**Offered:** Autumn

This subject is designed to teach information storage and retrieval theory and its application to libraries and information agencies. Students will demonstrate an understanding of the principles of bibliographical organisation of resource materials and their part in fulfilling the mission of library and information agencies.

**Credit Points:** 8     **Contact Hours:** 2 per week

### ■ ISP412 INFORMATION USERS & SERVICES I

**Offered:** Autumn

On successful completion of this subject students will be able to: answer user queries using standard reference print sources; conduct a reference interview; formulate a search strategy; and evaluate reference sources and services. Students will examine user needs as the basis for library and information services; the findings of user studies conducted in Australia and abroad.

**Credit Points:** 8     **Contact Hours:** 2 per week

### ■ ISP413 INFORMATION AGENCY MANAGEMENT & SERVICES I

**Offered:** Autumn

On successful completion of this subject, students will be able to: define the managerial functions of planning, organising, staffing directing and controlling; apply the theory of management to a wide variety of information agencies; and analyse specific work situations in order to apply managerial concepts and techniques successfully.

**Credit Points:** 8     **Contact Hours:** 2 per week

### ■ ISP414 LIBRARY SERVICES TO YOUNG PEOPLE

**Offered:** Spring

This subject is designed to introduce students to the most important aspects of library service to young people. Students will be able to offer a variety of services and programmes appropriate to different community groups; evaluate works written for children and young people in order to select appropriate resources for the library's clientele.

**Credit Points:** 12     **Contact Hours:** 3 per week

#### ■ ISP418 INFORMATION & REFERRAL SERVICES

**Offered:** Autumn

This subject will provide an introduction to community information services offered in libraries and by other agencies; a means of identifying the information needs of individuals in their private lives; locating, storing, retrieving and repackaging this information.

**Credit Points:** 12      **Contact Hours:** 3 per week

#### ■ ISP419 GOVERNMENT DOCUMENTS

**Offered:** Autumn

This subject is designed to examine the production, acquisition and organisation of government documents, as well as issues related to their use. Students will demonstrate a knowledge of the range of government documents available; of the extent of bibliographic control currently being applied to these materials; of appropriate organisational patterns for these resources.

**Credit Points:** 12      **Contact Hours:** 3 per week

#### ■ ISP420 COLLECTION BUILDING & USE II

**Offered:** Spring

On completion of this subject, students will be able to demonstrate an understanding of the characteristics of various print and non-print resources as channels for the communication of ideas; an ability to use the major tools of selection for both print and non-print resources; an understanding of the processes of acquisition of resources; an ability to operate a wide range of media equipment; an understanding of the economic basis of decision-making in the selection, acquisition, storage and exploitation of resources.

**Prerequisite/Co-requisite:** ISP410

**Credit Points:** 8      **Contact Hours:** 2 per week

#### ■ ISP421 INFORMATION STORAGE & RETRIEVAL II

**Offered:** Spring

This subject is designed to teach information storage and retrieval theory and its application to libraries and information agencies.

**Prerequisite:** ISP411

**Credit Points:** 8      **Contact Hours:** 2 per week

#### ■ ISP422 INFORMATION USERS & SERVICES II

**Offered:** Spring

This subject is designed to teach students to act as the interface between users and the data or information they may require, in whatever form, using a variety of available resources, systems, and technologies. This subject comprises design, construction and use of databases: comparison of commercially produced dbms: structure of the database industry; types of databases.

**Prerequisite:** ISP412

**Credit Points:** 8      **Contact Hours:** 2 per week

#### ■ ISP423 INFORMATION AGENCY MANAGEMENT & SERVICES II

**Offered:** Spring

An introduction to automated library management systems, both mainframe/minicomputer and micro-computer based, including circulation, cataloguing, acquisitions and security systems, as well as integrated library systems and the nature and use of local area networks.

**Prerequisite:** ISP413

**Credit Points:** 8      **Contact Hours:** 2 per week

#### ■ ISP427 SPECIAL TOPIC - LIBRARY SCIENCE

**Offered:** Spring

This subject is designed to allow for significant development of or emphasis in library science not dealt with in other course subjects. Selected topics and study areas will be offered as required and when the necessary expertise is available.

**Prerequisite:** See School announcements

**Credit Points:** 12      **Contact Hours:** 3 per week

#### ■ ISP428 FIELD EXPERIENCE

**Offered:** Autumn, Spring

This subject comprises a total of six weeks' full-time individualised work experience in a library or other information agency approved by the Head of School. Field experience may normally be divided into no more than two separate periods of three weeks apiece and must be arranged through the School of Information Systems.

**Credit Points:** 8

#### ■ ISP998 SPECIAL TOPIC - COMMERCIAL COMPUTING

**Offered:** Autumn

This subject is designed to allow for significant development of or emphasis in commercial computing not dealt with in other course subjects. Selected topics and study areas will be offered as required and when the necessary expertise is available.

**Prerequisite:** See School announcements

**Credit Points:** 12      **Contact Hours:** 3 per week

#### ■ ISP999 SPECIAL TOPIC - COMMERCIAL COMPUTING

**Offered:** Spring

This subject is designed to allow for significant development of or emphasis in commercial computing not dealt with in other course subjects. Selected topics and study areas will be offered as required and when the necessary expertise is available.

**Prerequisite:** See School announcements

**Credit Points:** 12      **Contact Hours:** 3 per week

#### ■ LPB441 URBAN PLANNING II

**Offered:** Spring

The meaning of urban governance. The statutory relationships amongst Australian federal, state and local authorities and the effective relationships amongst them with respect to physical, social, decision-making and financial resources. The structure of local authority, state and federal government departments. The relationships between politicians and administrators. Rural land use patterns. The characteristics and dynamic of rural land uses - forestry, pastoral and arable agriculture, extractive industries, water collection, recreation and tourism, conservation systems. Impacts of rural resource developments. Rural land evaluation. Rural planning and characteristics of rural settlements. The rural urban fringe. Rural issues, problems and conflicts.

**Credit Points:** 4      **Contact Hours:** 2 per week

#### ■ LPB444 URBAN PLANNING III

**Offered:** Autumn

Transport planning: Movement and its alternative modes - foot, cycle, car, bus, train, plane, pipeline, inland waterway and marine modes. The origins and destination approach to traffic management, interchange studies. Inter-urban traffic and regional transport planning. The relationship between land use and traffic generation. Social Planning: The genesis of social welfare policies in Australia - employment, health, housing, income and education. The aims and

conduct of social surveys. Community development and organisation schemes in Australia and overseas. Public participation and community action; planning aid and advocacy planning.

**Credit Points:** 5      **Contact Hours:** 2 per week

#### ■ LPP201 CULTURAL VALUES

**Offered:** Spring

Concepts of garden, landscape and environment. Formative influences on late 20th century thinking. Landscape as art or artefact, the fine arts tradition, and iconography. The continuing influence of the picturesque and gardenesque. The scientific, rationalist approach and evolving environmental romanticism. Functionalism, symbolism and meaning. The demystification (quantification) of aesthetic and personal response and the influence of the social sciences. Pursuing a public art form.

**Credit Points:** 6      **Contact Hours:** 1 per week

#### ■ LPP202 RESIDENTIAL LANDSCAPE DESIGN

**Offered:** Autumn

Landscape design problems dealing with single and multiple dwellings. Introduction of the range of housing and subdivision types. How private and common land are controlled and managed. Consequences for design. Controls, by-laws, standards, and regulations for residential development using examples in various States. Relevant international examples including Radburn planning, experimentation with residential forms in the last 50 years, and the Commonwealth's "Affordable Housing" program. Expectations of residents and the development of attitudes to suburban and urban gardens in Australia over the last century. Fashion, style and environmental constants. Microclimatic control, viewsheds and privacy, noise amelioration. Formulating and resolving briefs.

**Credit Points:** 9      **Contact Hours:** 3 per week

#### ■ LPP203 URBAN LANDSCAPE DESIGN

**Offered:** Autumn

Theory: client and user analysis, data gathering and information requirements, programming of work for site planning and detailed design services, programming of implementation; user/function analysis and site capacity considerations and preparation of a project brief. Open space theory and the principles of spatial design. Studio: a medium scale intensive/multiple use project which demands re-design and rehabilitation will be undertaken to apply concurrent theory lectures and seminars. Students will be expected to make time available outside studio hours to visit project site(s) and carry out such site surveys and "client" interviews as are necessary to establish project briefs and carry out the design project. Expectations of an advanced level of professional presentation will attach to the project output.

**Credit Points:** 9      **Contact Hours:** 3 per week

#### ■ LPP204 LANDSCAPE PLANNING

**Offered:** Spring

Studies will include medium to large scale projects involving a range of biophysical, cultural, and visual issues with a relatively high degree of complexity. The focus will be on assessment and evaluation of related landscape attributes and issues with emphasis on deriving landscape management options in the form of policies, guidelines, and implementation strategies. The studio will incorporate a lecture/seminar programme which will promote an understanding of the theoretical framework of landscape planning.

**Credit Points:** 10      **Contact Hours:** 4 per week

#### ■ LPP205 LANDSCAPE DESIGN

**Offered:** Spring

Landscape design problems of increased scope, complexity and constraint. There will be at least one one-day esquisse project in addition to the primary theme project extending for the duration of the subject. Emphasis will be on the consistent resolution of design from broad concept through to the most detailed level. Matters of appropriate style and morphology will be dealt with in depth with the selected theme applied consistently through scale and organisation of layout, selection of materials, forms and elements, and integration with surrounding context. Projects will emphasise design of planting, constructed elements.

**Credit Points:** 11      **Contact Hours:** 3 per week

#### ■ LPP206 FORUM/WORKSHOP A

#### ■ LPP207 FORUM/WORKSHOP B

**Offered:** Autumn, Spring

Content will depend on the needs of students as perceived by staff during each semester. Forum discussions will be structured around topical issues as debates, panel discussions, or seminars which may involve visiting specialist lecturers and/or participants. Skills extension sessions will be seminars of studio tutorials in areas such as graphic and other communication techniques, new materials or processes, innovative approaches to design, or specialised survey/analysis techniques.

**Credit Points:** 2      **Contact Hours:** 1 per week

#### ■ LPP208 LANDSCAPE PRACTICE

**Offered:** Spring

Practical experience for a period of at least three weeks in landscape architectural office or offices as approved by the Course Co-ordinator. This experience may be prerequisite to or co-requisite with the second part of the subject. Experience will be logged as directed. Principles of contract law, forms of contract, standard conditions of contract and conditions of engagement, contract administration, professional presentation.

**Credit Points:** 6      **Contact Hours:** 2 per week

#### ■ LPP209 ECOSYSTEMS

**Offered:** Autumn

The study of small to medium scale ecosystems, including plant-soil relationships, structure and function of natural communities, evolutionary and ecological processes, analysis and interpretation of natural indicators. Study of local ecosystems, their composition (identification of species), dynamics, and responses to pressures.

**Credit Points:** 3      **Contact Hours:** 1 per week

#### ■ LPP210 LANDSCAPE MANAGEMENT A

**Offered:** Spring

Assessment and evaluation including environmental impact analysis and an outline of current Commonwealth and State environmental assessment procedures and applications. Visual and scenic quality assessment techniques. An introduction to computerised three-dimensional modelling. Ecosystem protection, corridor and catchment management. An introduction to broadscale computerised monitoring and management programs including a range of case studies. Rural land use issues and systems. Resource management issues and systems.

**Credit Points:** 9      **Contact Hours:** 4 per week

#### ■ LPP211 LANDSCAPE MANAGEMENT B

**Offered:** Autumn

The relationship between management and construction. Management created/dependant landscapes and construction created landscapes. Specifying and programming both construction and management as part of design implementation. Monitoring. The role of horticultural, agricultural and environmental sciences; specialisations and appropriate case studies. Horticulture, urban horticulture, arboriculture, plantscapes. Bushland management (including the Bradley method), regeneration, and monitoring. Catchment and watercourse management, embankment stabilisation. Coastal management and monitoring, particularly in use areas.

**Credit Points:** 10    **Contact Hours:** 4 per week

#### ■ LPP212 ADVANCED GRAPHICS

**Offered:** Autumn

Applications of larger format design presentation; case studies and examples; advanced colour techniques; relating verbal and visual material; relating design concepts to visual themes.

**Credit Points:** 4    **Contact Hours:** 2 per week

#### ■ LPP213 ADVANCED LANDSCAPE CONSTRUCTION

**Offered:** Autumn

Introduction to theory and techniques of a range of types of landscape construction including platforms, land stability and stabilisation, clearing and demolition, earth dams, lakes and flood levees, broadscale stormwater drainage and control, sports facilities and swimming pools, irrigation systems. Introduction to the types of documentation used for the implementation of landscape works including working drawings, specifications, bills and schedules of quantities and methods of production. Students will be required to produce a set of working drawings and specification of a competent standard for inclusion in their personal portfolios.

**Credit Points:** 9    **Contact Hours:** 3 per week

#### ■ LPP214 LANDSCAPE ENGINEERING

**Offered:** Spring

Common philosophies of civil engineering designs; site influences on structural form; residential sub-divisions - structural and engineering design, services, design standards, controls; major road systems - hierarchy, route selection, design parameters, noise constraints, associated services/facilities; waste disposal - land fill; large dams, canals, marinas, coastal development - engineering constraints, design parameters, standards, erosion control methods; airfields, power reticulation - controlling authorities and legislation.

**Credit Points:** 4    **Contact Hours:** 2 per week

#### ■ LPP215 DEPARTMENTAL FIELD TRIP

**Offered:** Autumn, Spring

The Field Trip will be a 7-10 day organised trip either interstate or in Queensland away from Brisbane. Environments may be natural, rural, or urban and the work and issues for discussion may relate to any or all of these. Current projects and complexity, areas of work, or contextual issues not able to be experienced locally will form the major thrust of the Field Trip.

**Credit Points:** 2

#### ■ LPP401 RURAL LAND USE & PLANNING

**Offered:** Autumn

Rural land use patterns. The characteristics and dynamics of rural land uses - forestry, pastoral and arable agriculture, extractive industries, water collec-

tion, recreation and tourism, conservation systems. Impacts of rural resource developments. Rural land evaluation. Rural planning and characterisations of rural settlements. The rural urban fringe. Rural issues, problems and conflicts. Case studies of rural land use, abuse and conservation in Australia and overseas. Associated project and field work.

**Credit Points:** 3    **Contact Hours:** 1 per week

#### ■ LPP402 SOCIAL PLANNING

**Offered:** Spring

The genesis of social welfare policies in Australia - employment, health, housing, income and education. The aims and conduct of social surveys. Community development and organisation schemes in Australia and overseas. Public participation and community action; planning aid and advocacy planning.

**Credit Points:** 4    **Contact Hours:** 1 per week

#### ■ LPP403 INTRODUCTION TO PLANNING PROCESSES

**Offered:** Autumn

Creativity, scientific method and planning method. Prediction, uncertainty, partial rationality and planning horizons. Deductive, inductive and hypothesis-based approaches to planning method. The shape of the planning process. Objective formulation, data selection and analysis, resource and potential surface analysis. Policy formulation and plan generation. Evaluation techniques. Cyclic monitoring and reformulation of objectives.

**Credit Points:** 6    **Contact Hours:** 2 per week

#### ■ LPP404 INTRODUCTION TO THEORIES OF PLANNING

**Offered:** Autumn

Ideas and theories in planning; theory as a basis for practice. The political and philosophical determinants of land use planning. Values in planning, models of human nature and planning's relationship to important value traditions: liberalism, utilitarianism, empiricism, idealism, socialism, conservatism. The concepts of the public interest, social justice and public intervention.

**Credit Points:** 6    **Contact Hours:** 2 per week

#### ■ LPP405 PROCEDURAL PLANNING THEORY

**Offered:** Spring

Theory, explanation and prescription and the development of planning and decision theory; comprehensive planning and incrementalism, flexibility and commitment, the management of uncertainty, levels of decision making - the concept of mixed scanning, strategic and local planning, 'procedural' planning theory and recent critiques.

**Credit Points:** 4    **Contact Hours:** 1 per week

#### ■ LPP406 PROFESSIONAL PROCEDURES & ETHICS

**Offered:** Spring

The nature and role of a profession and professionalisation. Codes of practice and ethics. The role of the expert witness. Situations of professional conflict. The role of the professional planner in public and private practice. Office practice and procedures setting up an office, filing, costing, control systems, preparation of briefs, estimating.

**Credit Points:** 4    **Contact Hours:** 1 per week

#### ■ LPP407 URBAN POLICY PROCESSES

**Offered:** Autumn

Models of public decision-making: rational, incremental, bureaucratic, etc. The roles of political,

administrative and private actors in public policy-making. Organisational and inter-organisational theory, including theory of bureaucracy, organisational structure and change, inter-organisational decision-making. Ways of improving urban policy making at the organisational and inter-organisational level: corporate planning, PPBS, management by objectives, strategic choice, etc.

**Credit Points:** 3      **Contact Hours:** 2 per week

#### ■ LPP408 SOCIAL & POLITICAL STRUCTURES

**Offered:** Autumn

The focus and exercise of power in society; analysis of modern industrial societies, with particular reference to Australia; structure of society, family, political groups, ethnic groups, alternative societies, etc.; relevance to and implications for statutory planning.

**Credit Points:** 3      **Contact Hours:** 1 per week

#### ■ LPP411 PLANNING PRACTICE & LAW (URBAN)

**Offered:** Autumn

This subject takes the form of a problem solving group project set in an inner metropolitan or small town location, often undertaken in conjunction with local communities and councils. In the course of the project, which is accompanied by a series of lectures, the student group formulates policies and strategies relating to a specific urban area. Topics discussed include the statutory basis for urban planning and development in Queensland, including land use allocation, zoning, development control, statutory and non-statutory plans, consultation and participation, and the sources and use of statistical and other data relevant to urban planning.

**Credit Points:** 14      **Contact Hours:** 4 per week

#### ■ LPP412 PLANNING PRACTICE & LAW (REGIONAL & STRATEGIC)

**Offered:** Spring

The regional concept and its relevance to planning; aims of regional and strategic planning, e.g. integration of urban and rural development, reduction of regional disparities, resource development; statutory basis of strategic planning; the case of Queensland. Strategy and policy formulation in a group project relating to a specific region.

**Credit Points:** 14      **Contact Hours:** 4 per week

#### ■ LPP413 ADVANCED URBAN STRUCTURE

**Offered:** Autumn

Critique of models of urban land use; justice, equality and welfare in the urban context; marginalisation and polarisation of groups within society; issues related to the problems and requirements of groups such as women, children, the aged, disabled, ethnic minorities, and access to housing, transport, etc.; relevance to and implications for planners.

**Credit Points:** 3      **Contact Hours:** 1 per week

#### ■ LPP414 RESOURCE MANAGEMENT

**Offered:** Autumn

Aims and processes of resource management. Alternative approaches and techniques, resource inventories and evaluations. Environmental impact analysis and statements, statutory requirements. Multi-purpose schemes and the planning and management of regional landscapes in Australia and overseas. Policy studies of land and other resource management schemes.

**Credit Points:** 6      **Contact Hours:** 2 per week

#### ■ LPP415 RESEARCH METHODS & INDIVIDUAL PROJECT

**Offered:** Spring

The place of objectives in research method; delimitation of areas of concern; structuring the research program; identification of primary and secondary sources; purposes and limitations of analysis; inference, uncertainty and exclusion of false conclusions; selection and adaptation of techniques. Preparation of an individual research study 10-12,000 words in length (or equivalent).

**Credit Points:** 10      **Contact Hours:** 2 per week

#### ■ LPP416 URBAN POLICY IMPLEMENTATION

**Offered:** Spring

Overview of the roles of the three levels of government in Australia as they impact on urban policy making and implementation. Statutory Authorities. The roles of the private sector, through pressure groups, development proposals and the like. Implementation and evaluation in the urban planning process. The general problems of change, implementation and evaluation: motivation, conflict, coordination, flexibility, information, resources, etc. Development of skills for improving the implementation of urban policies, including conflict resolution and negotiation skills. As far as possible material will be linked to case studies.

**Credit Points:** 4      **Contact Hours:** 1 per week

#### ■ LPP418 COMPUTER APPLICATIONS IN PLANNING

**Offered:** Spring

The course will deal with four main areas of computer usage in urban and regional planning. Information storage and retrieval: sources of information and data bases (census, local surveys, networked data bases, etc.). The use of information in decision-making. Manipulation of information by use of statistical packages (specifically SPSS & 1022). Computer-aided Design & Drafting (CADD): The use of PALETTE and CDS on the QUT's facilities, including 'hands on' experience with drafting, digitising, etc. The specific use of Land Information Systems. Micro-computers: The use of APPLE and IBM PC. Applications of software, including graphics, data bases, mapping, business packages (possibly including spread-sheets and CPM as business aids). Planning techniques: Will include the use of programmes developed in the Department and will be linked to material being taught in other current subjects in the course.

**Credit Points:** 8      **Contact Hours:** 2 per week

#### ■ LPP420 DEPARTMENTAL FIELD TRIP & WORKSHOP

**Offered:** Autumn

One field course of approximately 7 - 10 days duration to provide a comparative dimension to students' studies and to develop skills in observation, data collection, recording and interpretation.

**Credit Points:** 4      **Contact Hours:** 7 - 10 days

#### ■ LPP501 THEORY OF SITE PLANNING

**Offered:** Autumn

Exploration of open space theory at regional and local scales; definition of spatial characteristics by edges, nodes, landmarks, districts, and paths. Sense of place; structure and form; legibility; imageability; etc; human responses and expectations and their effects on site planning decisions.

**Credit Points:** 2      **Contact Hours:** 1 per week

### ■ LPP502 SITE PLANNING TECHNIQUES

**Offered:** Spring

Introduction to the processes of site planning and detailed site design that lead to defensible and accountable solutions; role and objectives of survey and analysis phases; types of information required and the methods of processing the resultant data; data analysis, its scope and documentation; the use of data analysis to generate and evaluate possible problem solutions in conceptual form as a basis for strategic and master planning and the value of these processes as a long term mechanism for adaptation of master planning to meet changing needs.

**Credit Points:** 2      **Contact Hours:** 1 per week

### ■ LPP503 HISTORY OF LANDSCAPE DESIGN

**Offered:** Spring

The form and content, influencing factors, and implication of the creation and development of historically, regionally, and religiously significant consciously designed landscape throughout the world; the evolutionary processes in development of cultural landscapes.

**Credit Points:** 2      **Contact Hours:** 1 per week

### ■ LPP504 PLANTING DESIGN

**Offered:** Spring

Design characteristics and criteria. The use of plants as structural and design elements within landscape. Principles of planting design. Scale. Design for change, growth, replacement, and maintenance. Planting design in typical schemes such as streets, highways, parks, urban forecourts and interior landscapes, gardens, and broadscale regeneration and stabilisation.

**Credit Points:** 3      **Contact Hours:** 1 per week

### ■ LPP505 CONSERVATION THEORY

**Offered:** Spring

Introduction to the concepts of conservation and preservation. Outline of the development and current status of the conservation movement. The structure of conservation legislation and responsibility in Australia. ICOMOS and the "Burra" Charter. The particular requirements of places, landscapes, and precincts in mixed or public ownership. Application of conservation concepts and their use in the National Listings process. Local and Regional Case Studies.

**Credit Points:** 3      **Contact Hours:** 1 per week

### ■ LPP506 - USER & CHARACTER DESIGN STUDIES

**Offered:** Autumn

The first project will be concerned with user behaviour and requirements using two or three city centre pedestrian spaces. The second project uses the same locations to analyse the spaces in the light of both their own inherent characters and the user needs and responses defined earlier. As an introduction to the concept of abstraction, a final project may be held consisting of individuals or small groups of students making sculptures or models expressing the spirit of the places studied earlier in the semester.

**Credit Points:** 10      **Contact Hours:** 3 per week

### ■ LPP507 SITE PLANNING

**Offered:** Spring

Application of site planning principles and theory at all scales and types of projects; site utilisation and selection; application of site survey and analysis techniques; natural and man-made influences in physical design; environmental and social implications of

design decisions; siting and integrating activities, structures, and services; land form manipulation. Emphasis will be given to alternative concept formulation and evaluation as a critical decision-making phase of the design process.

**Credit Points:** 10      **Contact Hours:** 3 per week

### ■ LPP508 INTRODUCTION TO PRACTICE

**Offered:** Autumn

The concept of professionalism and contemporary social expectations of the environmental design professions. Current issues and controversies in environmental design and planning in Australia. Roles, ranges of employment and activities within the profession. Organisation and activities of the professional Institute. The future directions, potentials, and opportunities. Introduction to the range of professions associated with Landscape Architecture. Introduction to the importance and techniques of CVs and portfolios.

**Credit Points:** 4      **Contact Hours:** 2 per week

### ■ LPP509 QUANTITIES & COSTS

**Offered:** Spring

Measurement and costing of time, resources, and materials for professional services, production of documents, and implementation of projects. The techniques and tools available for both preliminary and detailed measurement and costing and their control. Time and percentage measurement and costing related to the professional services. Costs of documents, including relative costs of different methods of production. Units of management and costing of broad development types and for more detailed landscape architectural and urban design projects. The techniques of cost control.

**Credit Points:** 2      **Contact Hours:** 1 per week

### ■ LPP510 INTRODUCTION TO LAW

**Offered:** Spring

Laws, regulations and their interpretation. A review of the Australian and Queensland acts, local authority by-laws and regulations of statutory authorities as they affect the built environment. Legal aspects of land and land transfer. Planning and land use regulations. Introduction to professional liability, design registration, and copyrights.

**Credit Points:** 2      **Contact Hours:** 1 per week

### ■ LPP511 - ENVIRONMENTAL PSYCHOLOGY

**Offered:** Autumn

The social and cultural development of Australian urban environments, with particular reference to the local built environment. The study of human functioning in urban environments. Theory: privacy, personal space, territoriality, environmental meaning and cognition, cognitive ways and wayfinding, intercultural and intracultural differences. Application via examination and analysis of an urban environment or an artefact with respect to its sociocultural function.

**Credit Points:** 4      **Contact Hours:** 2 per week

### ■ LPP512 PLANT RECOGNITION & REQUIREMENTS

**Offered:** Autumn

Field recognition by visual characteristics of size, form, texture and colour and by use of simple keys. Requirements of plants for growth in differing environments and the selection of species most suited to particular sets of environmental conditions. Basic botanical terms, plant nomenclature, collection and preservation of plant material, plant physiology and concepts of plant associations will be introduced.

**Credit Points:** 4      **Contact Hours:** 2 per week



#### ■ LPP513 APPLIED NATURAL SCIENCE

**Offered:** Spring

Applied studies in geology and geomorphology, climate and micro-climate, soils and hydrology, and broad soil and plant community associations. The influences of these systems collectively and separately on environmental design decisions.

**Credit Points:** 4      **Contact Hours:** 2 per week

#### ■ LPP514 APPLIED ENVIRONMENTAL SCIENCE

**Offered:** Spring

The basic principles of ecosystems are introduced and the concepts of plant community - environmental associations are strengthened. Methods and techniques of vegetation mapping and classification are introduced including use of air photo and remote sensing skills introduced previously. Environmental needs of plants in diverse built environments and nursery production of these plants are explored.

**Credit Points:** 6      **Contact Hours:** 3 per week

#### ■ LPP515 LAND USE GENERATION

**Offered:** Spring

Changing patterns of urban land use, medieval to industrial revolution; segregation of land uses in planned settlements of the twentieth century; planning for urban diversity; the logic of design - from values through activities to land uses; the formation of value systems; analysis and projection of activity systems; electronic communications, urban decentralisation, and emerging settlement patterns in the western world.

**Credit Points:** 4      **Contact Hours:** 2 per week

#### ■ LPP516 VISUAL COMMUNICATION - GRAPHICS

**Offered:** Autumn

Studio sessions focus on lettering, layout, and visual themes in display communication. Scale, emphasis, readability, and organisation of various types of information (photos, diagrams, text, sketches, plans, etc.) Sessions demonstrate and develop the use of diagrams as major tools to explore and to communicate all types of information from concepts through to physical relationships. Exercises introduce and develop the range of sketch types and their appropriateness to different types of work such as exploration of form, analysis, and communication of concepts.

**Credit Points:** 6      **Contact Hours:** 3 per week

#### ■ LPP517 ORAL COMMUNICATION SKILLS

**Offered:** Autumn

Formal oral communication techniques including meetings, conferences, interviews and speeches (informative and persuasive).

**Credit Points:** 2      **Contact Hours:** 1 per week

#### ■ LPP518 REPORT PREPARATION

**Offered:** Autumn

Formal writing techniques, including reports, instructions, proposals, specifications, correspondence and essays. Report writing. Structure and content of reports. Summaries and subdivision of material. Precise use of tables, charts, and illustrations in written presentation. Clarity and the selection and management of relevant data.

**Credit Points:** 2      **Contact Hours:** 1 per week

#### ■ LPP519 COMPUTER AIDED DATA ANALYSIS

**Offered:** Autumn

Students are introduced to the usefulness of the computer as a tool in landscape architecture and planning,

and to the variety of areas where information systems and statistical analysis can assist decision-making. The subject will be orientated towards actual use of computers to ensure students experience all phases of the process (input, manipulation, output, analysis, and presentation).

**Credit Points:** 4      **Contact Hours:** 2 per week

#### ■ LPP520 LANDSCAPE GRAPHICS

**Offered:** Spring

Combined application of freehand, drafting and colour techniques. The selection of colour, theme and emphasis in graphic packages. Realism, abstraction and symbolism in landscape communication. Monochromatic graphics for simple reproduction. Integration of various graphic techniques and media. Efficient processes for production and reproduction.

**Credit Points:** 4      **Contact Hours:** 2 per week

#### ■ LPP521 MAP & AIR PHOTO INTERPRETATION

**Offered:** Autumn

Types, sources, uses, and availability of maps and air photos; map reading, understanding of contours, land form, and use of sections; methods and techniques of map production; introduction to photogrammetry and use of stereoscopes; introduction to remote sensing.

**Credit Points:** 2      **Contact Hours:** 1 per week

#### ■ LPP522 MEASUREMENT OF SITES

**Offered:** Autumn

Introduction to basic equipment for site measurement - levels, staffs, chains and tapes, prismatic compass, optical square, clinometer, range poles - and their uses in horizontal and vertical measurement. Introduction to recording of field data and the preparation of measured site drawings from recorded data.

**Credit Points:** 2      **Contact Hours:** 1 per week

#### ■ LPP523 LANDSCAPE CONSTRUCTION

**Offered:** Autumn

Introduction to structures. Definition of terms; basic actions/reactions of beams, columns, slabs, structural units and types of structures; loadings and types (including wind loading). Development of understanding of the properties of common construction materials and their application in landscape construction; establishment of sound techniques of technical drawing in the preparation of construction documents. Topics covered include the common materials; an understanding of foundation soils; basic services of site stormwater drainage, water and electrical services; applied systems including paving, steps and ramps; and construction for planting and small water features.

**Credit Points:** 6      **Contact Hours:** 3 per week

#### ■ LPP524 LAND GRADING

**Offered:** Spring

Manual techniques of land surface manipulation including the construction of platforms for building, carparks, sports ovals, and other features and the associated provision of surface drainage.

**Credit Points:** 6      **Contact Hours:** 3 per week

#### ■ LPP551 LAND USE GENERATION

**Offered:** Autumn

Changing patterns of urban land use, medieval to industrial revolution; segregation of land uses in planned settlements of the twentieth century; planning for urban diversity; the logic of design - from values through activities to land uses; the formation of value system; analysis and projection of activity systems; electronic communications, urban

decentralisation, and emerging settlement patterns in the western world.

**Credit Points:** 4      **Contact Hours:** 2 per week

#### ■ LPP552 INTRODUCTION TO GRAPHICS

**Offered:** Autumn

Freehand sketching of objects from observation, rendering textured surfaces, design developmental graphics, understanding two-dimensional layout and competence in presentation of two-dimensional design in reports and drawings.

**Credit Points:** 4      **Contact Hours:** 2 per week

#### ■ LPP553 SITE PLANNING DATA & TECHNIQUES

**Offered:** Autumn

Natural influences in physical planning - geology, climate, topography, hydrology, soils and vegetation etc. Ecological considerations in design and development processes. Impact of natural hazards and other physical constraints on design, including air, water, and noise pollution. Impacts of development on the natural environment. Landscape evaluation techniques.

**Credit Points:** 2      **Contact Hours:** 1 per week

#### ■ LPP554 SITE PLANNING PRACTICE

**Offered:** Autumn

Layout of lots, buildings, roads and services; the retention of existing desirable features of the site; use of trees and other plant material; modification of land surface e.g. cut and fill; subdivision design; planning application and approval process.

**Credit Points:** 12      **Contact Hours:** 3 per week

#### ■ LPP555 THEORY OF SITE PLANNING

**Offered:** Autumn

Exploration of open space theory at regional and local scales; definition of spatial characteristics by edges, nodes, landmarks, districts, and paths. Sense of place; structure and form; legibility; imageability etc.; human responses and expectations and their effects on site planning decisions.

**Credit Points:** 2      **Contact Hours:** 1 per week

#### ■ LPP556 PROFESSIONAL COMMUNICATION

Oral and written presentation. Clarity and the selection and management of relevant data. Report writing. Structure and content of reports. Summaries and subdivision of material. Precise.

**Credit Points:** 4      **Contact Hours:** 2 per week

#### ■ LPP557 TRANSPORT PLANNING

**Offered:** Spring

Movement and its alternative modes - foot, cycle, car, bus, train, plane, pipeline, inland waterway and marine modes. The origin and destination approach to traffic management interchange studies. Inter-urban traffic and regional transport planning. This relationship between land use and traffic generation.

**Credit Points:** 4      **Contact Hours:** 2 per week

#### ■ LPP558 POPULATION & URBAN STUDIES

**Offered:** Spring

Basic urban definitions, spread and characteristics of urbanisation, the structure of cities and the economic and social processes at work within cities, particular aspects such as housing and gentrification, basic concepts of population and demography, recent and historical analyses of the Australian population, familiarisation with the role of ABS and with statistical and data analysis of population, world demographic trends.

**Credit Points:** 6      **Contact Hours:** 3 per week

#### ■ LPP559 APPLIED NATURAL SCIENCE

**Offered:** Spring

Applied studies in geology and geomorphology, climate and micro-climate, soils and hydrology, the broad soil and plant community associations. The influence of these systems collectively and separately on environmental design decisions.

**Credit Points:** 4      **Contact Hours:** 2 per week

#### ■ LPP560 HISTORY OF PLANNING

**Offered:** Spring

The links between society, ideas and urban form. Urban evolution from ancient to modern times in Africa, Asia, Europe, America and Australasia. The Industrial Revolution and its effect on urban form and on planning ideas. Australian urban history and the development of environmental management and town planning in Australia.

**Credit Points:** 2      **Contact Hours:** 1 per week

#### ■ LPP561 INTRODUCTION TO URBAN DESIGN

**Offered:** Spring

Design method, visual thinking; principles of perception and spatial arrangement; the vocabulary of design and urban imagery; design elements; the evolution of designer theory; techniques for analysing the quality of existing built environments; analysis of examples. Urban design project.

**Credit Points:** 10      **Contact Hours:** 2 per week

#### ■ LPP562 ECONOMICS OF TOWN PLANNING

**Offered:** Autumn

Introduction to economics - the factors of production and their organisation. Demand and supply. The free market and its imperfections. The market as an allocator of preferences - concepts of private and public interest. Market failure. Social objectives and the role of government. Economic growth and stability - the enabling of development. The problem of negative externalities - the economic justification of the public control of development. Economic methodology, such as regional accounting, cost benefit analysis. Economics of land use - land as an economic concept, public and private costs. The features and operation of the real property market. Theories of land value. Land valuation theories and techniques. Land tenure - the rights of ownership - resumption by the Crown - problems of compensation and recoupment of betterment. Land use controls.

**Credit Points:** 4      **Contact Hours:** 2 per week

#### ■ LPP563 INTRODUCTION TO COMPUTERS

An overview of computers: their structure, development and uses in the modern world. Problems and advantages of computer use. Introduction to the 'hands on' experience in using QUT's computer facilities: the DEC-10, CADD/CAMM, and micro-computers. Gaining access, file structures, information storage and retrieval, editing, and related utility functions. Introduction to flow-charting and programming logic. Simple programming exercises (in BASIC, FORTRAN and/or PASCAL). CADD in design. Word processing on micro-computers. As far as possible class sessions will include both teaching and 'hands on' tutorial experience.

**Credit Points:** 4      **Contact Hours:** 2 per week

#### ■ LPP564 INTRODUCTION TO MAPS & AIR PHOTOS

**Offered:** Autumn

Types of maps, their uses and limitations. Orientation, scale, cartographic symbols, representation of relief

etc., grid coordinates. Vertical and oblique air photos; black and white, colour, false colour. Mosaics and stereopairs. Introduction to stereoscopy and simple mapping from air photos. Introduction to various types of remote sensing imagery available to planners.

**Credit Points:** 2      **Contact Hours:** 1 per week

#### ■ LPP565 URBAN LAND DEVELOPMENT

**Offered:** Spring

Structural and engineering design requirements in urban development - local physical services, roads and drainage, sewers, water, gas, electricity and Telecom services. Design and control systems, design standards, the effects of standardised requirements and alternative approaches. The roles of statutory authorities - gas, electricity, water, telephone, public transport, railways, waterways, road construction authorities. Development teams - the roles of associated disciplines - civil, municipal and transport engineers, earth and environmental scientist, and others. The role of the private developer.

**Credit Points:** 2      **Contact Hours:** 1 per week

#### ■ LPP566 HOUSING & COMMUNITY SERVICES

**Offered:** Spring

Population, dwellings and households. Techniques of analysis and projection of housing stock. Housing conditions and preference surveys: housing issues and policies. The economics of the building and land development industries. The physical place of educational institutions in communities - schools, colleges, universities. Share use of facilities. Location and space standards. Social and welfare services and their role in the community. Planning and management aspects of welfare.

**Credit Points:** 4      **Contact Hours:** 2 per week

#### ■ LWB101 INTRODUCTION TO LAW

**Offered:** Full year

The purpose of the course is to introduce students to the institutions of the law - the courts, Parliament, the judiciary, the legal profession - and their working, and the doctrines and methodology of the Law, including the doctrine of precedent and the principles of statutory interpretation.

**Credit Points:** 12 per semester

**Contact Hours:** 3 per week

#### ■ LWB102 LAW OF CONTRACT

**Offered:** Full year

The substantive principles of contract law, as taught, include: definition of the Law of Contract, outline of remedies; formation of contract - agreement; contents of a contract express and implied terms; factors vitiating contracts; capacity to contract; privity of contract; discharge of contract; breach of contract; limitation of actions; quasi-contract; and basis of liability.

**Credit Points:** 12 per semester

**Contact Hours:** 3 per week

#### ■ LWB103 TORTS

**Offered:** Full year

At its most general level this branch of the law is concerned with the question of compensation to be given by a person causing a loss to a person suffering a loss. Areas of everyday conflict which may be resolved by principles of tort liability include damage sustained as a result of a motor-vehicle collision, and injury to a person's reputation from publication of defamatory material. The rules are examined to ascertain whether they satisfy the critical test: functional adequacy in terms of contemporary values.

**Credit Points:** 12 per semester

**Contact Hours:** 3 per week

#### ■ LWB104 LEGAL RESEARCH & WRITING I

**Offered:** Full year

An introductory subject to teach students basic legal research methodology, and how to write assignments and solve legal problems. It includes a study of the hierarchy of the courts, the history of law reporting and the doctrine of precedent; how to use a law library effectively; and gives students practice in handling the most important research materials. An introduction to the use of computerised legal research also is included.

**Credit Points:** 4 per semester

**Contact Hours:** 1 per week

#### ■ LWB201 LAND LAW

**Offered:** Full year

The principles relating to the law of Real Property in Queensland - the rights, interests and obligations which can exist in relation to land, and the methods of creating, enforcing, assigning and extinguishing such rights, interests and obligations. The course encompasses: the concept of real property; the doctrines of tenure and of estates; equitable interests; the Torrens system; easements; mortgages; leasehold interests; covenants affecting land; co-ownership; future interests and perpetuities; building units title and group title; time-sharing; and Crown leasehold.

**Credit Points:** 12 per semester

**Contact Hours:** 3 per week

#### ■ LWB202 CRIMINAL LAW & PROCEDURE

**Offered:** Full year

The criminal law in force in Queensland, encompassing (inter alia) criminal responsibility, parties to offences, and major indictable offences. The wider context of the operation of the criminal law is considered, introducing students to penal principles and the justifications for imposing punishment by the State, to aspects of the disposition of offenders in the sentencing part of a criminal trial, and to a consideration of imprisonment and release procedures.

**Credit Points:** 12 per semester

**Contact Hours:** 3 per week

#### ■ LWB203 CONSTITUTIONAL LAW

**Offered:** Full year

A study of the extent of power of the institutions which make, administer or apply the law - particularly important in a federation such as the Commonwealth of Australia. The federal constitution divides power between the State and Commonwealth governments, and between the legislative, executive and judicial branches of the Commonwealth government and actions which ignore those divisions can be challenged successfully in courts of law.

**Credit Points:** 12 per semester

**Contact Hours:** 3 per week

#### ■ LWB301 EQUITY

**Offered:** Full year

Equitable doctrines were developed to complement the sometimes inflexible rules of the common law. In Autumn Semester, students are introduced to basic equitable principles, including a study of equitable estates and interests. Unconscionable dealings are also studied in some detail. In Spring Semester, major areas of study include the law of trusts and equitable remedies (including some defences).

**Credit Points:** 12 per semester

**Contact Hours:** 3 per week

#### ■ LWB302 FAMILY LAW

**Offered:** Autumn PT, Spring FT

An examination of the manner in which the law treats the special social relationships which exist among

members of a family and transforms them into legal rights and duties. Subjects examined include the family as a legal phenomenon; annulment of marriages; dissolution of marriages; and consequences of separation and divorce.

**Credit Points:** 12    **Contact Hours:** 3 per week

### ■ LWB303 COMMERCIAL LAW

**Offered:** Full year

The legal rules which govern mercantile dealings in personal property. The course encompasses the legal framework, the various kinds of personal property recognised in the Australian legal system, and rules which especially affect commercial transactions. Matters considered in detail include: nature and sources of commercial law; personal property; negotiable instruments including bills of exchange and cheques; bailment; sale of goods; and consumer protection under the Trade Practices Act 1974.

**Credit Points:** 12 per semester

**Contact Hours:** 3 per week

### ■ LWB305 JURISPRUDENCE

**Offered:** Autumn FT, Spring PT

Jurisprudence (the 'philosophy of law' or 'legal theory') involves the application of insights gained from philosophy - in particular, from logic and from moral, political and social philosophy - to the study of law. The course includes the following topics: historical background to modern theories, sociological and historical descriptions of law and legal change, and theories of limited or unlimited government power, of recognition of valid law and legal systems, of legal reasoning, and of the proper objects of law and the proper direction of legal change.

**Credit Points:** 12    **Contact Hours:** 3 per week

### ■ LWB306 LOCAL GOVERNMENT LAW

**Offered:** Autumn FT, Spring PT

The course considers the source of legal authority for the government of cities, towns and shires, with particular reference to the City of Brisbane; the laws relating to town planning and subdivision, including the principles applicable to the rezoning of land; uses of land; the control of developments by local authorities; rights to object to developments; the control exercised over subdivision of land by local authorities; rights of appeal from local authority decisions; and the structure, purpose and procedure of the Local Government Court.

**Credit Points:** 8    **Contact Hours:** 2 per week

### ■ LWB307 INSOLVENCY LAW

**Offered:** Autumn FT, Spring PT

The course consists of two parts. The first deals with the insolvency of individuals and involves a study of the Bankruptcy Act 1966 (Cth). The second part of the course covers winding up of companies, procedures other than winding up which may be open to an insolvent company, and the law relating to receivership of an insolvent company's assets - this includes a consideration of the relevant provisions of the Companies (Queensland) Code.

**Credit Points:** 8    **Contact Hours:** 2 per week

### ■ LWB308 INDUSTRIAL LAW

**Offered:** Autumn FT, Spring PT

The Industrial Law course examines the rights and duties of employers and employees under the law of employment, breach of these duties, and the remedies of both parties; a worker's entitlement to workers compensation, and the benefits available; the law

governing the operation of trade unions and the rights of members; and settlement of industrial disputes in the Commonwealth and State spheres by conciliation and arbitration.

**Credit Points:** 8    **Contact Hours:** 2 per week

### ■ LWB309 SUCCESSION

**Offered:** Autumn FT, Spring PT

Intestate and testate succession; definitions; joint and mutual wills; formal requirements for execution of valid will; alteration, revocation and revival of wills; administration of assets - duties, powers, rights and liabilities of personal representatives; family maintenance provisions - power of court to vary a will.

**Credit Points:** 8    **Contact Hours:** 2 per week

### ■ LWB311 ADMINISTRATIVE LAW

**Offered:** Full year

An examination of the basis on which the courts review both administrative action taken by governments and delegated legislation, and of the remedies available and restrictions on judicial review. The alternative means of review (the Ombudsman and the Administrative Appeals Tribunal) and access to government information are examined also. The special position of the Crown and the question of government liability in contract and tort are considered.

**Credit Points:** 12 per semester

**Contact Hours:** 3 per week

### ■ LWB312 LAND CONTRACTS

**Offered:** Autumn PT, Spring FT

This course examines in detail the principles involved in the construction of Contracts for the sale of land, with special emphasis upon the current standard REIQ Contract in use in Queensland. Special consideration is given to statutory requirements as they affect such contracts, including those relating to building units and group titles conveyancing.

**Credit Points:** 12    **Contact Hours:** 3 per week

### ■ LWB401 COMPANY LAW & PARTNERSHIP

**Offered:** Full year

Company Law dominates the course and is mostly concerned with registered companies. The law relating to proprietary companies is dealt with fully, that relating to public companies in outline only. Topics dealt with include: nature of registered companies, including procedure to obtain registration, and classification of registered companies; prospectuses; general meetings; enforcement of directors' and controlling members' duties; shares, share capital and dividends; and winding-up.

**Credit Points:** 12 per semester

**Contact Hours:** 3 per week

### ■ LWB402 EVIDENCE

**Offered:** Autumn FT, Spring PT

The rules and principles that relate to the presentation and proof of facts to a Court of Law. Litigation largely involves the application of substantive law to the facts that are determined according to the rules of evidence - students' knowledge of the substantive law is assumed. In addition to the technical rules that are considered during the course, students are encouraged to view the principles in the context of the adversary system and to recognise the problems of applying rigid rules within that system.

**Credit Points:** 12    **Contact Hours:** 3 per week

### ■ LWB403 TAXATION LAW

**Offered:** Full year

The course examines two revenue-raising statutes - the Income Tax Assessment Act 1936 (Cth) and the Stamp Act 1894 (Qld). Matters dealt with in income tax include the administrative structure and scheme of the Act, residence of taxpayers, determining assessable income and deductions, taxation of partnerships, trusts and companies, capital gains tax, and tax planning. Stamp duty covers assessment of duty on common instruments such as leases, mortgages, trusts and conveyances.

**Credit Points:** 12 per semester

**Contact Hours:** 3 per week

### ■ LWB404 CIVIL PROCEDURE

**Offered:** Full year

The procedure by which Courts resolve civil disputes. The course emphasises (but is not restricted to) the practice in the Supreme Court of Queensland, covering the rules of that Court and principles of law arising from them. Topics studied include commencement of proceedings, interlocutory applications, costs, appeals and execution of orders and judgements. The course is relevant to anyone dealing with jurisdictions based on the Judicature system.

**Credit Points:** 8 per semester

**Contact Hours:** 2 per week

### ■ LWB405 SOLICITORS' TRUST ACCOUNTS

**Offered:** Autumn FT, Spring PT

A practical study of accounting for trust funds covering: trust accounts requirements - commencing a trust account, the format of prime documentation and records, receipts and payments, the books of account, bank and cashbook reconciliations, investments, trust ledger accounts and trial balance; the auditor's role and audit requirements; and accounting for the Queensland Law Society Deposit.

**Credit Points:** 8      **Contact Hours:** 2 per week

### ■ LWB406 PUBLIC INTERNATIONAL LAW

**Offered:** Autumn PT, Spring FT

Basically, the rules which govern the activities of States between themselves (e.g. rules for treaty-making). The ambit of this area of law extends to rules for the running of international organisations such as the UN, and rules of conduct between such organisations and States. The course includes such topics as: treatment of the Australian Aboriginal; Australia's maritime territory; uranium mining and export; the legality of secession of Queensland from the Commonwealth of Australia; and the Namibia dispute.

**Credit Points:** 12      **Contact Hours:** 3 per week

### ■ LWB407 CONFLICT OF LAWS

**Offered:** Autumn PT, Spring FT

An in-depth analysis of the body of law governing the resolution of private legal problems with a significant foreign element. It includes: jurisdiction of domestic courts to determine matters having a foreign element; enforcement of foreign judgments in the domestic jurisdiction; choice of law for the resolution of the dispute - both generally and in relation to family law, contract, tort, property and succession.

**Credit Points:** 12      **Contact Hours:** 3 per week

### ■ LWB409 PROFESSIONAL CONDUCT

**Offered:** Spring FT and PT

All LLB students, whether they intend to become barristers or solicitors, must study both parts of this subject. Barristers - Lectures cover conduct and etiquette at the

Bar, and deal specifically with the character of practice at the Bar; regulation of practice at the Bar in Queensland; and the respective duties of Barristers to the Law, the Court, the public, the client and the opponent. Solicitors - Matters dealt with include professional courtesies, division of the profession in Queensland, the Statutory Committee, malpractice, professional conduct, duties of a solicitor, respective functions of barristers and solicitors, a solicitor acting for more than one party, advertising fees, trust accounts and legal professional negligence.

**Credit Points:** 2

**Contact Hours:** 2 per week for 5 weeks (10 hours)

### ■ LWB410 TRADE PRACTICES LAW

**Offered:** Autumn PT, Spring FT

This elective course deals with the law established by the Trade Practices Act 1974 (Cth), as amended, and related State Laws. The course studies: background to, and need for, the legislation; constitutional basis of the Commonwealth Act; administrative arrangements and enforcement procedures; control of 'restrictive' practices; prohibition of 'unfair' practices; and jurisdictional problems and remedies.

**Credit Points:** 12      **Contact Hours:** 3 per week

### ■ LWB412 RESEARCH & WRITING PROJECT

**Offered:** Autumn and Spring, FT and PT

An arranged and supervised piece of research into some area of legal knowledge, and the writing of a paper of between 10,000 and 15,000 words on the results of the research and conclusions drawn therefrom. The paper will be the property of the Faculty of Law and may be placed in the Law Library. A student wishing to undertake the Research and Writing Project should discuss the matter as early as possible in the semester immediately before that in which he/she proposes to undertake it. The written proposal must reach the Dean at least two clear weeks before the beginning of the teaching semester in which the project will be undertaken, and the proposal will be accepted or refused - and the student notified accordingly - not later than the first day of that teaching semester.

**Credit Points:** 12

### ■ LWB414 DRAFTING & LEGAL TRANSACTIONS

**Offered:** Full Year

A study of the general principles of drafting and analysis of instruments commonly used in practice including deeds, special conditions in Torrens Title conveyancing contracts, options to purchase and renew, Land Act contracts, and business contracts and leases. The course includes an introductory study of stamp duty and its applications, and an examination of securities and trust instruments. Drafting covers mortgages, unit trusts and discretionary trusts, together with stamp duty implications.

**Credit Points:** 8 per semester

**Contact Hours:** 2 per week

### ■ LWB415 LEGAL RESEARCH & WRITING II

**Offered:** Full year

This advanced subject revises, extends and tests students' legal research skills acquired in the introductory subject. Sources from other jurisdictions such as the UK, Canada, New Zealand and the USA are included. An important section of this subject is the researching/writing of an assignment based on a problem which involves a number of subjects studied

during the LLB course, including researching recent developments in the law in those areas.

**Credit Points:** 4 per semester

**Contact Hours:** 1 per week

#### ■ LWB480 MEDIA LAW

**Offered:** Autumn PT; Spring FT

The laws which shape the news media, their industry structure and their message content. Topics include journalists and their sources of information, defamation, contempt, confidential information, access to information, the Broadcasting Tribunal, and regulation of advertising and of ownership.

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ LWB481 MINERAL LAW

**Offered:** Autumn PT, Spring FT

Predominantly, the law governing and affecting the mining of 'hard' minerals. The course begins with a short explanation of basic concepts, and then analyses mining legislation - with particular emphasis on Queensland legislation - and other legislation which has an impact on mining. The structure of mining ventures is also considered. Specific topics considered include: ownership of minerals; State agreements; securities; mining on private land; administration of mining legislation; Warden's Court; and environment protection legislation.

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ LWB482 COMPUTERS & THE LAW

**Offered:** Autumn PT, Spring FT

Computers and their impact upon the law including: use of computers in the individual legal practice; computerisation of the Titles Office, Companies Register, Parliamentary Drafting, Government Printer, Supreme Court; computer contracts; computer records as evidence; and implications of data storage for privacy, and freedom of information. The course includes instruction in the use of Computerised Legal Information Retrieval System (CLIRS).

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ LWN001 ADVANCED COMPANY LAW

**Offered:** Full Year

The first part of this course considers the Companies (Acquisition of Shares) Code which regulates acquisition of shares effecting a change in a company's control. The second part of the course considers the law of company liquidations; emphasis is given to a creditor's application for a winding-up order, and effects of a winding-up and duties/powers/rights of liquidators are also considered.

**Prerequisite:** LWB401 or equivalent

**Credit Points:** 10 per semester

**Contact Hours:** 2 per week

#### ■ LWN005 TRADE PRACTICES & CONSUMER PROTECTION

**Offered:** Full year

This course studies various aspects of the current Australian Trade Practices Act 1974, not only from a purely professional viewpoint but also from a wider viewpoint of the policy issues involved. No knowledge of economics is required, although some readings will be drawn from economics. Topics dealt with include: the common law doctrine of restraint of trade; the economics of competition; markets, competition and market power; mergers; price fixing; misleading and deceptive conduct in general, and specifically; enforcement, remedies and authorisations under the Act.

**Credit Points:** 10 per semester

**Contact Hours:** 2 per week

#### ■ LWN007 COMMERCIAL ARBITRATION

**Offered:** Full Year

Commercial arbitration - Australian and international. Course content includes: nature and conduct of arbitration proceedings, court control of arbitration, awards and their enforcement, and international commercial arbitration.

**Credit Points:** 10 per semester

**Contact Hours:** 2 per week

#### ■ LWN008 COMMERCIAL LEASES

**Offered:** Full Year

A detailed examination of the standard clauses of a modern commercial lease in the light of recent case law and Queensland statutory provisions affecting those interests. Included are several sessions from specialist practitioners on drafting techniques and registration practice.

**Credit Points:** 10 per semester

**Contact Hours:** 2 per week

#### ■ LWN011 LITIGATION

**Offered:** Full Year

Successful litigation is a product of both favourable substantive law rights and a thorough knowledge and application of the rules of procedure and evidence. The course examines current issues in the litigation process which present interest or difficulty in legal practice. The emphasis is on procedure and evidence in the Supreme Court of Queensland, although other jurisdictions are considered.

**Credit Points:** 10 per semester

**Contact Hours:** 2 per week

#### ■ LWN013 COMMERCIAL REMEDIES

**Offered:** Full Year

The main emphasis is on study of judicial remedies in civil actions relating to commercial transactions. The course initially discusses the theory and function of such remedies, and then considers in detail remedies such as damages, equitable remedies, restitutionary claims, and some statutory remedies. A knowledge of the substantive law giving rise to the existence of a right to seek a remedy is assumed, and the focus is on the process of selecting remedies to best enforce the particular right.

**Credit Points:** 10 per semester

**Contact Hours:** 2 per week

#### ■ LWS001 MEDICINE & THE LAW

This subject seeks to teach students to appreciate the impact of some important fields of law upon the medical profession and upon hospital staff, patients and visitors. Introduction to law and the legal system. The Federal and State systems. General principles of the law of tort. Principles of negligence. Trespass. Liability of hospitals. Industrial law and industrial relations. Workers' compensation. Legal aspects of medical practice. Medico-legal investigations. Medical ethics. A consideration of emerging legal issues surrounding surrogate motherhood and test-tube babies. Relevant Commonwealth and Queensland legislation and regulations will be introduced and court decisions will be studied.

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ MAA251 STATISTICS & DATA PROCESSING

**Offered:** Spring

A basic subject in statistics, including statistical terminology and organisation of data, elementary probability, binomial and normal distribution, sampling theory, regression and correlation.

**Prerequisite:** Approval of Head of School of Mechanical and Manufacturing Engineering

**Credit Points:** 8    **Contact Hours:** 2 per week

**■ MAB001 MATHEMATICS FOR SCIENCE & TECHNOLOGY**

**Offered:** Summer Term

Data handling; algebra; analytical geometry; trigonometry and calculus; vectors; complex numbers.

**Credit Points:** 6

**Contact Hours:** 21 per week over four weeks

**Note:** This subject is not compatible with MAB201 + MAB204; credit may not be retained for more than one of these subjects.

**■ MAB151 QUANTITATIVE TECHNIQUES**

**Offered:** Autumn

A basic mathematics unit with emphasis on the interpretation of data and the application of numerical techniques.

**Credit Points:** 4      **Contact Hours:** 2 per week

**■ MAB173 QUANTITATIVE METHODS**

To enable students to use mathematical reasoning and skills to obtain solutions to financial, economic and general business problems. On completion, students should have an understanding of the types of problems amenable to a mathematical solution; they should be able to develop appropriate mathematical models and appreciate any limitations or assumptions in the models and in addition they should be able to obtain solutions to these models.

**Credit Points:** 12      **Contact Hours:** 3 per week

**■ MAB193 ENGINEERING MATHEMATICS I**

**Offered:** Full year

Accuracy, relative and absolute errors; solution of systems of linear equations, determinants; vectors; complex numbers; elementary matrix algebra; differential and integral calculus of one variable, elementary multiple integrals; centre of gravity and moment of inertia.

**Credit Points:** 6      **Contact Hours:** 3 per week

**■ MAB199 SURVEY MATHEMATICS I**

**Offered:** Autumn

Calculus: differentiation, partial differentiation, complex numbers, sequences and series, integration, applications. Matrix algebra; basic operations, linear equations, inversion, determinants, Cramer's rule. Coordinate geometry. Statistics.

**Credit Points:** 12      **Contact Hours:** 6 per week

**■ MAB211 MATHEMATICS IA**

**Offered:** Autumn, Spring

Elementary functions; differentiation; integration; matrices.

**Credit Points:** 8      **Contact Hours:** 3 per week

**■ MAB216 DISCRETE MATHEMATICS**

**Offered:** Autumn

Automatic systems; modular arithmetic; finite groups; elementary number theory.

**Co-requisite:** MAB211

**Credit Points:** 8      **Contact Hours:** 3 per week

**Note:** This subject is not compatible with MAB409; credit may not be retained for both.

**■ MAB224 MATHEMATICS IB**

**Offered:** Autumn, Spring

Integration; elementary ordinary differential equations; partial differentiation; analytic geometry.

**Prerequisite:** MAB211

**Credit Points:** 8      **Contact Hours:** 3 per week

**■ MAB225 MATHEMATICS IC**

**Offered:** Spring

Introduction to vector algebra, complex numbers and in finite series.

**Prerequisite:** MAB211 **Co-requisite:** MAB224

**Credit Points:** 8      **Contact Hours:** 3 per week

**■ MAB226 MATHEMATICS ID**

**Offered:** Spring

Limits and continuity, vector geometry; curve sketching.

**Prerequisite:** MAB211

**Co-requisites:** MAB224 + MAB225

**Credit Points:** 8      **Contact Hours:** 3 per week

**■ MAB227 STATISTICS**

**Offered:** Autumn, Spring

Data handling; probability; sampling; estimation; tests of hypothesis; regression and correlation; experimental design.

**Prerequisite:** MAB211

**Credit Points:** 8      **Contact Hours:** 3 per week

**■ MAB301 CALCULUS & ANALYSIS A**

**Offered:** Autumn, Spring

Real valued functions; differentiation; introduction to partial differentiation; integration; techniques of integration; elementary special functions.

**Credit Points:** 10      **Contact Hours:** 3 per week

**■ MAB302 CALCULUS & ANALYSIS B**

**Offered:** Autumn, Spring

Infinite series; improper integrals; complex numbers; functions of complex variables, analyticity; introduction to differential equations.

**Prerequisite:** MAB301

**Credit Points:** 10      **Contact Hours:** 3 per week

**■ MAB309 MODERN ALGEBRA**

**Offered:** Autumn, Spring

Set theory; relations and functions; binary operations; number theory; group theory; rings and fields.

**Credit Points:** 10      **Contact Hours:** 3 per week

**Note:** This subject is not compatible with MAB205; credit may not be retained for both.

**■ MAB310 LINEAR ALGEBRA**

**Offered:** Autumn, Spring

Matrices; vector spaces; linear transformations; eigenvalues and eigenvectors. Euclidean spaces; quadratic forms.

**Credit Points:** 10      **Contact Hours:** 3 per week

**Note:** This subject is not compatible with MAB406; credit may not be retained for both.

**■ MAB317 MATHEMATICAL STATISTICS I**

**Offered:** Autumn, Spring

Collection and representation of data, parameters and statistics; introduction to the theory of probability and probability distributions; elementary treatment of sampling theory leading to the normal, t, F and chi-squared distributions; statistical estimation and tests of hypotheses based on the normal, t, F and chi-squared distributions.

**Co-requisite:** MAB301

**Credit Points:** 10      **Contact Hours:** 3 per week

**■ MAB318 MATHEMATICAL STATISTICS IIA**

**Offered:** Autumn, Spring

Introduction to quality control, introduction to non-parametric tests of hypotheses; simple linear regression and introduction to multiple linear regression; correlation; fundamentals of one factor and two factor experimental design and the analysis of variance.

**Prerequisites:** MAB301, MAB317

**Credit Points:** 10      **Contact Hours:** 3 per week

### ■ MAB331 INTRODUCTORY VECTOR ANALYSIS

**Offered:** Autumn, Spring

Introduction to determinants; addition and subtraction of vectors; vector products, physical and geometrical applications; differential geometry of curves; conic sections; kinematics of a particle; relative motion.

**Credit Points:** 10    **Contact Hours:** 3 per week

### ■ MAB342 MATHEMATICS OF FINANCE

**Offered:** Autumn, Spring

Interest rates; solution of problems in compound interest; annuities; applications of annuities; capital redemption policies; valuation of securities; effects of taxation; introduction of basic modelling techniques.

**Credit Points:** 10    **Contact Hours:** 3 per week

**Note:** This subject is not compatible with MAB40; credit may not be retained for both.

### ■ MAB409 MODERN ALGEBRA

**Offered:** Autumn, Spring

Set theory, relations and functions, binary operations, number theory, group theory; rings and fields.

**Prerequisite:** MAB211

**Credit Points:** 10    **Contact Hours:** 3 per week

**Note:** This subject is not compatible with MAB216; credit may not be retained for both.

### ■ MAB410 LINEAR ALGEBRA

**Offered:** Autumn, Spring

Matrices; vector spaces; linear transformations; eigenvalues and eigenvectors; Euclidean spaces; quadratic forms.

**Prerequisite:** MAB225

**Credit Points:** 10    **Contact Hours:** 3 per week

### ■ MAB411 MATHEMATICS IIA

**Offered:** Autumn

Laplace transforms; ordinary differential equations; multivariable calculus.

**Prerequisite:** MAB225

**Credit Points:** 10    **Contact Hours:** 3 per week

### ■ MAB412 MATHEMATICS IIB

**Offered:** Autumn

Fourier series; partial differential equations; vector analysis.

**Co-requisite:** 412 **Credit Points:** 10

**Contact Hours:** 3 per week

### ■ MAB417 MATHEMATICAL STATISTICS A

**Offered:** Autumn, Spring

Collection and representation of data, parameters and statistics; introduction to the theory of probability and probability distributions; elementary treatment of sampling theory leading to the normal, t, F and chi-squared distributions; statistical estimation and tests of hypotheses based on the normal, t, F and chi-squared distributions.

**Prerequisite:** MAB224

**Credit Points:** 10    **Contact Hours:** 3 per week

### ■ MAB418 MATHEMATICAL STATISTICS B

**Offered:** Autumn, Spring

Introduction to quality control; non-parametric tests of hypothesis; simple linear regression and introduction to multiple linear regression, correlation; fundamentals of one factor and two factor experimental design and the analysis of variance

**Prerequisite:** MAB417

**Credit Points:** 10    **Contact Hours:** 3 per week

\* See note page 374.

### MAB425 MATHEMATICS 2C

**Offered:** Spring

Partial differentiation, complex analysis, differential equations; special functions.

**Prerequisite:** MAB411

**Credit Points:** 10    **Contact Hours:** 3 per week

### ■ MAB442 FINANCIAL MATHEMATICS

**Offered:** Autumn, Spring

Interest rates, solution of problems in compound interest, annuities and applications; capital redemption policies; valuation of securities, effects of taxation; introduction to basic modelling techniques.

**Prerequisite:** MAB211

**Credit Points:** 10    **Contact Hours:** 3 per week

### ■ MAB493 ENGINEERING MATHEMATICS II

**Offered:** Full Year

Solution of systems of linear equations by direct and iterative methods, rank of a matrix; representation of a function by Taylor series, Maclaurin series, Fourier series; finite differences, polynomial interpolation, Newton-Gregory interpolation formula; solution of first and second order differential equations, operator-D and Laplace transform methods. Taylor series and Runge-Kutta techniques; basic descriptive statistics, probability theorems, distributions.

**Prerequisite:** MAB193

**Credit Points:** 6    **Contact Hours:** 3 per week

### ■ MAB495 SURVEY MATHEMATICS II

**Offered:** Spring

Calculus. Matrix algebra. Spherical trigonometry. Three dimensional co-ordinate geometry.

**Prerequisite:** MAB199

**Credit Points:** 12    **Contact Hours:** 6 per week

### ■ MAB499 BASIC STATISTICS FOR SURVEYORS

**Offered:** Spring

Descriptive statistics, frequency distributions and their graphical representation, probability, sampling, estimation, tests of hypothesis, regression and correlation.

**Prerequisites:** MAB199 (R)\*

**Credit Points:** 5    **Contact Hours:** 2 per week

### ■ MAB601 MULTIVARIABLE CALCULUS A

**Offered:** Autumn, Spring

Differentiation, extrema, double integrals, triple integrals, surface integrals, complex integration.

**Prerequisites:** MAB301 + MAB302 + MAB331

**Credit Points:** 10    **Contact Hours:** 3 per week

### ■ MAB602 MULTIVARIABLE CALCULUS C

**Offered:** Spring

Vector algebra; scalar and vector fields; line integrals; surface integrals; differential field operators; the integral properties of fields; curvilinear coordinates; application to potential theory, hydrodynamic theory and electromagnetic theory; calculus of variations, functionals; Euler's differential equation; variational problems with subsidiary conditions.

**Prerequisite:** MAB331

**Credit Points:** 10    **Contact Hours:** 3 per week

### ■ MAB608 MATHEMATICAL STATISTICS IIB

**Offered:** Autumn, Spring

Properties and uses of the beta, gamma and exponential probability distribution; introduction to bivariate and multivariate distribution theory; multiple and curvilinear regression theory; three factor, factorial and fractional factorial experimental designs.

**Prerequisite:** MAB318 **Co-requisite:** MAB601

**Credit Points:** 10    **Contact Hours:** 3 per week



### ■ MAB610 APPLIED LINEAR ALGEBRA

**Offered:** Spring

Vector spaces and matrices; vector and matrix norms; discrete Markov chains with a finite number of states; vector spaces over finite fields; quadratic forms, least square solution of linear equations; random vectors and matrices.

**Prerequisite:** MAB310 **Co-requisite:** MAB612

**Credit Points:** 10 **Contact Hours:** 3 per week

### ■ MAB612 DIFFERENTIAL EQUATIONS

**Offered:** Autumn, Spring

Vector spaces with inner product; linear operators in finite dimensional spaces; linear differential equations; series methods; Laplace transform; self adjoint boundary value problems and Fourier series; partial differential equations.

**Prerequisite:** MAB301 + MAB302 + MAB310

**Credit Points:** 10 **Contact Hours:** 3 per week

### ■ MAB618 NUMERICAL ANALYSIS I

**Offered:** Spring

Errors; systems of linear equations (direct methods); solution of non-linear equations; interpolation and approximation; numerical quadrature; numerical solution of first order differential equations.

**Prerequisites:** MAB301(R)\* + MAB310(R)\* + CSB305 or CSB155

**Credit Points:** 10 **Contact Hours:** 3 per week

### ■ MAB619 NUMERICAL ANALYSIS II

**Offered:** Autumn

Systems of linear equations (iterative methods); solution of non linear equations; interpolation and approximation; numerical quadrature; eigenvalue problem; ordinary differential equations.

**Prerequisites:** MAB618 + MAB301 + MAB310

**Credit Points:** 10 **Contact Hours:** 3 per week

### ■ MAB635 CLASSICAL THEORETICAL MECHANICS

**Offered:** Autumn

Mathematical model of Newtonian mechanics; statics; conservation laws of dynamics; impulsive motion in one dimension; motion of a particle in one dimension, examples; motion of a particle in two dimensions, examples.

**Prerequisites:** MAB302 + MAB331

**Credit Points:** 10 **Contact Hours:** 3 per week

### ■ MAB637 OPERATIONS RESEARCH IA

**Offered:** Autumn, Spring

The simplex algorithm; simulation, replacement, maintenance and reliability; networks.

**Prerequisites:** MAB301 + MAB317 + MAB310 + CSB305 or CSB155

**Credit Points:** 10 **Contact Hours:** 3 per week

### ■ MAB638 OPERATIONS RESEARCH IB

**Offered:** Autumn, Spring

The revised simplex method; transportation and transshipment; assignment; parametric analysis; inventory; introduction to queueing.

**Prerequisite:** MAB637

**Credit Points:** 10 **Contact Hours:** 3 per week

### ■ MAB641 ACTUARIAL MATHEMATICS

**Offered:** Autumn

The life table; demographic techniques; pure endowments and annuities; assurances; policy values; laws

\* See note page 374.

of mortality; benefits depending on other contingencies; pension funds.

**Co-requisite:** MAB342

**Credit Points:** 10 **Contact Hours:** 3 per week

### ■ MAB710 LINEAR ALGEBRA B

**Offered:** Spring

Vector spaces and matrices; vector and matrix norms; discrete Markov chains with a finite number of states; vector spaces over finite fields; quadratic forms, least square solution of linear equations; random vectors and matrices.

**Prerequisite:** MAB410

**Credit Points:** 10 **Contact Hours:** 3 per week

### ■ MAB718 NUMERICAL ANALYSIS A

**Offered:** Autumn, Spring

Errors; systems of linear equations (direct methods); solution of non-linear equations; interpolation and approximation; numerical quadrature; numerical solution of first ordinary differential equations.

**Prerequisites:** MAB224 + CSB155

**Credit Points:** 10 **Contact Hours:** 3 per week

### ■ MAB719 NUMERICAL ANALYSIS B

**Offered:** Spring

Systems of linear equations (iterative methods); solution of non linear equations; interpolation and approximation; numerical quadrature; eigenvalue problem; ordinary differential equations.

**Prerequisites:** MAB718 + MAB410

**Credit Points:** 10 **Contact Hours:** 3 per week

### ■ MAB735 MECHANICS

**Offered:** Autumn

Mathematical model of Newtonian mechanics; statics; conservation laws of dynamics; impulsive motion in one dimension; motion of a particle in one dimension; motion of a particle in two dimensions.

**Prerequisites:** MAB411 + MAB226 or MAB412

**Credit Points:** 10 **Contact Hours:** 3 per week

### ■ MAB737 OPERATIONS RESEARCH

**Offered:** Autumn, Spring

The simplex algorithm, simulation; replacement, maintenance and reliability; networks.

**Prerequisites:** MAB417 + MAB410 + CSB155

**Co-requisite:** MAB442

**Credit Points:** 10 **Contact Hours:** 3 per week

### ■ MAB741 ACTUARIAL MATHEMATICS

**Offered:** Autumn

The life table; demographic techniques; pure endowments and annuities; assurances; policy values; laws of mortality; benefits depending on other contingencies; pension funds.

**Prerequisite:** MAB211 **Co-requisite:** MAB442

**Credit Points:** 10 **Contact Hours:** 3 per week

### ■ MAB782 FIELD THEORY

**Offered:** Spring

Tensor analysis; curvilinear coordinates; application to potential theory, hydrodynamic and electromagnetic theory; calculus of variations, functionals.

**Prerequisite:** MAB425

**Credit Points:** 10 **Contact Hours:** 3 per week

### ■ MAB788 MATHEMATICAL STATISTICS

**Offered:** Autumn, Spring

Properties and uses of the beta, gamma and exponential probability distribution; introduction to bivariate and multivariate distribution theory; multiple and curvilinear regression theory; three factor, factorial and fractional factorial experimental designs.

**Prerequisites:** MAB418 + MAB411

**Credit Points:** 10 **Contact Hours:** 3 per week

**■ MAB795 SURVEY MATHEMATICS III****Offered:** Autumn

Transformation in three dimensions: central projection, the nearparallel case. Numerical analysis: propagation of errors, solution of nonlinear equations. Approximation and interpolation. Solution of simultaneous linear equations, Gaussian elimination, compact methods, Cholesky, iterative methods.

**Prerequisite:** MAB495**Credit Points:** 6      **Contact Hours:** 3 per week**■ MAB893 ENGINEERING MATHEMATICS III****Offered:** Autumn

Eigenvalues and eigenvectors, quadratic forms, determination of dominant eigenvalue by iteration; sampling theory, hypothesis testing, linear regression and correlation, analysis of variance; introduction to linear programming.

**Prerequisite:** MAB493**Credit Points:** 6      **Contact Hours:** 3 per week**■ MAB894 ENGINEERING MATHEMATICS IV****Offered:** Spring

Solution of linear systems of differential equations employing operator-D and Laplace transform methods, variation of parameters methods for non-homogenous equations; solution of partial differential equations, separation of variables method, introduction to numerical techniques; complex variables, Cauchy-Riemann equations, conformal mapping.

**Prerequisite:** MAB493**Credit Points:** 6      **Contact Hours:** 3 per week**■ MAB906 TOPICS IN ANALYSIS****Offered:** Spring

Topics selected from the following: measures; Lebesgue integrals; product of measures; normed spaces; metric spaces; constrained optimisation, Gateaux and Frechet derivatives.

**Prerequisites:** MAB601 + MAB612**Credit Points:** 12      **Contact Hours:** 3 per week**■ MAB907 MATHEMATICAL STATISTICS IIIA****Offered:** Autumn

Distributions of functions of random variables; estimation theory; introduction to multivariate normal distribution theory.

**Prerequisite:** MAB608**Credit Points:** 12      **Contact Hours:** 3 per week**■ MAB908 MATHEMATICAL STATISTICS IIIB****Offered:** Spring

Experimental design; three factor designs, balanced incomplete designs, introduction to the analysis of covariance; introduction to stochastic processes; random walk, branching processes, Markov chains; sampling theory; random and stratified sampling; multi-stage sampling; probability proportional to size sampling.

**Prerequisite:** MAB608**Credit Points:** 12      **Contact Hours:** 3 per week**■ MAB913 NUMERICAL ANALYSIS III****Offered:** Spring

Approximation; numerical solutions of ordinary differential equations; partial differential equations; overview of finite element method.

**Prerequisite:** MAB619**Credit Points:** 12      **Contact Hours:** 3 per week**■ MAB920 CODING & ENCRYPTION TECHNIQUES**

Number theory, finite fields, linear shift registers, block coding theory, Cyclic codes, BCH and Reed-

Solomon codes, block coding techniques, convolutional codes, introduction to cryptography stream ciphers, block ciphers, public key systems, and secure speech communications.

**Prerequisite:** EEB661**Credit Points:** 12      **Contact Hours:** 3 per week**■ MAB921 METHODS OF MATHEMATICAL PHYSICS A****Offered:** Autumn

Equations of mathematical physics; mathematical methods, separation of variables; transform method; conformal transformation; theory of distributions and applications to Green's function method; finite difference method; two dimensional wave equations, examples; two dimensional heat equation, examples; two dimensional Laplace equation.

**Prerequisite:** MAB601 + MAB612**Credit Points:** 12      **Contact Hours:** 3 per week**■ MAB924 APPLIED STATISTICAL TECHNIQUES****Offered:** Spring

The general linear model; errors in variables; autocorrelation; single equation problems; simultaneous equations problems; estimation methods.

**Prerequisite:** MAB608**Credit Points:** 12      **Contact Hours:** 3 per week**■ MAB927 OPERATIONS RESEARCH IIA****Offered:** Autumn

Linear programming; integer and non-linear programming; dynamic programming; Heuristic methods.

**Prerequisite:** MAB638**Credit Points:** 12      **Contact Hours:** 3 per week**■ MAB928 OPERATIONS RESEARCH IIB****Offered:** Spring

Simulation; queuing; decision analysis; implementation in operations research.

**Prerequisite:** MAB637**Credit Points:** 12      **Contact Hours:** 3 per week**■ MAB929 STATISTICAL FORECASTING****Offered:** Autumn

Introduction; smoothing methods; decomposition methods; ARMA time series methods; Box-Jenkin method, causal models; quantitative and technological methods of forecasting; comparison and selection of forecasting methods.

**Prerequisite:** MAB608**Credit Points:** 12      **Contact Hours:** 3 per week**■ MAB941 METHODS OF MATHEMATICAL ECONOMICS****Offered:** Autumn

Mathematical models in economics; macroeconomic models; techniques for dynamic economic models; introduction to stability theory; stability of non-linear systems; optimisation theory; the maximum principles of Pontryagin; optimal economic growth.

**Prerequisite:** MAB601 + MAB612**Credit Points:** 12      **Contact Hours:** 3 per week**■ MAB960 PROJECT WORK****Offered:** Autumn, Spring

Students, either individually or in small groups, undertake a substantial project which is relevant to the needs of industry and which is designed to give students insight into industrial requirements. Each student, or group of students, undertakes a different

project and is supervised, generally by a member of staff, throughout the duration of the project.

**Prerequisite:** Successful completion of at least two third level optional units in addition to all mandatory mathematics units.

**Credit Points:** 12      **Contact Hours:** 3 per week

### ■ MAN255 STATISTICS

**Offered:** Autumn

Development of a sound working knowledge of basic ideas and the application of this knowledge to situations frequently occurring in the fields of Analytical Chemistry.

**Credit Points:** 6      **Contact Hours:** 2 per week

### ■ MAP111 STATISTICAL METHODS IN QUALITY

**Offered:** Autumn

Describing variation, frequency distribution, histogram, estimation of parameters. Important distributions useful in describing quality-related phenomena, binomial, hypergeometric, Poisson, normal, exponential, Weibull. Approximations, Poisson to binomial, normal to binomial, etc. Sampling distributions. Interval estimation and tests of hypotheses. Type I and type II errors.

**Credit Points:** 6      **Contact Hours:** 3 per week

### ■ MAP121 STATISTICAL PROCESS CONTROL

**Offered:** Spring

Basic concepts and preliminary considerations. Control chart procedures for variables, S and R charts, pattern analysis and interpretation. Process capability study, natural tolerances, capability ratio, modified control charts. Attribute control charts, construction and interpretation of p, c and u charts. Cusum techniques for continuous data, scope and principles, procedure and interpretation, testing techniques - V mask, decision interval. Cusum applications to discrete data. SPC computer software.

**Credit Points:** 6      **Contact Hours:** 3 per week

### ■ MAP211 SAMPLING PROCEDURES

**Offered:** Autumn

Basic concepts and principles in sampling. Attribute batch sampling, sampling plans (single, double and multiple), O.C. curves. AS1199, terminology and definitions, choice of plan and switching rules. Attribute batch sampling with rectifying inspection. Dodge Romig procedure, use of tables. Attribute continuous sampling and the Dodge system (CSP-1 etc). Sampling by variables, plans and procedures. AS2490, terminology and definitions, inspection rules.

**Credit Points:** 6      **Contact Hours:** 3 per week

### ■ MAP221 QUALITY PROBLEM SOLVING TECHNIQUES

**Offered:** Spring

Collection of data and use of check sheets. Histogram as a diagnostic tool. Pareto diagram, stratified data, use of weighted factors; Ishikawa chart, dispersion analysis and process classification type. Kepner Tregoe technique. Correlation analysis, scattergram and the Tukey corner test, independence and spurious correlation, regression equation and prediction. Design of experiments, principles and basic concepts, Latin Square design, factorial experiments, hierarchical designs.

**Credit Points:** 8      **Contact Hours:** 2 per week

### ■ MEB010 DYNAMICS I

A blending of simplified analysis with modelling methods for the more complex cases, thereby avoiding sophisticated mathematical methods, while still enabling the

student to obtain quantitative answers. Motion, particularly as found in architecturally relevant machines and mechanisms. Forces due to inertia, impacts, and collisions; damage and vibration arising from them. Fluids, transmission in pipes and channels, mechanisms of erosion, forces exerted on structures. Methods of measurement. Making and testing and deriving the required data from them. Techniques of modelling with readily available materials and easily constructed models.

**Credit Points:** 4      **Contact Hours:** 2 per week

### ■ MEB012 DYNAMICS II

Continuation of the work of Dynamics I in which both the methods of analysis and modelling are developed further, but the emphasis changes to application and the development of competent performance. Further treatment of machines and mechanisms. Unbalanced forces in rotating bodies and gyroscopic effects. Vibrations due to unbalance; how they may be determined and eliminated. Earthquakes and their effects. Interaction of fluids and structures under gusty conditions, ocean waves, and natural phenomena. Further work on measurements. Students will undertake model studies of more realistic cases.

**Prerequisite:** MEB010

**Credit Points:** 4      **Contact Hours:** 2 per week

### ■ MEB031 MATERIALS TECHNOLOGY

**Offered:** Autumn

A series of lectures and practical sessions to introduce the student to the important structure property relationships which exist in the common materials used for orthotics. The modes of failure of these materials and elementary selection procedures are also discussed.

**Credit Points:** 8      **Contact Hours:** 2 per week

### ■ MEB101 DESIGN I

**Offered:** Spring

This introductory subject in mechanical design covers the selection of basic machine elements based on their function, size and capacity as part of a mechanical system.

**Prerequisites:** MEB121, CEB184

**Co-requisites:** MEB133, CEB185, MEB111

**Credit Points:** 8      **Contact Hours:** 3 per week

### ■ MEB111 DYNAMICS

**Offered:** Spring

Basic concepts of the principles of dynamics including kinetics of particles and systems of particles in plane motion. Applications include the use of coordinate systems, relative motion, various methods for the solution of mechanisms, freebody diagrams, work-energy equations, impulse momentum and impact.

**Credit Points:** 7      **Contact Hours:** 3 per week

### ■ MEB121 ENGINEERING GRAPHICS

**Offered:** Autumn

An introductory subject in engineering graphics covering the application of the principles of geometric drawings. Topics include orthographic projection, auxiliary views, sectioning, use of manufacturing symbols, dimensioning and tolerancing, pictorial views and sketching. Computer aided drafting is introduced.

**Credit Points:** 6      **Contact Hours:** 3 per week

### ■ MEB133 MATERIALS I

**Offered:** Spring

An introductory series of lectures and practical classes on the basic concepts of materials science including phase changes, elasticity, plasticity, recovery, recrystallisation, grain growth, failure modes and strengthening

mechanisms. An outline is given of the nature and engineering properties of ceramics, polymers, composites and metallic materials with some reference to joining methods and degradation processes.

**Credit Points:** 6      **Contact Hours:** 3 per week

### ■ MEB171 INTRODUCTION TO MANUFACTURING

**Offered:** Autumn

This subject sets out firstly to examine the role of manufacturing industry in generating wealth and its contribution to the Australian economy. It then introduces modern concepts in manufacturing systems design. The interrelationship between design, materials selection, manufacturing, processes, marketing and information processing of products will be presented. The remaining topics will include the choice of manufacturing technologies in relation to product quantity and quality.

**Credit Points:** 3      **Contact Hours:** 1.5 per week

### ■ MEB173 MANUFACTURING PRACTICE

**Offered:** Autumn

This subject examines the role of manufacturing industry in generating wealth and its contribution to the Australian economy, modern concepts in manufacturing systems design. The interrelationship between design, materials selection, manufacturing processes, marketing and information processing of products. Other topics will include the choice of manufacturing technologies in relation to product quality and quantity. Students have hands-on experience in manufacturing processes, metrology laboratory and systems modelling and simulation by computers.

**Credit Points:** 7      **Contact Hours:** 3 per week

### ■ MEB230 MATERIALS II

**Offered:** Autumn

A series of lectures and practical classes to introduce students to the general nature and design properties of both cast and wrought metallic alloys. An introduction is given to the metallurgical effects of welding.

**Prerequisite:** MEB133

**Credit Points:** 6      **Contact Hours:** 3 per week

### ■ MEB231 MATERIALS III

**Offered:** Spring

Introduction to fracture mechanics; linear elastic fracture mechanics and its application to static design and fatigue crack growth. The structure and properties of polymers, composites and engineering ceramics.

**Prerequisite:** MEB133

**Credit Points:** 6      **Contact Hours:** 3 per week

### ■ MEB250 THERMODYNAMICS I

**Offered:** Autumn

A series of lectures with tutorial and practical periods to introduce the basics of engineering thermodynamics such as reversibility, first and second laws of thermodynamics, applications to heat engines, compressors, engines testing etc. Particular emphasis being given to single phase systems. Field visit.

**Credit Points:** 6      **Contact Hours:** 3 per week

### ■ MEB251 THERMODYNAMICS II

**Offered:** Spring

A series of lectures, tutorials and practical periods on steam plant, nozzles, impulse and reaction turbines, gas turbines and refrigeration. Field visit.

**Prerequisite:** MEB250

**Credit Points:** 6      **Contact Hours:** 3 per week

### ■ MEB313 MECHANICS I

**Offered:** Autumn

Kinematic and dynamic analysis of linkages and mechanisms and linkage synthesis applied to spatial mechanisms and robotics. The design and synthesis of cams and the kinematic analysis of gears.

**Prerequisites:** CEB184, MEB111, CEB185

**Credit Points:** 6      **Contact Hours:** 3 per week

### ■ MEB339 MATERIALS & MANUFACTURING PROJECT

**Offered:** Autumn and Spring

The project introduces the student to supervised, self regulated research of a specific topic associated with materials engineering or manufacturing engineering. The project normally requires a survey of literature specific to the given topic, organised experimental procedure and the preparation of a formal report.

**Prerequisite:** MEB231

**Credit Points:** 6      **Contact Hours:** 3 per week

### ■ MEB361 FLUIDS I

**Offered:** Autumn

A first subject in fluid mechanics which considers the fluid properties most relevant to mechanical engineering practice. The subject deals in some detail with forces in a fluid at rest and its action on submerged and floating bodies. Manometry, pressure distribution in a liquid subjected to acceleration, different types of flow, momentum and energy-equations, flow through orifices and vortex flow are also included.

**Prerequisites:** MEB111, PHB132, MAB193

**Credit Points:** 6      **Contact Hours:** 3 per week

### ■ MEB370 MANUFACTURING SYSTEMS I

**Offered:** Autumn

Lectures and practical work to cover practical machining principles, machine tool metrology and principle of joining and fasteners.

**Prerequisite:** MEB171

**Credit Points:** 6      **Contact Hours:** 3 per week

### ■ MEB381 DESIGN II

**Offered:** Autumn

The subject develops a methodology for the design of machines and machine elements to determine appropriate component dimensions and materials which will ensure satisfactory functional performance, strength and fatigue life. It will develop skills in the use of both manual and computer-aided numerical and graphical techniques in a design environment.

**Prerequisites:** MEB121, MEB101, CEB184, CEB185  
**Co-requisite:** MEB313

**Credit Points:** 6      **Contact Hours:** 3 per week

### ■ MEB408 PROJECT A (MECHANICAL)

**Offered:** Spring

The student is required to investigate in depth and present a formal report on a problem area taken from the full range of mechanical engineering practice. Project may arise through investigation in applied research programs or specific topic from industry.

**Prerequisite:** MEB339 **Co-requisite:** MEB489

**Credit Points:** 16      **Contact Hours:** 6 per week

### ■ MEB409 PROJECT B (MECHANICAL)

**Offered:** Full year

The student is required to investigate in depth and present a formal report on a problem area taken from the full range of mechanical engineering practice. Project may arise through investigation in applied research programs or specific topic from industry.

**Prerequisite:** MEB339 **Co-requisite:** MEB489

**Credit Points:** 8      **Contact Hours:** 3 per week

### ■ MEB411 THEORY OF MACHINES

Offered: Spring

Balancing of mechanisms and rotors; gyroscopic effects in mechanisms, rotors and vehicles; gear trains, simple and epicyclic; friction and centrifugal devices such as clutches and governors.

Prerequisites: MEB111, CEB184, CEB185

Credit Points: 7 Contact Hours: 3 per week

### ■ MEB450 AIR CONDITIONING

Offered: Autumn

Lectures and laboratory work to cover the theory and its application to the following topics: psychrometry, heating and cooling load calculations, air conditioning systems, vapour compression, refrigeration cycle analysis, multipressure systems, absorption refrigeration. Field visit.

Prerequisites: MEB251, MEB462

Co-requisite: MEB550

Credit Points: 7 Contact Hours: 3 per week

### ■ MEB462 FLUIDS II

Offered: Spring

A second subject in fluid mechanics for mechanical engineering students. It concentrates on fluid flow in closed conduits, rotodynamic machines, and hydraulic transmissions. It also includes water hammer in pipes and introduces dimensional analysis and dynamic similarity.

Prerequisite: MAB193

Co-requisites: MEB361, MAB493

Credit Points: 6 Contact Hours: 3 per week

### ■ MEB463 TRIBOLOGY

Offered: Spring

A series of lectures and supporting practical work on the fundamentals of tribology. The subject demonstrates the multidisciplinary nature of the subject and shows how it is an integral part of machine design, reliability and maintenance.

Credit Points: 6 Contact Hours: 3 per week

### ■ MEB464 FLUIDS III

Offered: Autumn

A more advanced subject in fluids for mechanical engineering students. The subject includes boundary layer theory and a more general approach to viscous flow via the Navier-Stokes and Reynold's equations.

Prerequisites: MEB462, MAB893

Credit Points: 7 Contact Hours: 3 per week

### ■ MEB471 MANUFACTURING ENGINEERING I

Offered: Spring

Lectures and laboratory work to cover practical machining principles and machine tool metrology.

Credit Points: 6 Contact Hours: 3 per week

### ■ MEB472 MANUFACTURING SYSTEMS II

Offered: Spring

Lectures and experimental work to cover fundamentals and applications of plastic theory in the deformation of metals and plastics. Concepts and applications of non-traditional machining and forming processes. Introduction of numerical control technology and practical applications in NC part programming.

Prerequisite: MEB370

Credit Points: 6 Contact Hours: 3 per week

### ■ MEB483 DESIGN III

Offered: Spring

The subject continues from MEB381 and further develops the design of machine elements including

mechanisms, welded structures, flexible members, journal bearings using the principles of engineering mechanics to analyse loads and to determine appropriate materials and component dimensions to ensure satisfactory performance of strength and functional requirements. It will extend skills in the use of both manual and computer-aided numerical and graphical techniques in a design environment.

Prerequisites: MEB121, MEB101, MEB133, MEB111, CEB102, CSB191, CEB184

Co-requisites: MEB411, MEB231, MEB313

Credit Points: 7 Contact Hours: 3 per week

### ■ MEB489 MECHANICAL DESIGN PROJECT

Offered: Full year

Projects drawn from either QUT or from outside organisations will be assigned to teams of (generally) three students, who will work as groups to apply theoretical mechanical engineering principles, tempered by practical considerations, to the solution of design problems. Each team will design, draw, specify and (in most instances) supervise the manufacture of a piece of mechanical engineering hardware.

Prerequisites: MEB483, MEB610, MEB511, MEB773

Co-requisites: MEB772, MEB911

Credit Points: 7 Contact Hours: 3 per week

### ■ MEB500 SPECIAL TOPIC I

Offered: Autumn

A series of lectures and tutorials in subject areas which are of special professional relevance to the student's intended career path, or which may be available on occasions from visiting scholars and which may be relevant and important to the undergraduate program.

Prerequisite: Students will need to have achieved an appropriate level of preparation in the topic area concerned.

Co-requisite: Will depend on the syllabus of the particular special topic offered

Credit Points: 7 Contact Hours: 3 per week

### ■ MEB510 NOISE & VIBRATIONS

Offered: Autumn

Introduction to noise and vibration measurements and instruments, free and forced vibration, normal mode vibration, Holzer's method, Mykelstad's method. Noise levels, A-weighting,  $L_{eq}$ , SEL, noise dose and standards. Sound power, absorption, fields and the behaviour of sound relating to rooms, enclosures and partitions.

Prerequisites: PHB132, MAB493

Co-requisite: MAB893

Credit Points: 7 Contact Hours: 3 per week

### ■ MEB511 STRESS ANALYSIS

Offered: Autumn

Analysis of strain and stress; including strain-displacement relations and stress and strain transformation. Two-dimensional problems including curved bars, thick-walled cylinders and rotating discs. Tension of prismatic bars and thin-walled sections. Failure criteria and their applications. Experimental strain measurement and analysis.

Credit Points: 7 Contact Hours: 3 per week

### ■ MEB531 ADVANCED MATERIALS

Offered: Autumn

The subject reviews modern composite materials to give an understanding of their properties, failure modes and uses. The important structural ceramics and high strength metallic materials are also con-

sidered. A treatment is given of special use materials which will be of future importance and the available materials and surface treatment processes to control frictional and wear performance.

**Prerequisites:** MEB230, MEB231

**Credit Points:** 7      **Contact Hours:** 3 per week

#### ■ MEB550 HEAT TRANSFER

**Offered:** Autumn

A subject of lectures, tutorials and practical periods which cover the following topics: conduction (steady-state, 1 and 2 dimensions, unsteady-state), convection (boundary layers, forced, natural) and radiation (black and grey bodies, shape factors, shielding, network simulation).

**Credit Points:** 6      **Contact Hours:** 3 per week

#### ■ MEB571 MANUFACTURING ENGINEERING II

**Offered:** Autumn

Lectures and experimental work to cover fundamentals and applications of plasticity theory in the deformation of metals and plastics. Analysis of forming machine performance and selection of machine tools will also be given.

**Credit Points:** 6      **Contact Hours:** 3 per week

#### ■ MEB601 SPECIAL TOPIC II

**Offered:** Spring

A series of lectures and tutorials in subject areas which are of special professional relevance to the student's intended career path, or which may be available on occasions from visiting scholars and which may be relevant and important to the undergraduate program.

**Prerequisite/Co-requisite:** As for MEB500

**Credit Points:** 7      **Contact Hours:** 3 per week

#### ■ MEB610 MECHANICS II

**Offered:** Spring

Introduction to mechanical frames and methods of analysis, with the emphasis placed on investigation the effects of static and dynamic loading upon frames and frame members.

**Prerequisites:** MEB411, MAB493, MEB510

**Co-requisite:** MEB511

**Credit Points:** 6      **Contact Hours:** 3 per week

#### ■ MEB640 AUTOMATION I

**Offered:** Spring

The subject takes the students' knowledge of mathematics and shows how this may be applied to: model mechanical systems; predict system response to a given input; modify system parameters to obtain a more desirable response.

**Prerequisite:** MAB493

**Credit Points:** 7      **Contact Hours:** 3 per week

#### ■ MEB650 THERMODYNAMICS III

**Offered:** Spring

Properties and testing methods of solid, liquid and gaseous fuels. Combustion calculations. Flue gas analysis. Energy tariffs and audits. Major applications of energy management, e.g., buildings, process plant, compressed air systems, vehicle fleets, etc. Economic evaluation of energy projects. Introduction and management of energy saving programs. Field visit.

**Prerequisites:** MEB550, MEB251

**Credit Points:** 6      **Contact Hours:** 3 per week

#### ■ MEB660 FLUID POWER

**Offered:** Spring

This subject analyses selected fluid systems to show how the performance characteristics of individual components interact to affect overall efficiency.

**Prerequisite:** MEB462

**Credit Points:** 6      **Contact Hours:** 3 per week

#### ■ MEB670 INDUSTRIAL ENGINEERING I

**Offered:** Spring

Lectures and laboratory work to provide training in some of the basic techniques for assisting in making decisions in policy, product, process, plant and project control.

**Credit Points:** 6      **Contact Hours:** 3 per week

#### ■ MEB673 MANUFACTURING ENGINEERING III

**Offered:** Spring

Lectures and experimental work to cover advanced topics related to manufacturing technology including some non-traditional material removal processes and optical metrology. An introduction to CAD/CAM and robotics will be presented.

**Prerequisite:** MEB471

**Credit Points:** 7      **Contact Hours:** 3 per week

#### ■ MEB680 ADVANCED MECHANICAL DESIGN

**Offered:** Spring

This subject will introduce topics appropriate to the application of modern materials and analytical techniques to the design of a wide range of machines. It will include lectures and case studies on statistical analysis of failures and the application of the information to improvement of designs; applications of advanced materials science in design, including applications of fracture mechanics techniques to optimisation of fatigue life, and computer-aided methods for optimising selection of both metallic and non-metallic materials; techniques for analysis and synthesis of mechanisms.

**Prerequisites:** MEB483, MEB230, MEB231, MEB411

**Credit Points:** 7      **Contact Hours:** 3 per week

#### ■ MEB701 SPECIAL TOPIC III

**Offered:** Autumn

A series of lectures and tutorials in subject areas which are of special professional relevance to the student's intended career path, or which may be available on occasions from visiting scholars and which may be relevant and important to the undergraduate program.

**Prerequisite/Co-requisite:** As for MEB500

**Credit Points:** 7      **Contact Hours:** 3 per week

#### ■ MEB710 AUTOMATION II

**Offered:** Autumn

The subject requires students to use computer packages developed for use in control system design (e.g., Matrix, 'X'). The student will be taught the fundamentals of discrete time systems theory and be introduced to instrumentation used in the acquisition and analysis of digital data (e.g., Labtech). Students will continue work on the use of Programmable Logic Controllers.

**Prerequisites:** MEB640, MEB660

**Credit Points:** 7      **Contact Hours:** 3 per week

#### ■ MEB771 INDUSTRIAL ENGINEERING II

**Offered:** Autumn

Lectures and laboratory work to provide basic techniques used for the planning and control of operational or manufacturing systems.

**Prerequisites:** MEB670

**Credit Points:** 6      **Contact Hours:** 3 per week

#### ■ MEB772 ENGINEERING PROJECT APPRAISAL

**Offered:** Autumn

This subject will introduce students to rational economic analysis of engineering projects, both at the

product level and at the project level. It will cover techniques needed to establish the cost of a project, and to make comparisons between alternative projects in a climate of scarce resources. It will outline techniques for determining design changes needed to reduce the manufacturing cost of a product, and will outline strategies for new product planning.

**Prerequisites:** MEB483, MEB339, MEB472

**Co-requisites:** MEB773, MEB670

**Credit Points:** 7      **Contact Hours:** 3 per week

#### ■ **MEB773 DESIGN FOR MANUFACTURING I**

**Offered:** Autumn

Value analysis and principles related to product design. Design of jig and fixtures, cutting tools applicable for various machining operations including assembly.

**Prerequisite:** MEB171

**Credit Points:** 7      **Contact Hours:** 3 per week

#### ■ **MEB800 SPECIAL TOPIC IV**

**Offered:** Spring

A series of lectures and tutorials in subject areas which are of special professional relevance to the student's intended career path, or which may be available on occasions from visiting scholars and which may be relevant and important to the undergraduate program.

**Prerequisite/Co-requisite:** As for MEB500

**Credit Points:** 7      **Contact Hours:** 3 per week

#### ■ **MEB810 INDUSTRIAL NOISE & VIBRATION**

**Offered:** Spring

Vibration measurements, spectrum analysis, special methods, Kurtosis, Cepstrum, envelope analysis, averaging, gear, bearing and rotor vibration. Whole body and arm vibration. Noise measurements, noise power, industrial standards, attenuation methods.

**Prerequisite:** MEB510

**Credit Points:** 7      **Contact Hours:** 3 per week

#### ■ **MEB900 MANUFACTURING PROJECT**

**Offered:** Full year

The student is required to investigate in depth and present a formal report on a problem area taken from the full range of manufacturing engineering practice. Project may arise through investigation in applied research programs or specific topic from industry.

**Credit Points:** 12      **Contact Hours:** 3 per week

#### ■ **MEB911 FINITE ELEMENT ANALYSIS**

**Offered:** Autumn

General description of the finite element method, static and dynamic analysis of mechanical engineering problems, review of finite element packages. Examination by assignment only.

**Prerequisites:** MEB462, MEB550, MEB610, MEB511

**Credit Points:** 7      **Contact Hours:** 3 per week

#### ■ **MEB950 PROCESS PLANT DESIGN**

**Offered:** Spring

An introduction to the design of duct and industrial pipework system design. Pressure vessel design methods. Field visits.

**Prerequisites:** MEB251, MEB462

**Co-requisite:** MEB511

**Credit Points:** 7      **Contact Hours:** 3 per week

#### ■ **MEB960 FLUID SYSTEMS DESIGN**

**Offered:** Spring

This subject analyses selected fluid systems to show how the performance characteristics of individual components interact to affect the overall efficiency.

**Co-requisite:** MEB464

**Credit Points:** 7      **Contact Hours:** 3 per week

#### ■ **MEB974 DESIGN FOR MANUFACTURING II**

**Offered:** Spring

Lectures and practical applications in the design of press tools, dies for forming operations and joining processes including an overview of CAD in tool and die design.

**Prerequisite:** MEB571

**Credit Points:** 7      **Contact Hours:** 3 per week

#### ■ **MEB975 DESIGN OF MANUFACTURING SYSTEMS**

**Offered:** Spring

Design and integration of flexible fixtures, palletisers and conveyors to FMS. The use of robots and automatic guided vehicles in materials handling. Total integrated manufacturing systems. Selection of machine tools for CIM implementation.

**Prerequisites:** MEB976, MEB977

**Credit Points:** 7      **Contact Hours:** 3 per week

#### ■ **MEB976 COMPUTER INTEGRATED MANUFACTURING**

**Offered:** Spring

Lectures and applications to cover basic requirements for implementing CAD/CAM systems. Component design using geometric modelling techniques. Classification systems for part family formation and computer aided process planning. Concepts and applications of Flexible Manufacturing Systems (FMS).

**Credit Points:** 7      **Contact Hours:** 3 per week

#### ■ **MEB977 COMPUTER CONTROL OF MANUFACTURING SYSTEMS**

**Offered:** Autumn

Lectures and experimental work on the use of computers in machine tool control. Computer control of production systems. Control of NC and CNC machines and advanced programming techniques. Control of robots.

**Prerequisite:** MEB976

**Credit Points:** 7      **Contact Hours:** 3 per week

#### ■ **MEB978 MANUFACTURING SYSTEMS ENGINEERING**

**Offered:** Autumn

Lectures and laboratory to describe and demonstrate concepts and fundamentals of manufacturing system analysis and production management.

**Credit Points:** 7      **Contact Hours:** 3 per week

#### ■ **MEB980 DESIGN OF POWER TRANSMISSION SYSTEMS**

**Offered:** Autumn

Lectures and design office tutorials covering the design of systems for the generation and transmission of mechanical power, including both solid elements (gears, clutches, belts etc) and fluid elements (pneumatic and hydraulic).

**Prerequisites:** EEB209, MEB411, MEB313, MEB483

**Co-requisites:** MEB510, MEB511

**Credit Points:** 7      **Contact Hours:** 3 per week

#### ■ **MEB981 DESIGN OF MATERIALS HANDLING SYSTEMS**

**Offered:** Spring

A series of lectures and design office projects covering the design of bulk material conveying and process plant, storage silos and bins, ground stockpiling systems, and the associated supporting structures.

**Prerequisites:** MEB483, MEB411, CEB184, CEB185, MEB111, MEB511

**Credit Points:** 6      **Contact Hours:** 3 per week

### ■ MEP173 QUALITY PLANNING

**Offered:** Autumn

Survey and appraisal of procedures. The specification of standards. Establishing the quality manual of procedures. Quality audit principles. Control using automatic, statistical/human methods. Source inspection methods. Introduction to basic control loop techniques - open, closed and manually closed. Quality data collection and analysis. Control of instruments and gauges and its relationship to physical standards.

**Credit Points:** 6      **Contact Hours:** 1.5 per week

### ■ MEP201 SAFETY TECHNOLOGY & PRACTICE I

**Offered:** Spring

To provide an overview of models of the accident phenomenon. To provide the technological background necessary for the understanding of potential hazards with electrical power, on construction sites and with mechanical equipment. To develop an understanding of the failure modes of materials and the influence of material properties and defects on failure.

**Credit Points:** 12      **Contact Hours:** 3 per week

### ■ MEP273 QUALITY MEASUREMENT & TESTING

**Offered:** Spring

Introduction to measurement, inspecting and testing. Definitions, standards. Measurement by observation or instrumentation as applied to any process or procedure, calibration systems, techniques and applications. Acceptance inspection, inspection planning and applications. Testing principles and procedures, types, uses. Instrumentation of test facilities. Laboratory quality assurance. Data analysis and uncertainties. Laboratory and facility management.

**Credit Points:** 6      **Contact Hours:** 1.5 per week

### ■ MEP301 SAFETY TECHNOLOGY & PRACTICE II

**Offered:** Autumn

This subject develops the basic concepts introduced in Safety Technology and Practice I. Importance is placed upon accident prevention and hazard recognition, analysis and control and risk management. The role, design, effective use and maintenance of personal protection equipment will also be addressed.

**Prerequisite:** MEP201

**Credit Points:** 12      **Contact Hours:** 3 per week

### ■ MEP371 RELIABILITY & MAINTAINABILITY

**Offered:** Autumn

Introduction to reliability and maintainability. Relationship between reliability and quality. Relationship between designer, manufacturer and operator. Means of achieving high reliability and maintainability. Fundamental theory of reliability. Reliability data analysis. Practical applications of Weibull's distribution to reliability and maintainability. Modelling for reliability. Computerised maintenance systems, economics and systems availability.

**Credit Points:** 6      **Contact Hours:** 1.5 per week

### ■ MEP473 QUALITY SYSTEMS & ASSESSMENT

**Offered:** Spring

Review of Australian Standards 1821-23, 2000 and other project quality systems standards. Quality assessment schemes. How to conduct an audit based on the standards. The interaction between quality manual, quality system and quality plan. Queensland

state purchasing policy requirements. Australian Standards supplier assessment scheme.

**Credit Points:** 8      **Contact Hours:** 2 per week

### ■ MET101 ENGINEERING DRAWING

**Offered:** Autumn

Presentation of graphical data, orthographic drawings, survey plans and the preparation of circuit diagrams and other drawings relevant to an electrical or electronics engineering associate. The use of computers in drawing.

**Credit Points:** 7      **Contact Hours:** 3 per week

### ■ MET120 ENGINEERING DRAWING I

**Offered:** Autumn

Lettering and linework. Introduction to computer graphics. Principles of third angle projection, sectional views. Pictorial drawings. Introduction to assembly drawings.

**Credit Points:** 7      **Contact Hours:** 3 per week

### ■ MET121 DRAFTING PRACTICE IA

**Offered:** Autumn

A series of short, practical exercises to cover the highest possible range of drafting experience commensurate with the first year students stage of development.

**Co-requisites:** MET120

**Credit Points:** 3      **Contact Hours:** 3 per week

### ■ MET123 ELECTRICAL ENGINEERING DRAWING IA

**Offered:** Autumn

Tuition and practice in the preparation of block diagrams, logic diagrams and circuit diagrams.

**Co-requisite:** MET120

**Credit Points:** 3      **Contact Hours:** 3 per week

### ■ MET140 ENGINEERING MATERIALS I

**Offered:** Autumn

A series of lectures and practical work dealing with the general properties of materials, materials selection, service requirements and properties of ferrous and nonferrous metals and alloys, corrosion types and prevention, testing procedures, plastics, ceramics and other materials.

**Credit Points:** 8      **Contact Hours:** 3 per week

### ■ MET141 MATERIALS (CIVIL)

**Offered:** Autumn and Spring

Properties of common ferrous and nonferrous metals and alloys. Timber, bricks, bitumen and plastics. Corrosion mechanism and protective systems. Quality control of engineering materials.

**Credit Points:** 7      **Contact Hours:** 3 per week

### ■ MET170 MANUFACTURING TECHNOLOGY

**Offered:** Spring

The subject covers the basic methods of converting raw material into manufactured goods and includes an introduction to metrology and safety in the work place.

**Credit Points:** 8      **Contact Hours:** 3 per week

### ■ MET171 TRADE TRAINING IA

**Offered:** Autumn

This workshop practice subject provides skill training in basic fitting and welding. The subject will emphasise the practical and applied aspects of fitting and welding skills.

**Credit Points:** 6      **Contact Hours:** 7 per week



**■ MET175 WORKSHOP TRAINING (MECHANICAL) IA**

**Offered:** Autumn

An introduction to workshops and field training, the use of sketches, working drawings, materials, safety and legal requirements.

**Credit Points:** 3      **Contact Hours:** 3 per week

**■ MET201 APPLIED MECHANICS**

**Offered:** Spring

This subject covers the fundamentals of statics, friction, velocity and acceleration, inertia and change of motion, dynamics of rotation, periodic motion, balancing, work and energy, impulse and momentum, strain and stress, fluids at rest and in motion.

**Credit Points:** 7      **Contact Hours:** 3 per week

**■ MET210 APPLIED MECHANICS I**

**Offered:** Autumn

Consideration of force and its effects. Equilibrium, moments of forces. Displacement, velocity and acceleration, inertia. Friction and friction machines.

**Credit Points:** 8      **Contact Hours:** 3 per week

**■ MET220 ENGINEERING DRAWING II**

**Offered:** Spring

Advanced sectioning, auxiliary projections including graphical and computer graphics. Intersections and surface developments.

**Prerequisite:** MET120

**Credit Points:** 8      **Contact Hours:** 3 per week

**■ MET221 DRAFTING PRACTICE IIA**

**Offered:** Spring

Introduction to geometric tolerances. Cam and gear geometry. Spatial geometry covering true shapes, angles and planes. Basic mechanical drive component selection.

**Co-requisite:** MET220

**Credit Points:** 3      **Contact Hours:** 3 per week

**■ MET223 ELECTRICAL ENGINEERING DRAWING IIA**

**Offered:** Spring

Tuition and practice in preparation of printed circuit board layout, equipment and plant layouts, power transformer construction drawings and single line diagrams.

**Prerequisite:** MET120 **Co-requisite:** MET220

**Credit Points:** 3      **Contact Hours:** 3 per week

**■ MET250 THERMODYNAMICS**

**Offered:** Autumn

A series of lectures and tutorials with practical periods to introduce the basic engineering thermodynamics concepts, viz. systems, reversibility, first and second law, and the working fluids. IC engine cycles and simple performance evaluations.

**Credit Points:** 6      **Contact Hours:** 3 per week

**■ MET271 TRADE TRAINING IIA**

**Offered:** Spring

This subject provides skill training in basic metal machining techniques. The subject will emphasise the practical and applied aspects of turning, milling, shaping, surface and cylindrical grinding.

**Credit Points:** 6      **Contact Hours:** 7 per week

**■ MET310 APPLIED MECHANICS II**

**Offered:** Spring

Work, power and energy; efficiency. Introduction to simple machines. Mechanical advantage and velocity ratio. Hydrostatics and fluid friction. Section properties, shearing force and bending moments, torsion.

**Credit Points:** 8      **Contact Hours:** 3 per week

**■ MET320 ENGINEERING DRAWING III**

**Offered:** Autumn

Advanced dimensioning techniques. Structural drafting. Simple tolerancing. Assembly and workshop drawings. Selection of rolling element bearing.

**Prerequisites:** MET120, MET220

**Credit Points:** 6      **Contact Hours:** 3 per week

**■ MET350 PROCESS ENGINEERING**

**Offered:** Spring

A series of lectures, tutorials and practical periods related to the following topics: steam plant, positive displacement compressors, refrigeration plant, positive expanders, reciprocating engines and gas turbines.

**Prerequisite:** MET250

**Credit Points:** 7      **Contact Hours:** 3 per week

**■ MET352 REFRIGERATION & AIR CONDITIONING**

**Offered:** Spring

Ideal and actual refrigeration cycles including variation of operating conditions and cycles. Performance of refrigeration equipment. Psychrometry, cooling load estimation. Air supply systems.

**Prerequisite:** MET250

**Credit Points:** 7      **Contact Hours:** 3 per week

**■ MET420 ENGINEERING DRAWING IV**

**Offered:** Spring

Presentation of drafting techniques as applied in electrical, pipework and air-conditioning hydraulic and pneumatic systems using computer graphics.

**Prerequisite:** MET120, MET220

**Credit Points:** 7      **Contact Hours:** 3 per week

**■ MET421 MECHANICAL PROJECT IA**

**Offered:** Spring

Report and presentation. A complete project selected from a prepared list, each dealing with a specific engineering environment.

**Prerequisite:** MET221

**Credit Points:** 3      **Contact Hours:** 3 per week

**■ MET433 ENGINEERING MATERIALS II**

**Offered:** Spring

A series of lectures and practical periods dealing with the properties and selection of advanced engineering materials.

**Co-requisite:** MET140

**Credit Points:** 8      **Contact Hours:** 3 per week

**■ MET475 WORKSHOP (MECHANICAL) IIA**

**Offered:** Autumn

An introduction to workshop machines and practices.

**Co-requisite:** MET175

**Credit Points:** 3      **Contact Hours:** 3 per week

**■ MET511 NOISE, STRESS & VIBRATION PRACTICE**

**Offered:** Autumn

Instrumentation used to measure vibrations, noise and stress. Fundamental principles and equations related to such measurement including vibration isolation, noise standards and stress/strain transformations.

**Co-requisites:** MET210, MET310

**Credit Points:** 6      **Contact Hours:** 3 per week

**■ MET560 THERMOFLUIDS**

**Offered:** Autumn

Fluid statics, fluid flow and measurement, dimensionless groups, elementary heat transfer by conduction, convection and radiation.

**Credit Points:** 8      **Contact Hours:** 3 per week

**■ MET572 PRODUCTION PLANNING & CONTROL**

**Offered:** Autumn

A series of lectures involving the sequence of production planning and management control.

**Prerequisite:** MET171

**Credit Points:** 6      **Contact Hours:** 3 per week

**■ MET573 CAD/CAM TECHNOLOGY**

**Offered:** Spring

Introduction to the fundamentals of CAD/CAM and geometrical modelling. A series of lectures in automated process planning. Tutorials together with practical applications in CNC programming and economics of machine tools. The use of robots and principles of integrated manufacturing systems.

**Credit Points:** 7      **Contact Hours:** 3 per week

**■ MET580 MACHINE ELEMENTS I**

**Offered:** Autumn

The practical application of shear force and bending moment diagrams and selection of components from BHP manual. Use of handbooks, codes and rolled steel section tables in the selection and use of bolted and welded connections. The application of standard rolled steel sections. The selection of shafts.

**Prerequisites:** MET210, MET120, MET220

**Credit Points:** 6      **Contact Hours:** 3 per week

**■ MET600 MATERIALS FOR ELECTRICAL ENGINEERS**

**Offered:** Spring

A series of lectures and practical work dealing with the general properties of materials, materials selection, service requirements and properties of ferrous and nonferrous metals and alloys, corrosion types and prevention, testing procedures, plastics, ceramics and other materials.

**Credit Points:** 4      **Contact Hours:** 1.5 per week

**■ MET601 MECHANICAL PLANT**

**Offered:** Spring

A study of manufacturing processes and workshop practices, power station equipment (turbines and boilers), mining machinery, air-conditioning equipment, fans and pumps, hoists, compressors, cranes, welding. Heat transfer principles.

**Credit Points:** 3      **Contact Hours:** 1.5 per week

**■ MET650 PLANT ENGINEERING IA**

**Offered:** Spring

A series of investigatory practical sessions related to design parameters, performance characteristics and plant maintenance practices associated with engineering plant systems, the machinery within the system and maintenance procedures.

**Credit Points:** 3      **Contact Hours:** 3 per week

**■ MET680 MACHINE ELEMENTS II**

**Offered:** Spring

Selection and application of shafts and coupling. Selection of spurnhelicalworm reduction unit. Determination of gear forces. Selection springs and brakes. Curved beams.

**Prerequisite:** MET580

**Credit Points:** 7      **Contact Hours:** 3 per week

**■ MET733 INDUSTRIAL METALLURGY**

**Offered:** Autumn

A course of lectures and practical work covering techniques in casting and metallurgical advances in materials and their evaluation.

**Prerequisite:** MET433

**Credit Points:** 6      **Contact Hours:** 3 per week

**■ MET782 JIG & TOOL DESIGN**

**Offered:** Autumn

Design of jig and fixtures for various machine operations and assembly. Principles in design of blanking and forming dies. Special forming techniques. Dies used in blow and injection moulding. Simple press capacity calculation.

**Prerequisite:** MET171

**Credit Points:** 6      **Contact Hours:** 3 per week

**■ MET850 ENERGY MANAGEMENT**

**Offered:** Autumn

Tariff framing and objectives, energy and power losses in electrical and mechanical plant, equipment and buildings, identification of losses energy audits load forecasting and control.

**Co-requisites:** EET500, MET250

**Credit Points:** 6      **Contact Hours:** 3 per week

**■ MET901 SUGAR MILL TECHNOLOGY I**

**Offered:** Autumn

This subject provides the basic knowledge and skills in the technology and equipment associated with sugar mill processes and operation.

**Credit Points:** 6      **Contact Hours:** 3 per week

**■ MET902 SUGAR MILL TECHNOLOGY II**

**Offered:** Spring

This subject provides further knowledge and skills in the technology and equipment associated with sugar mill processes and operation.

**Prerequisite:** MET901

**Credit Points:** 7      **Contact Hours:** 3 per week

**■ MET920 COMPUTER AIDED DESIGN & DRAFTING**

**Offered:** Autumn

The use of computer based systems for producing engineering drawings with emphasis on practical work.

**Prerequisites:** MET120, MET220

**Credit Points:** 6      **Contact Hours:** 3 per week

**■ MET933 INDUSTRIAL TRIBOLOGY**

**Offered:** Autumn

Maintenance and maintenance systems, types and mechanisms of wear, bearings and seals, friction, lubricants, oils, greases, solid lubricants, gas as a lubricant, application of lubricants.

**Credit Points:** 6      **Contact Hours:** 3 per week

**■ MET940 MECHANICAL MEASUREMENTS**

**Offered:** Autumn

To describe the function and method of application of the instruments used to measure mechanical quantities such as: speed, acceleration, frequency, force, torque, pressure, level, flow and temperature.

**Credit Points:** 8      **Contact Hours:** 3 per week

**■ MET960 FLUID POWER**

**Offered:** Spring

This subject analyses selected fluid systems to show how the performance characteristics of individual components interact to affect the overall efficiency.

**Credit Points:** 7      **Contact Hours:** 3 per week

**■ MET961 FLUID MECHANICS**

**Offered:** Spring

An introduction to fluid mechanics and systems such as pumps and pumping, turbines, compressors and fans. The operation of fluid coupling and torque converters.

**Prerequisite:** MET560

**Credit Points:** 7      **Contact Hours:** 3 per week

#### ■ MET971 INDUSTRIAL PRACTICE

Offered: Spring

A series of lectures in human resource management. Aspects of communication, leadership and teamwork with practical applications to planning and control. Basic engineering metrology.

Credit Points: 7      Contact Hours: 3 per week

#### ■ MNB002 PSYCHOLOGY FOR ENGINEERS

Offered: Spring

Introductory psychology. Basic elements of transactional analysis and their application to work settings. Selfconcept and its relationship to socially effective behaviour. Attitudes and attitude change. The dynamics of supervision in the work place.

Credit Points: 4      Contact Hours: 2 per week

#### ■ MNB004 MANAGEMENT

Offered: Spring

The subject acts as an introduction to the theory and practice of management and lays a foundation on which to build managerial knowledge and techniques through a life time career. Functions of management: planning, organising, leading and controlling are presented in the framework of a systems approach to decision making.

Credit Points: 4      Contact Hours: 2 per week

#### ■ MNB007 BEHAVIOURAL SCIENCE

An introduction to perception, motivation, individual personality, social attitudes, group interaction and dynamics; social motives and the sources and resolution of conflict. Students will be introduced to the practical application and limitations of behavioural studies through the use of readings and case studies drawn from the building industry. An introduction to the job and responsibilities of management; the functions and role of the manager including planning, organisation, control, budgeting and decision making; styles of leadership. Students will discuss and assess the various leadership styles and their application in the building industry, together with an assessment of the decision making roles of the contractor, architect, unions, government and owner on the building site. Students will be introduced to employee selection training, appraising and promotion. Worker efficiency and working conditions.

Credit Points: 6      Contact Hours: 3 per week

#### ■ MNB018 INDUSTRIAL RELATIONS

Structure and development of the industrial relations system in Australia. Federal and State conciliation and arbitration systems, authority and extent of jurisdiction. Industrial relations issues such as wages, conditions, claims and disputes. Role of the trade unions, the employers' and employees' representatives, the commission, awards and agreements. Acts, regulations and workers' compensation. Law of Master and Servant. Strikes and Lockouts. Public liability insurance. Law of Professional Negligence.

Credit Points: 4      Contact Hours: 3 per week

#### ■ MNB025 ECONOMIC ANALYSIS FOR GEOLOGISTS

Topics include a general overview of the economic approach and method. Importance of statistics, theory and practice in Economics. Neo-classical economics: Relevance to Australia and other western nations. The macro, micro distinction, comparative systems, and the role of values. Development models; Kaldor, Myint, Robinson, Graffa and mineral economics.

Credit Points: 6      Contact Hours: 3 per week

#### ■ MNB026 ADMINISTRATION FOR GEOLOGISTS

The subject aims to introduce geology students to management practices and principles. It covers the managerial functions of planning, controlling, organising, directing, and staffing, as well as the management of change and conflict. Also included are the areas of business planning for new ventures, budgets and financial controls, and time management.

Credit Points: 6      Contact Hours: 3 per week

#### ■ MNB040 MANAGEMENT

Offered: Spring

An introductory study of management including the functions of management, leadership, motivation and supervision of staff, and employee relations.

Credit Points: 4      Contact Hours: 1 per week

#### ■ MNB043 INDUSTRIAL MANAGEMENT

Offered: Spring

The management process planning, leading, organising, controlling. Human resources management aspects of communication, motivation, leadership and teamwork, with practical applications to planning and control, personnel relations, job design.

Credit Points: 6      Contact Hours: 3 per week

#### ■ MNB067 PSYCHOLOGY

This subject seeks to education students to: critically evaluate statements about behaviour; state and give examples of higher order motives, and apply this knowledge to work and interpersonal situations; understand factors which cause us to misperceive others, and explain how to minimise misperceptions; use effective social skills in interpersonal and group settings; understand theories of attitude, change and know implications for changing the behaviour of others; use skills to reduce interpersonal stress.

Credit Points: 6      Contact Hours: 1 per week

#### ■ MNB072 PRACTICE MANAGEMENT

The focus of the course is on Small Business Management. It considers the various roles that small business managers must develop at least rudimentary proficiency in. The structure, organisation, finance, planning, control, taxation, marketing, and environmental factors will be discussed in order to equip students with basic skills necessary for starting a successful small business.

Credit Points: 4      Contact Hours: 3 per week

#### ■ MNB091 MARKETING

The course is designed to concentrate on breadth rather than depth, to provide an overall view of marketing. The areas pursued will be the definition of marketing including its fit into the strategic plans of a firm or institution, either profit or non profit; full explanation of the components of the Marketing Mix with emphasis on a systems approach. The components of the marketing mix are defined as price, promotion, product and distribution; the integration of the above elements with branding, packaging sales and sales promotion to create the Marketing Plan.

Credit Points: 9      Contact Hours: 3 per week

#### ■ MNB111 INTRODUCTORY PSYCHOLOGY FOR HEALTH PROFESSIONALS

Offered: Autumn

A course of lectures and tutorials on psychology as a science and interpersonal behaviour and skills.

Credit Points: 4      Contact Hours: 2 per week

### ■ MNB120 ELEMENTARY JAPANESE

Introduction to a basic knowledge of the spoken Japanese language through models of dialogues based on situational conversation essential to business and travel. Additionally, it includes special lectures on cultural background studies which are related to business practices in Japan.

**Credit Points:** 12      **Contact Hours:** 3 per week

### ■ MNB121 COLLOQUIAL JAPANESE

Emphasises spoken and aural comprehension based on situational conversation related to Australian business-people, including study of hiragana/katakana (Japanese syllables reading and writing) and an introductory lesson of Kanji (Chinese characters).

**Credit Points:** 12      **Contact Hours:** 3 per week

### ■ MNB130 GENERAL PSYCHOLOGY

This course is designed to give students an ability to demonstrate effective interpersonal skills in relation to patients and other health professionals; indicate bases of individual differences; diagnose patient needs and respond appropriately; state causes of stress, effects on health, and indicate appropriate techniques to reduce stress; indicate techniques that may be used to modify patient attitudes.

**Credit Points:** 4      **Contact Hours:** 3 per week

### ■ MNB151 MICROECONOMIC ANALYSIS

This subject will examine how managers make decisions in firms in the Australian economy. The role of consumers and firms in various markets will be studied. Production and market strategies for managers in different types of firms will be examined. Lastly, constraints on manager's decisions and other contemporary issues in Australian micro economics will be examined.

**Credit Points:** 12      **Contact Hours:** 3 per week

### ■ MNB152 COMPUTER DATA ANALYSIS

This subject introduces students to the "stand alone" microcomputer in the first six weeks and to the mainframe computer system in the latter half of the course. The microcomputer will be used to teach spreadsheet, database, graphics and report generation involving population data and will also be used to teach Word Processing. Wordprocessing skills will be taught using Word Perfect. In the second half of the course students will be taught how to conduct surveys, the principles of sampling design, how to analyse survey sample data using a compatible package, as well as the theoretical measures of statistics involving central tendency, dispersion, probability and probability distributions, the central limit theorem and confidence intervals. Optimal sample size will also be discussed.

**Credit Points:** 12      **Contact Hours:** 3 per week

### ■ MNB153 ANALYSIS & METHODOLOGY IN MANAGEMENT

The first part of the course is designed to establish a conceptual base suitable for the analysis of both abstract and empirical argument. The second part of the course builds upon the concept of a valid argument by introducing the notion of the empirical research process, both historical and scientific. Specifically, the research cycle of problem definition, research design, data collection, analysis and reporting will be introduced. Normal empirical research will be concentrated upon, though in the context of a discussion of a wide range of research processes. Primary and secondary data sources will be considered, with case studies utilising archival material, market research

and questionnaire design to provide practical anchoring. A final project which requires the construction of an argument and integration of data will be introduced to help integrate the analytical and empirical material, and demonstrate the student's ability to communicate meaning in an appropriate fashion. This may draw on introductory statistics and computing subjects.

**Credit Points:** 12      **Contact Hours:** 3 per week

### ■ MNB154 PSYCHOLOGY

**Offered:** Autumn, Spring

An introduction to selected areas of psychology to give a behavioural base to subsequent studies in the management and organisational science area and to provide limited skills training in some areas for personal development. A learning unit investigates conditioning, imitation and higher order learning. A second unit on individuals and groups examines the development and assessment of individuals within groups. Other units examine perception human development and social skills, including assertiveness and stress management.

**Credit Points:** 12      **Contact Hours:** 3 per week

### ■ MNB181 AUSTRALIAN NATIONAL GOVERNMENT B

This subject provides an introduction to the Australian political system at the national level. It aims to foster an understanding of the major participants in the system and to evaluate their interaction with Australian society. The Australian Constitution, the Commonwealth Parliament, the Cabinet, Ministry and Public Service, the High Court, the electoral system, political parties and interest groups are examined and related to basic political theory and current political issues. The role of the State Governments is also considered.

**Credit Points:** 12      **Contact Hours:** 3 per week

### ■ MNB183 AUSTRALIAN NATIONAL GOVERNMENT A

This subject provides an introduction to the Australian political system at the national level. It aims to foster an understanding of the major participants in the system and to evaluate their interaction with Australian society. The Australian Constitution, the Commonwealth Parliament, the Cabinet, Ministry and Public Service, the High Court, the electoral system, political parties, and interest groups are examined and related to basic political theory and current political issues.

**Note:** One hour per week is set aside for Communication Department input.

**Credit Points:** 12      **Contact Hours:** 3 per week

### ■ MNB184 INTRODUCTION TO ADMINISTRATIVE & POLITICAL ANALYSIS

The aim of the subject is to ensure the student develops a basic understanding of the aims and methods of the social sciences. It is also intended to help the student develop an understanding of what constitutes a valid explanation of social phenomena that can be utilised in other subjects. It will help develop habits of thought that can be applied to a wide variety of problems and decisions.

**Credit Points:** 12      **Contact Hours:** 3 per week

### ■ MNB203 MANAGEMENT II (TO BE OFFERED AUTUMN SEMESTER 1990 FOR THE FINAL TIME)

An extension of MNB103, this subject covers: effective delegation, organisational centralisation and

decentralisation, the informal organisation using committees effectively, practical guidelines to motivation and job design, effective leadership, managing change; building effective management control systems, techniques in controlling, human reactions to controlling, wasteful organisational practices and management audits.

**Prerequisite:** MNB103

**Credit Points:** 12    **Contact Hours:** 3 per week

### ■ MNB231 GOVERNMENT ECONOMIC POLICY

This subject is designed to examine some of the problems in the economics of government social policy. Social policy will be analysed in terms of its impact on the allocation of resources and the distribution of income and wealth. The theory of public sector economics will not be studied since the subject Microeconomic Policy covers this area. The latter is a recommended but not a necessary prerequisite for MNB231. However, the theory of taxation, fiscal federalism and the significance of the size and growth of the public sector will be studied. The application of economic analysis in a number of areas of social policy including health and medical care, social security, education, environmental protection and housing will be demonstrated.

**Prerequisite:** MNB151, or MNB471

**Credit Points:** 12    **Contact Hours:** 3 per week

### ■ MNB250 DEVELOPMENTAL PSYCHOLOGY

**Offered:** Autumn

This subject provides students with a basis for the study of the promotion of psychological health of individuals at differing developmental stages. The content includes psychological adjustment, developmental theories, developmental aspects of childhood, adolescence, middle and old age and specific areas such as sexual development, death and dying.

**Prerequisite:** MNB101

**Credit Points:** 9    **Contact Hours:** 3 per week

### ■ MNB251 MACROECONOMIC ANALYSIS

Macroeconomic Analysis is concerned with the economic problems that occur at the national level. The aim of the subject is to ensure that students understand the economic problems at this level and appreciate the effects on the business community and on individuals of the Federal Government's attempts to manage these problems in Australia. Specific topics covered in the subject include economic systems, management techniques associated with a capitalist economy, unemployment, inflation - its causes and effects, and international trade.

**Credit Points:** 12    **Contact Hours:** 3 per week

### ■ MNB252 BUSINESS STATISTICS

The primary emphasis is on the concepts and applications of basic statistical methods to business subjects such as accounting, economics, management and marketing. The course is mainly concerned with statistical inference. A set of data based upon the results of a survey serves as a centrepiece for part of the course, and a means of integrating some of the topics discussed. Users unskilled in statistics may instruct the computer to perform an inappropriate or invalid analysis, or they may be unable to properly interpret the results of the requested analysis. This subject also requires in-depth application of a computer package introduced in Computer Data Analysis.

**Prerequisite:** MNB152 or CSB191

**Credit Points:** 12    **Contact Hours:** 3 per week

### ■ MNB253 INTRODUCTORY MARKETING

This introductory subject focuses on the role of marketing and its importance in contemporary organisations. The subject material covers the key marketing decision areas including the marketing concept; understanding consumer behaviour and preferences; marketing research and marketing information systems; market segmentation and positioning; and an introduction to marketing planning, strategy and control. Emphasis is given to understanding the components of the marketing mix, viz. product planning, management and development; pricing methods and strategies; the elements of promotion, including personal selling, advertising, publicity and sales promotion; and distribution.

**Credit Points:** 12    **Contact Hours:** 3 per week

### ■ MNB254 PERSONNEL MANAGEMENT & INDUSTRIAL RELATIONS

This subject is about the way human resources act and are acted upon. It examines human resources from the points of view of the employer, employees, government and other stakeholders. It utilises the pipeline concept to introduce some of the key processes of personnel management. It examines a variety of theoretical perspectives on industrial relations, introduces industrial relations concepts appropriate to middle managers, supervisors, and employee representatives, to enable students to understand the interpersonal and communication skills appropriate to the area. Current issues are highlighted throughout and students are introduced to the basic framework of Australian industrial law.

**Credit Points:** 12    **Contact Hours:** 3 per week

### ■ MNB267 PSYCHOLOGY

In studying this subject, students will be taught to critically evaluate statements about behaviour; state and give examples of higher order motives, and apply this knowledge to work and interpersonal situations; understand factors which cause us to misperceive others, and explain how to minimise misperceptions; use effective social skills in interpersonal and group settings; understand theories of attitude, change and know implications for changing the attitudes of other persons; know theories of behaviour change and understand implications for changing the behaviour of others; use skills to reduce interpersonal stress.

**Credit Points:** 4    **Contact Hours:** 3 per week

### ■ MNB281 POLITICAL BEHAVIOUR

The aim of this course is to provide students with an understanding of the causes and significance of political behaviour in Australia. The course is structured around two related perspectives, that of political behaviour at the individual level, and political behaviour as a feature of collective political activity. The course examines the major perspectives used to explain political behaviour in Australia, relating these both singly and together to specific examples of political activity. Finally, the implication of these explanations for patterns of political power is examined.

**Prerequisite/Co-requisite:** MNB183 or MNB181

**Credit Points:** 12    **Contact Hours:** 3 per week

### ■ MNB282 STATE GOVERNMENT

This subject aims to provide an analytical scrutiny of Australian state government with attention concentrated on Queensland. The interaction of parties, groups and institutions is highlighted. The course attempts to identify the outstanding demographic, economic, social and political features of the states and the dominant themes of political life therein. It

looks at the political parties, at elections, electoral and voting systems, at pressure groups and the press. It investigates the workings of state parliaments and cabinets. Finally it has something to say about state government administration, about functions and financing and about intergovernmental relations.

**Prerequisite:** MNB451 or MNB181/183

**Credit Points:** 12      **Contact Hours:** 3 per week

#### **MNB319 MEDICAL RECORD ADMINISTRATION I**

An introduction to the principles of record management and their application in medical record departments. The subject will present an overview of the inter-relationships between the various processes of the medical record department and functionally related areas in health care facilities. Topics include the structure, format and uses of medical records, the function of medical record departments, quantitative analysis of medical records, and health information collection and retrieval systems, both manual and computerised.

**Credit Points:** 12      **Contact Hours:** 3 per week

#### **MNB320 MEDICAL TERMINOLOGY**

This subject is designed to enable the student to understand, define, spell and pronounce terms related to the diseases and systems of the body, the activities of health professionals and medical technology. A thorough knowledge of medical terminology is necessary for medical record administrators and health administrators to communicate effectively with other health care professionals and contribute to health care planning, evaluation and research studies.

**Credit Points:** 12      **Contact Hours:** 3 per week

#### **MNB322 INTRODUCTORY TRAINING TECHNIQUES**

Training in Australia. Instructional models and theories of learning. Training needs analysis, task analysis process. Basic training techniques - the information giving model, the skill development model, the discussion model. Training aids/audio-visuals, algorithms. Administering a training course. Evaluating learning - writing and scoring test items. Follow-up training.

**Prerequisite:** The completion of the equivalent of the first year of the course in which the student is enrolled or MNN100.

**Credit Points:** 12      **Contact Hours:** 3 per week

#### **MNB323 SOCIAL PSYCHOLOGY**

The focus is upon issues and problems which arise when people interact with each other. Students are expected to master social psychological theories, principles and concepts in order to assist them to describe, explain, predict and influence interpersonal behaviours in both their work and their personal life.

**Prerequisite:** MNB154 or MNB412 or MNN100

**Credit Points:** 12      **Contact Hours:** 3 per week

#### **MNB330 AUSTRALIAN HEALTH INDUSTRY**

A broad overview of the systems of health care in Australia and their methods of operation. The public and private health and medical care sectors are discussed. The political environment, health care institutions, community health, public health, and the problems of co-ordination and integration of health services are also studied. Students are introduced to the role of the Health Services Administrator.

**Credit Points:** 12      **Contact Hours:** 3 per week

#### **MNB331 HEALTH CARE ECONOMICS I**

This subject applies economic analysis to the health care industry. It includes an examination of the demand for health care, the supply of health care, and the market for health care.

**Prerequisite:** MNB151

**Credit Points:** 12      **Contact Hours:** 3 per week

#### **MNB351 ORGANISATIONAL ANALYSIS & MANAGEMENT**

This subject is designed to explain how modern organisations operate and their import for the study and practice of management. It focuses on two key areas - analysis and understanding of organisational theory and social processes in organisations. In this context the specific skills held to be valuable to managers will be identified and discussed. The major processes will be examined, with a focus on decision and communication processes.

**Prerequisite:** MNB153

**Credit Points:** 12      **Contact Hours:** 3 per week

#### **MNB361 HUMAN RESOURCES & THE ORGANISATION**

This foundation subject examines the interface of human resources with the organisation and its requirements. Concepts and processes for analysing jobs will be examined. Human resources planning, job evaluation, job design and performance appraisal concepts and processes will be built on the foundation data. A substantial level of analytical and professional competence is expected in this subject.

**Prerequisite:** MNB254 or MNN100

**Credit Points:** 12      **Contact Hours:** 3 per week

#### **MNB362 RECRUITMENT & SELECTION**

This is a practical subject with strong conceptual and research foundations. It builds on job analysis competencies to deal in depth with recruitment and selection. Major topics include use of advertising, private agencies, the Commonwealth Employment Services and other approaches in recruiting; the use of aptitude and ability tests for selection; screening devices (for example, the weighted application blank); practical selection interviewing; other issues in recruitment and selection. Where appropriate, attention is given to underlying statistical methods (for example, in the estimation of reliability and validity). Legal requirements are emphasised throughout (e.g., anti-discrimination, EEO).

**Co-requisite:** MNB361

**Credit Points:** 12      **Contact Hours:** 3 per week

#### **MNB363 INDUSTRIAL RELATIONS I**

This subject aims to provide students with an understanding of the principles and practices of industrial relations in Australia. While considerable help is given by the lecturer in the form of lectures and seminar discussion, this subject should appeal to students who appreciate conducting their own individual research. A comprehensive, annotated bibliography is provided and students must use this as the resource base for their own study of the subject. Particular references to the bibliography are noted under the lecture topics.

**Prerequisite:** 96 credit points successfully completed from Faculty of Business Degree Program, including MNB254

**Credit Points:** 12      **Contact Hours:** 3 per week

### ■ MNB364 PERSONNEL ADMINISTRATIVE SYSTEMS/OCCUPATIONAL HEALTH & SAFETY

Introduction to human resources information systems. An examination of entitlements systems, discipline systems, remuneration packages, workers compensation coverage. Award and legal requirements. Computerised systems. Occupational health and safety requirements under the law. Work conditions and employee behaviour. Managing occupational health and safety.

**Prerequisite:** MNB254 or MNN100 or the completion of the equivalent of the first year of the course in which the student is enrolled

**Credit Points:** 12    **Contact Hours:** 3 per week

### ■ MNB371 MICROECONOMIC THEORY

Objectives of the firm and decision making under uncertainty; demand theory analysis and estimation; production and cost analysis; pricing analysis and decision; selected topics e.g., economics of advertising, product quality and capital budgeting.

**Prerequisite:** MNB151

**Credit Points:** 12    **Contact Hours:** 3 per week

### ■ MNB372 MACROECONOMIC THEORY

Keynesian, monetarist and neoclassical theories of income determination will be studied and evaluated. This will involve analysis of the role of both demand and supply side factors. Comparative monetary theory and expectations theories will also be addressed.

**Prerequisite:** MNB251

**Credit Points:** 12    **Contact Hours:** 3 per week

### ■ MNB382 ADMINISTRATION RESEARCH I

This subject introduces the student who will work in the public sector to methods used to collect, process and analyse information. The emphasis is on practicable procedures rather than mathematical derivation, although an intuitive understanding of basic statistical principles is presented. Among the topics covered are sources of Australian statistical information, how to conduct surveys, the use of statistics to analyse survey results, computer use in survey work, scaling methods, probability theory, time series, confidence intervals, demographic and financial processes. Emphasis will be on S.P.S.S. Computer work on the DEC-10 as well as on certain packages on the HP-3000.

**Credit Points:** 12    **Contact Hours:** 3 per week

### ■ MNB385 ADMINISTRATIVE THEORY

Public administration is eclectic, drawing upon a wide range of theory and related concepts. The aim of this subject is to ensure students gain a critical understanding of such theory, utilising the analytical frameworks developed in Introduction to Administrative & Political Analysis. The understanding developed will be applied in the examination of administrative systems and their problems in a range of subjects, notably Public Policy Process I & II.

**Prerequisite:** CMB111, MNB184

**Credit Points:** 12    **Contact Hours:** 4 per week

### ■ MNB391 MARKETING MANAGEMENT

This subject is concerned with the tactical decisions required at the product or middle management level. Particular emphasis will be placed upon new product and services innovations with an introduction to the development of strategy in terms of defining marketing opportunities, developing and implementing marketing plans. There will be a specific focus on market segmentation, positioning, measuring market

opportunity, marketing communications, the promotional mix, distribution, price determination together with retail/wholesale, service marketing and not-for-profit marketing as applied in the strategy developing process.

**Prerequisite:** MNB253 or MNN204

**Credit Points:** 12    **Contact Hours:** 3 per week

### ■ MNB392 CONSUMER BEHAVIOUR

This course examines the various theories of consumer behaviour and is designed to provide students with an insight into consumer needs, attitudes and behaviour and their impact on all aspects of marketing strategy.

**Prerequisite:** MNB253 or MNN204

**Credit Points:** 12    **Contact Hours:** 3 per week

### ■ MNB405 MANAGEMENT SCIENCE A

The major behavioural objectives are to introduce students to important models of operations research; students are made aware of how these models are used in accounting and/or management decision-making situations; students become familiar with solving decision problems through their own calculations and the use of a computer; students will have an appreciation of the strengths and weaknesses of the models.

**Credit Points:** 9    **Contact Hours:** 3 per week

### ■ MNB411 EXPORT MANAGEMENT

The role of government, including need to export, and export incentives; methods of exporting, including agents and merchants, consultants and overseas organisations; bases for export sales, including terminology and exporter's responsibilities; export documentation; finance of export trade, including methods of payment, finance for export transactions and foreign exchange transactions; export finance insurance corporation; modes of international transport; marine insurance; quoting for export, including pricing policies, export costs, marketing and packaging and quotations. A major case study is included as part of the study program.

**Prerequisite:** First year of BBus(Mgt) program

**Credit Points:** 12    **Contact Hours:** 3 per week

### ■ MNB413 APPLIED COGNITIVE PSYCHOLOGY

**Offered:** Spring

Introduction to cognitive psychology; perception processes in cognition; memory processes in cognition; thinking processes in cognition; includes problem solving and decision making; application of cognitive psychology. Artificial intelligence, ergonomics and job design also included.

**Credit Points:** 9    **Contact Hours:** 3 per week

### ■ MNB419 MEDICAL RECORD ADMINISTRATION II

This subject is designed to provide the student with an understanding of specialised medical and health record systems and techniques, particularly data capture techniques and models. The students will study clinical classification principles and systems used in the retrieval of health information for research, evaluation, planning and statistical collection in the health services.

**Prerequisites:** MNB319 and MNB320

**Credit Points:** 12    **Contact Hours:** 3 per week

### ■ MNB420 ADVANCED TRAINING TECHNIQUES

Planning and programming management and supervisory development. Career planning. Developing a complete training program. Advanced training techniques - case study, role play, laboratory training,

simulations, games, programmed instruction, computer assisted instruction, individualised learning, video and learning. Managing the training and development function - planning, organising staffing, directing, controlling. The competencies of a trainer. Experiential and project activities.

**Prerequisite:** MNB322

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ MNB426 SALES MANAGEMENT

This subject introduces the student to the range of analytical activities performed in the design and management of the selling function of the organisation. These activities include sales forecasting, sales force size, territory management and selling logistics, sales force motivation, sales negotiation and so on. The subject combines theory and practice and uses a case study approach to consolidate the learning process.

**Prerequisite:** MNB253 or MNN204

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ MNB430 APPLIED HEALTH CARE ANALYSIS

This subject is an introduction to epidemiology and biostatistics. Descriptive and analytical epidemiological methods used in the study of acute and chronic disease and in health services planning are studied. The statistical techniques appropriate to public health problems are included at an introductory level.

**Prerequisite:** MNB382

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ MNB431 HEALTH CARE ECONOMICS II

The objective of this course is to follow up and continue the study of economics as applied to health care. Advanced level studies in health economics are critically examined.

**Prerequisite:** MNB331

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ MNB432 BUSINESS STRATEGY

Managers make decisions within a macroeconomic environment. The major objective of this subject is to provide students with sufficient knowledge of the current state of economic theory and policy to enable them to understand macroeconomic arguments as they are presented in the wider economic environment and in the media. The subject gives particular emphasis to competing views about the nature of the contemporary economy and about the causes of, and practical solutions for, its current problems.

**Prerequisite:** MNB251

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ MNB450 PHYSIOLOGICAL & HEALTH PSYCHOLOGY

**Offered:** Spring

This subject examines the physiological and cognitive bases to human behaviour. In particular, it gives attention to such areas as the nervous and endocrine systems of the body, the brain and its functioning; learning, information processing, memory and problem solving; consciousness and altered states of consciousness; hormones and drugs and their effects on emotional expression; the development of intelligence; and overall the relation of physiological and cognitive factors to motivation and behaviour.

**Prerequisite:** MNB101

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ MNB451 GOVERNMENT, BUSINESS & LAW

The purpose of this subject is to provide a basic understanding of government, business and the law.

It will stress that politics is an all-pervasive aspect of human societies, though its semantic definition varies from culture to culture. This will be illustrated by demonstrating the important senses in which management is a political activity. It will then examine the specialised governmental and legal institutions and processes, the extent to which they structure the frameworks within which business takes place, and feedback from business into the political system. The subject will then use a series of case studies to illustrate and analyse selected business-government relationships.

**Credit Points:** 12    **Contact Hours:** 4 per week

**Note:** This subject is not available to students who have taken MNB181 or MNB183, Australian National Government A or B, or MNN203 Government Business Relations.

#### ■ MNB461 FOUNDATION HR COMPETENCIES

This subject analyses and develops the personal and interpersonal competencies (in both cognitive and affective domains) which form the foundations from which a HR practitioner must operate. It aims to develop knowledge of and skills in self-awareness, personal and interpersonal development and interpersonal processes. It emphasises the design of process to achieve outcomes.

**Prerequisite:** MNB154 or MNN100

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ MNB462 ADVANCED ORGANISATION BEHAVIOUR

An in-depth study of organisational behaviour. Major organisational aspects (the individual, groups, technology, formal organisation structure) are considered and integrated into a comprehensive analysis of the factors affecting behaviour in the organisation, with the emphasis on practical application. Particular attention is given to methods of research into motivation, leadership and structure in the organisational context. The emphasis throughout is on rigorous analysis and evaluation.

**Prerequisite:** MNB154

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ MNB463 ORGANISATION DEVELOPMENT

The subject has two major objectives. The first is to develop conceptual and theoretical models and skills in relation to the general process of introducing change into organisations, and the specific techniques/interventions which are most often used in organisation development. The second is to develop practical skills wherever possible in relation to the introduction of change; in particular, skills related to the specific interventions/techniques used in organisational development, and diagnostic and analytical skills useful for organisation development. Special attention is focused on the work group and its processes as a key structural unit in organisational change.

**Prerequisite:** MNB461 or MNN100

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ MNB471 MICROECONOMIC POLICY

Introduction to welfare economics. Public utility pricing and investment. Market efficiency and adjustment. Tariff policy. Externalities and public goods. Cost benefit analysis. Case studies of Australian industries (e.g., air transport).

**Prerequisite:** MNB371 or MNB331 or MNN106

**Credit Points:** 12    **Contact Hours:** 3 per week



#### ■ MNB472 MACROECONOMIC POLICY

Monetary and fiscal policies based on various theoretical underpinnings will be discussed. In particular, the role of discretionary-monetary policy will be addressed; as will government expenditure and taxation, the size of the budget deficit/surplus, and the management of an open economy (e.g., Australia).

**Prerequisite:** MNB372

**Credit Points:** 12     **Contact Hours:** 3 per week

#### ■ MNB482 LOCAL GOVERNMENT

This subject examines the vital role of local government as the third sphere of government in Australia. Its nature and constitution, functions, finance and the role of professional employees are some of the topics examined in the context of questioning local governments' capacity to effectively and efficiently provide services, and to develop as a participative grass root democratic system. The emphasis is on local government in Queensland, but interstate and overseas examples are included with particular emphasis on the UK since the Redcliffe Maud and Bains Reports and recent reforms.

**NB:** For students enrolled in the Public Administration degree only, this subject includes a one hour per week communication component (4 hour subject).

**Prerequisite:** MNB181/183

**Credit Points:** 12     **Contact Hours:** 4 per week

#### ■ MNB483 ADMINISTRATION ANALYSIS

This subject introduces students in public sector administration to the interpretation and use of statistical information. The subject covers the most commonly used techniques of handling data, with an emphasis on the purpose of each technique rather than on its mechanics. As well as being proficient for general administration, students who pass this subject will be trained for junior and middle-level research positions. An important part of this subject is the research project each student will do in a field he/she is interested in (for example, health administration, economics, local government) using the techniques taught. Among the topics covered are: hypothesis testing, regression and correlation, multiple regression, forecasting, time series index numbers, and an application of statistical techniques to survey analysis. Students will use the HP-3000 Computer and the DEC-10 system with particular emphasis on S.P.S.S.

**Prerequisite:** MNB382

**Credit Points:** 12     **Contact Hours:** 3 per week

#### ■ MNB484 PUBLIC PERSONNEL MANAGEMENT

To provide the student with an understanding of the principles and practices which surround personnel management in the public sector. The focus on public sector personnel management is important since there exists a body of law, rules and regulations at each level of government which affects the performance of each personnel activity-human resource planning, job analysis, recruitment, selection performance evaluation, promotion and training. This subject addresses three factors basic to the field of personnel management: the importance of the law; the perspective of the individual employee; and the function of public personnel activities in defining public policy.

**Prerequisite/Co-requisite:** MNB385

**Credit Points:** 12     **Contact Hours:** 3 per week

#### ■ MNB485 PUBLIC ENTERPRISE

Public enterprises occupy a central economic role in the Australian economy, at both federal and state levels. They also occupy a unique position astride the

public and private sectors, and are subject to both the forces of the market and of the political system. This subject will examine the origins and development of this role, and the unique position of public enterprises in order to illustrate the demands upon the public enterprise manager.

**Prerequisite:** MNB451 or MNB181 and 8 subjects in either B. Business - Public Administration, or 8 subjects in BBus - Management.

**Credit Points:** 12     **Contact Hours:** 3 per week

#### ■ MNB491 RETAILING MANAGEMENT I

This subject provides a comprehensive introduction to the techniques, concepts and analytical issues that are involved in retailing management. The dynamics of the retail system are examined from a strategic marketing viewpoint and include a basic appreciation of retail customer behaviour and retail information needs. The analysis of store location and the evaluation of retail trade areas and store siting determinants are given detailed attention along with store layout and design. Elements of merchandising, franchising and promotion are also examined. The learning process is further extended by way of visits to local retail stores and shopping centres, and by project work covering the investigation of new retail business opportunities.

**Prerequisite:** MNB253 OR MNN204

**Credit Points:** 12     **Contact Hours:** 3 per week

#### ■ MNB492 SERVICES MARKETING

This subject is concerned with the special characteristics of services and possible strategies to deal with those characteristics. Topics to be covered include the nature and classification of services; the differences between services and products and their implications for the marketing/customer mix and for marketing strategy; and the management of product support services. The following will also be introduced: the concept of productivity for services; including the management of demand and supply; and the search for service quality and consistency, including the issue of standardisation vs. customisation.

**Prerequisite:** MNB253 or MNN204

**Credit Points:** 12     **Contact Hours:** 3 per week

#### ■ MNB503 THE TOURISM INDUSTRY IN AUSTRALIA

In recent years the tourism and hospitality sector has been the major growth sector in the Australian economy. The purpose of this subject is to undertake an economic, political and managerial analysis of this sector, its origins, growth and significance, with a particular focus on management needs relevant to the industry. The subject will draw upon the analytical methods and techniques developed in the degree to enable a multi-disciplinary analysis of an applied nature.

**Prerequisite:** 12 subjects in BBus - Management

**Credit Points:** 12     **Contact Hours:** 3 per week

#### ■ MNB504 INTERNATIONAL POLITICS & BUSINESS

This subject will provide a basic outline of the contemporary, international political system, with a focus on Australia's major trading partners. It will examine the major actors in the system, and regional subsystems, with an emphasis on states, international organisations and multinational corporations. The linkages between domestic and foreign policies relevant to business will be examined, both as regards processes and policy content.

**Prerequisite:** MNB451 or MNB181 or 183 or MNN203 or MNN811

**Credit Points:** 12     **Contact Hours:** 3 per week

### ■ MNB505 HEALTH MANAGEMENT I

A problem solving approach which relates the science of management to decision making and control in health services and administration. Management science (operations research) techniques are learned and applied in weekly case studies.

**Prerequisite:** 16 subjects in the B.Bus - Health Administration Degree.

**Credit Points:** 12      **Contact Hours:** 3 per week

### ■ MNB509 PUBLIC POLICY & BUSINESS

The policy process in government is generally more complex and encompasses a wider range of variables than is the case in the private business sector. Public enterprises are not exempt from these processes, which can and do have a crucial impact upon the enterprise's policies and operations. Thus, this subject aims to provide an understanding of public policy processes relevant to public enterprise managers, and to help develop a capacity for the analysis of policy content.

**Prerequisite:** MNB451, MNB686 or MNB208

**Credit Points:** 12      **Contact Hours:** 3 per week

**Note:** This subject is not available to postgraduate students who have taken the subjects MNP508 Australian Policy Studies or MNN811 Policy Analysis, or to BBus - Public Administration students.

### ■ MNB515 INDEPENDENT STUDY UNIT INDUSTRIAL RELATIONS

This subject allows students to undertake a supervised research project in the industrial relations area. The topic must be chosen by the student with the approval of their supervisor. The project should entail the study of a significant topic in industrial relations and result in the production of a 7000 word assignment. Assessment will judge the student's ability to research and understand the literature surrounding the chosen field. In normal circumstances the student will also be expected to demonstrate an ability to collect some primary data, i.e., not rely totally on library research in the construction of the project.

**Prerequisite:** MNB363 or MNB630

**Credit Points:** 12      **Contact Hours:** 3 per week

### ■ MNB516 ORGANIZATIONAL SOCIOLOGY

The aim of the subject is to ensure that the student gains an understanding of organisations in the public sector. It builds upon the Introduction to Sociology and Theory and Administration subjects to provide a detailed understanding of organisation theory.

**Prerequisite/Co-requisite:** Eight subjects in the Bachelor of Business Degree including MNB385

**Credit Points:** 12      **Contact Hours:** 3 per week

### ■ MNB517 SPECIAL TOPIC IN INDUSTRIAL RELATIONS

According to student demand, a Special Topic in Industrial Relations will be offered. Enterprise level HRM/IR, and Comparative Industrial Relations are subjects that are likely to be offered as special topics at an early stage.

**Prerequisite:** Determined by arrangement with Coordinator

**Credit Points:** 12      **Contact Hours:** 3 per week

### ■ MNB518 HEALTH ADMINISTRATION PROJECT

This subject enables students to do follow-up work of a practical nature in an area of interest to them. Before being admitted to this subject, students will have completed all the required coursework in the discipline area of the proposed project. Projects may be undertaken in any of the discipline areas covered by

the degree e.g., health economics, law, medical sociology, health finance, medical record administration, health management, statistics, epidemiology and architecture, either individually or in small groups. Projects must have prior approval and will be closely supervised. Being of a practical nature, projects will be undertaken in a health or medical care delivery setting e.g., hospital medical records department; group practice; local authority health department; State health department.

**Credit Points:** 12      **Contact Hours:** 3 per week

### ■ MNB519 MEDICAL RECORD ADMINISTRATION III

This subject is designed to enable the students to recognise and use effectively all types of classification systems utilised for the retrieval of medical information. It builds on to student's experience from MNB419 by refining and enhancing their practical coding skills. It explores the use of coded data in case mix, particularly diagnosis related groups. The examination of specialised types of health records within hospitals, special purpose health record systems outside hospitals and systems for the registration and notification of disease is linked with the specialised classification systems developed to aid the retrieval of information from these various health information systems.

**Prerequisite:** MNB419

**Credit Points:** 12      **Contact Hours:** 3 per week

### ■ MNB523 INDEPENDENT STUDY HRD

This subject will enable students to demonstrate a competence at directing their own learning. This is essential for professionals who must subsequently keep themselves up-to-date in their area of expertise. To this end, students (either individually or in small groups) will, within an approved content area, undertake one or several learning activities with the approval of a supervisor. Appropriate activities could include literature review, research (mini-thesis), project, practicum (work placement) or anything else deemed acceptable by the supervisor.

**Prerequisite:** MNB361, MNB461, 2 HRD electives or MNN100

**Credit Points:** 12      **Contact Hours:** 3 per week

### ■ MNB524 RETAILING MANAGEMENT II

The basic objective of this subject is to provide students with both a strong conceptual and practical grounding in those retailing activities that comprise the merchandising function of the different types of retail stores including the distributors of durable consumer goods. This area of management attention and control is a basic and vital one for every retail institution from the large supermarket or department store to the smallest corner store. The course covers those topics associated with the merchandising of retail products: forecasting customer demand, planning, what, how and when to buy, pricing, store display and promotions, as well as the managerial control of buying and stocking merchandise.

**Prerequisite:** MNB493

**Credit Points:** 12      **Contact Hours:** 3 per week

### ■ MNB525 MARKETING DECISION MAKING

This subject is an advanced treatment of the theory and application of quantitative models in marketing. The various analytical models cover the evaluation of marketing policy and strategy, consumer and organisational buying behaviour, market segmentation and demand assessment, product, price, promotion,

distribution and selling decisions. These models lead to the study of an integrated decision support system for marketing management. Application to real-life examples is stressed throughout with case studies and experiential exercises providing the learning framework.

**Prerequisite:** MNB391 or MNN204, MNN202

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ MNB526 INTERNATIONAL MARKETING

This course endeavours to introduce the student to the nature and practice of international marketing. It assumes a familiarity with general marketing management and builds on this knowledge to develop insight into and understanding of the peculiar nature of international marketing management and the problems of marketing within a number of different national markets. The course is managerial in the sense that it focuses on the problems and decisions facing managers of international marketing in business enterprises.

**Prerequisites:** MNB253 or MNN204

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ MNB527 TRANSPORT ECONOMICS

A study of the economics of the management of private and public transport operations. These operations will relate to passenger movement and general freight movement. Each operation will be examined in terms of consumer demands, cost, market structure, pricing and non-pricing strategy, regulation, handling and storage techniques.

**Prerequisites:** MNB371, MNN106

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ MNB528 PACIFIC RIM ECONOMIC RELATIONS

This subject defines Pacific Rim nations as including Australia, South-East Asia, China, Japan, Canada, the United States of America, Central and South America and New Zealand. It examines the evolution of economic relations between Australia and the other nations in the Pacific Rim category. Matters of trade, investment and migration are emphasised. An analysis of the impact of political, social and cultural variables on these relations is given a high priority. The subject also charts future changes in these relationships. In this way it seeks to contribute to the development of a strategic management perspective.

**Prerequisite:** MNB372

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ MNB533 INTERNATIONAL HEALTH CARE SYSTEMS

The objective of this course is to make students aware of how different countries have organised their health delivery systems. The comparisons will be historical and economic. An analysis will be made of the growth of "the welfare state" in a number of countries e.g., United Kingdom, USA, Sweden, Canada, with particular reference to the organisation and delivery of health services. International organisations working in health will be studied. Students will be introduced to the distribution of diseases in both the West and the Third World; the distribution of health and material resources; international agencies; aid programs and their roles; functions, effectiveness and co-ordination problems.

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ MNB534 HEALTH SERVICES EVALUATION

This subject is a study of process evaluation, program evaluation and evaluation research with applications to the health fields. It is designed for health profes-

sionals in both the administration and practice areas. Theory, practice, the utilisation of evaluation results and the administration of evaluation studies are emphasised in this course. Specific problems such as criteria auditing, risk management, utilisation, review and accreditation are addressed.

**Prerequisite:** MNB543

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ MNB543 HEALTH SERVICES PLANNING

This subject deals with the administrator's role in the planning and development of health care facilities and health services. It includes an examination of the reasons for planning, the concepts and principles of planning and the types and categories of planning applied to the health industry.

**Prerequisites:** MNB430, MNB330 or MNB533

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ MNB551 OPERATIONS MANAGEMENT

Operations Management is an advanced treatment of the management and control of organisational systems. The subject involves the functional analysis of short and medium-term operations using management science techniques. The medium-term analysis provides an operational link with strategic management decision making required in the following core subject Managerial Strategy. The subject provides a logical flow of learning from understanding and analysing an operation, work task or organisational activity; to managing raw materials, work-in-process and finished goods; through to layout analysis, job scheduling and operational planning.

**Prerequisite:** MNB351 or MNN202

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ MNB561 INDEPENDENT STUDY HRM

This subject enables students to demonstrate an ability to direct their own learning, a key competence for professionals who must subsequently keep themselves up-to-date in their area of expertise. To this end, students (either individually or in small groups) undertake one or several learning activities with the approval of a supervisor. Appropriate activities could include literature review, research (mini-thesis), project, practicum (work placement), and anything else deemed acceptable by the supervisor.

**Prerequisite:** MNB361, MNB461, 2 HRM electives or MNN100

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ MNB571 ADVANCED ECONOMIC THEORY & POLICY

Considers the foundations of economic thought and recent contributions to the literature of micro and macro theory and policy and their relevance for public and private decision making in the Australian context.

**Prerequisite:** MNB372, MNB371 or one of these plus the other as a co-requisite.

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ MNB572 APPLIED ECONOMETRICS

Application of econometric techniques to economic models in micro and macroeconomics. The models will be used to explain or predict the behaviour of such economic variables as demand, production cost, interest rates, investment activity, and government activity.

**Prerequisite:** MNB252, MNB371, MNB372 or one of these plus the other as a co-requisite.

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ MNB582 FINANCIAL ADMINISTRATION

This subject aims at ensuring the student has an understanding of the nature of the systems of public financial administration in Australia, the major institutions and procedures involved, the incidence of public expenditure and its significance. Particular attention is paid to intergovernmental financial relations.

**Prerequisite/Co-requisite:** MNB181 or MNB183  
**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ MNB586 COMPARATIVE POLITICS

To widen student's knowledge and perspectives of political systems. A variety of liberal democratic, socialist and other types of states will be examined. The emphasis is upon comparative study, rather than a country by country examination of separate political systems.

**Prerequisites:** MNB183 or MNB181  
**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ MNB588 PUBLIC POLICY PROCESS I

Public enterprises at both State and federal levels pursue business functions as part of the institutions of government. They are subject to the public policy processes of government in a wide variety of ways, from financial targets to personnel and industrial relations policies. They are also important actors in the public policy process. Hence, it is essential for managers in public enterprises to understand the position they occupy in relation to such processes. The aim of this subject is to provide such an understanding, especially in relation to formulation and legitimisation.

**Prerequisites:** MNB451, MNB351 or MNB181, MNB385

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ MNB591 ECONOMICS OF INFORMATION

Information as a commodity; the demand for information; the economics of the production of information; the costs of information; the cost; pricing and charging out of information within organisations; the market supply of information; information technology and the supply curve; the structure of the information industry; information and industry concentration; public good characteristics of information; government intervention and economic impacts in the information industry.

**Credit Points:** 9    **Contact Hours:** 3 per week

#### ■ MNB592 MARKETING RESEARCH

This subject has two main purposes, to look at the theoretical foundations behind both qualitative and quantitative marketing research, and to undertake a "hands on" marketing research project whereby small groups of students will be asked to liaise with the client; determine the most suitable way of gathering information; undertake the research; and finally, present the results. Topics to be covered in both the theoretical and practical areas of the subject include problem formulation; research design and sources of information; design and forms of data collection; sample design; analysis and interpretation of data, and the marketing research report and presentation.

**Prerequisites:** MNB391, MNB493 or MNB204, MNB391 or CMB211

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ MNB605 HEALTH MANAGEMENT II

Managing the hospital as a system; managerial information processing; the process of influence in the management of hospitals; managerial styles and the co-ordination and correlation of managerial expecta-

tions; hospital management in comparison with other managerial systems e.g., commerce, government. This subject continues the problem solving approach of Health Management I. It departs from the management of hospitals to include considerations of community health, mental health, and group practice management.

**Prerequisite:** MNB505

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ MNB611 SPECIAL TOPIC IN TOURISM

The aim of this subject is to permit an in-depth examination of an issue of importance to the industry. Hence, the actual content will vary, depending upon the issue under examination. Issues currently under consideration are the impact of special, or hallmark events upon the industry, drawing upon School of Management expertise in this area; the gaming industry, its value and impact; and government policy toward the industry, with a special focus upon State owned, tourist corporations. Each issue will be examined from a multi-disciplinary perspective, focused upon managerial considerations.

**Prerequisite:** MNB503

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ MNB612 TRANSNATIONAL MANAGEMENT

As a small, relatively open economy, heavily dependent upon commodity exports, and with national policies firmly oriented toward an increase of exports, the need for an understanding of the complexities of transnational management have become greater. This subject is intended to provide a basic outline of management in the transnational context. It will draw upon earlier core subjects and their explanation of management roles to illustrate the manner in which those roles are influenced by the transnational context. The range of problems faced in such situations will be examined, as well as the institutional and procedural solutions adopted, their advantages and disadvantages. The focus will be upon the transnational environments faced in major and developing markets of concern for Australian businesses.

**Prerequisite:** MNB504 and 12 subjects in the BBus - Management program, or 8 subjects in the MBA program.

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ MNB613 GOVERNMENT POLICY & THE TOURISM INDUSTRY

The aim of this subject is to provide a detailed examination of government policy as it influences the tourism industry. It will include the examination of the policies of all levels of government and those international agreements of most significance to the industry, for example, those regarding air traffic rights. The specific governmental institutions and policy processes relevant to the industry will be examined, with a focus on the need to make effective use of the channels provided for access. The policies will be examined in their historical and contemporary context, concluding with an examination of current developments and their likely impact.

**Prerequisite:** MNB451 or MNB181 or MNB183 or MNB203 or MNB811

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ MNB618 HEALTH COMPUTER SYSTEMS

Principles and applications of electronic data processing in health care settings. Computerised health information systems are analysed from a variety of viewpoints including the objectives of the system, specific methods employed to meet user needs, struc-

ture in an overall information system, the technology which makes it operative, the data base, and the various ways information is transferred and used in health facilities.

**Prerequisite:** ISB392

**Credit Points:** 12      **Contact Hours:** 3 per week

#### ■ MNB619 MEDICAL RECORD ADMINISTRATION IV

This subject explores the role and functions of the medical record administrator in the management of health care services. Topics include the legal and ethical implications of health record management; extended care facilities and their special needs; occupational health and health records for industry; health records for community/primary care units; the potential of modern technology in the effective running of medical record services. The clinical classification component will concentrate on nosologic problem solving, collection strategies for disease and operation indexes and the practical application of classifications in health care settings.

**Prerequisite:** MNB519

**Credit Points:** 12      **Contact Hours:** 3 per week

#### ■ MNB624 PROMOTIONAL STRATEGY

This course introduces the student to concepts of promotional strategy. An overall appreciation will be discussed together with a detailed coverage of the management of the advertising functions including objectives of the promotional program, organising and managing the human resources, characteristics of advertising media (TV, radio, magazine etc.), strategy for selection of media vehicle, investigating advertising effectiveness and formulation of a 'promotional strategy' for a local firm or institution. A proportion of the semester will be taken with a coverage of direct marketing and direct response advertising.

**Prerequisite:** MNB253 or MNN204

**Credit Points:** 12      **Contact Hours:** 3 per week

#### ■ MNB625 PROFESSIONAL MARKETING PRACTICE

With the approval of the lecturer involved the students will undertake a preferred study program within the marketing framework, e.g., some particular area of the marketing mix. This study program will require students to undertake a project or 'internship' with a suitable company, where they will actively work on a part-time basis. The program will be aligned as closely as possible to the preferred area of study. Students will be required to submit a number of reports reflecting the theoretical concepts learned and the application to their job experience.

**Prerequisite:** MNB391, MNB493 or MNN204, MNB391

**Credit Points:** 12      **Contact Hours:** 3 per week

#### ■ MNB626 INTERNATIONAL ECONOMICS

The subject will concentrate on Australia's experience in international economics. Australia's reason for trade and direction of trade will be considered. Restriction on trade will be examined and debate will cover the Industries Assistance Commission and protection of Australian domestic producers. Appreciation, depreciation and external and internal balance in Australia will be discussed. Special attention will be paid to floating exchange rates and foreign exchange risk management under floating exchange rates; monetary policy and financial deregulation; Keynesian and monetarist theories of the balance of payments; the national debt; ASEAN.

**Prerequisite:** MNB372 or MNN106

**Credit Points:** 12      **Contact Hours:** 3 per week

#### ■ MNB627 PROGRAM EVALUATION

The objective of the subject is to provide decision makers with a methodology for efficient project selection based on economic criteria. The use of cost benefit analysis, cost effectiveness analysis and program budgeting studies will be investigated. The development of such techniques will involve consideration of objectives, benefits, costs, prices, discount rates and investment rules. The application and limitations of such principles will be demonstrated by the use of case studies.

**Prerequisite:** MNB371 or MNB471 or MNN106

**Credit Points:** 12      **Contact Hours:** 3 per week

#### ■ MNB630 INDUSTRIAL RELATIONS II

The aim of this subject is to equip students with a detailed knowledge of changes in the Australian community which will have an impact on industrial relationships over the next ten years. The subject aims to develop this understanding largely by means of individual student research into relevant topics.

While considerable assistance is given by the lecturer in the way of seminars, advice on research methods, and printed material, this subject should appeal particularly to students who appreciate conducting their own individual research.

**Prerequisite:** 96 credit points subjects successfully completed from Faculty of Business degree program including MNB254.

**Credit Points:** 12      **Contact Hours:** 3 per week

#### ■ MNB633 DISTRIBUTION MANAGEMENT

Distribution Management deals with the application of the basic principles underlying the distribution of an organisation's products from their production or receipt to final delivery to a customer. Using a systems approach, the subject deals with such practice topics as warehouse location and management and choice of transportation modes. The subject is intended for students working in the marketing and transport/distribution fields but will also be valuable for those in other areas, e.g., business research, retailing, accounting.

**Prerequisite:** MNB391 or MNB371 or MNN204 or MNN106

**Credit Points:** 12      **Contact Hours:** 3 per week

#### ■ MNB639 ECONOMICS OF STRATEGIC MANAGEMENT

This subject examines the internal structure, operation and growth of organisations with special reference to commercial institutions. A wide range of analytical tools is used to address major issues which include the determinants of the internal structure of organisations; the relative effectiveness of the institutions of market and hierarchy in reaching decisions; the determinants of vertical integration; the determinants of the growth and functioning of internal labour markets; the reasons for the development of firms as economic institutions; and the role of the entrepreneur in decision-making.

**Prerequisite:** MNB371 or MNN106

**Credit Points:** 12      **Contact Hours:** 3 per week

**Note:** This subject is not available to students who have taken and passed MNN814.

#### ■ MNB642 BUSINESS FORECASTING

A wide range of companies and government organisations use forecasting in such areas as sales, planning, marketing research, pricing, production planning and scheduling, financial planning, etc. This course has been designed to meet the need for more and better forecasting in an organisation, so that students with

limited training in mathematics and statistics can use forecasting techniques much more effectively. A system of programs called SIBYL/RUNNER will be used by the students. This system can be used equally well by both the novice and the forecasting expert. The authors of this system have maintained simplicity for the management user. Finally a number of case examples that provide exposure to the practical considerations involved in management forecasting problems will be presented.

**Prerequisites:** MNB252 or MNN307

**Credit Points:** 12 **Contact Hours:** 3 per week

#### ■ MNB651 MANAGERIAL STRATEGY

The basic objective of the semester's work is to help the student to develop a personally useful and explicit way of thinking about the business enterprise as a total system in a total environment; to help to identify the crucial elements and relationships in a situation; analyse systematically and rigorously the basic opportunities, constraints and issues and trace out the impact of an action in any one part upon the other parts and upon the totality. It is the capstone subject in the BBus(Mgt) degree, and aims to integrate student's previous studies.

**Prerequisites:** MNB551 or MEB670

**Credit Points:** 12 **Contact Hours:** 3 per week

#### ■ MNB661 INTERVIEWING & COUNSELLING

The unit aims to develop practical skills in aspects of employment interviewing through an introduction to the theory and principles of interviewing and through supervised experience. Attention will be given to the characteristics of the interview situation; the interviewer, the interviewee and their inter-relationships. Interview areas covered will include the personal interview (information seeking) and the employee-personnel interviews (recruitment, appraisal, disciplinary and exit). Personality theory, guidance and counselling theory and techniques will be introduced. An emphasis will be placed on understanding and practicing the human skills required to facilitate the development of others either in individual interaction or group interaction. Role plays, modelling, case-studies, peer and lecturer assessment and guidance may be used towards developing practical skills.

**Prerequisites:** MNB154, MNB461 or the completion of the equivalent of the first year of the course in which the student is enrolled or MNN100.

**Credit Points:** 12 **Contact Hours:** 3 per week

#### ■ MNB666 COUNSELLING FOR HEALTH PROFESSIONALS

**Offered:** Spring

A study of the psychology of illness and the counselling process.

**Credit Points:** 4 **Contact Hours:** 2 per week

#### ■ MNB683 COMPARATIVE ADMINISTRATION

This subject widens the student's perspectives by examining administrative structures and their functioning in a variety of systems. Students should realise that we in Australia do not have a monopoly on administrative wisdom, and that other systems may be just as effective in their particular environments. Liberal-democratic and totalitarian regimes will be examined with countries chosen to represent unitary systems, federal systems and developing and third world systems. For each country included in the final selection, bureaucratic structure and functions will be

examined together with personnel practices, major reforms and committees of inquiry.

**Prerequisites/Co-requisites:** MNB484, MNB586

**Credit Points:** 12 **Contact Hours:** 3 per week

#### ■ MNB686 GOVERNMENT & BUSINESS

To develop an understanding of the relationships between business and government in Australia in historical and contemporary perspective. The subject will build upon the base provided in MNB451, providing a detailed examination of the historical and contemporary context of government business relationships in Australia at federal and State levels. It will provide the detailed understanding for the subject MNB509.

**Prerequisites:** MNB451 or MNB181

**Credit Points:** 12 **Contact Hours:** 3 per week

#### ■ MNB687 PUBLIC POLICY PROCESS II

Public enterprises at both State and federal levels pursue business functions as part of the institutions of government. They are subject to the public policy processes of government in a wide variety of ways, from financial targets to personnel and industrial relations policies. They are also important actors in the public policy process. Hence, it is essential for managers in public enterprises to understand the position they occupy in relation to such processes. The aim of this subject is to provide such an understanding, especially in relation to policy implementation and evaluation. It completes the examination of the public policy process commenced in MNB588.

**Prerequisite:** MNB588

**Credit Points:** 12 **Contact Hours:** 3 per week

#### ■ MNB691 STRATEGIC MARKETING

This course is designed to develop a specific understanding of marketing strategies with an in depth consideration of selected areas of decision-making. The course will also cover current and future dimensions of marketing. Students will be exposed to a variety of advanced marketing techniques and issues through lectures, seminars and case analyses.

**Prerequisite:** MNB592 or MNN204, MNB391

**Credit Points:** 12 **Contact Hours:** 3 per week

#### ■ MNB998 SPECIAL TOPIC IN PUBLIC ADMINISTRATION

The aim of this subject is to help the student apply in detail the modes of analysis developed in the core subjects to specific policy areas. In this way their immediate relevance can be demonstrated and a thorough understanding of a policy area gained.

**Prerequisite/Co-requisite:** MNB588, MNB251

**Credit Points:** 12 **Contact Hours:** 3 per week

#### ■ MND011 PSYCHOLOGY I

The main objectives of this subject are: Students can explain concepts in the areas of social perception, transactional analysis and motivation, and give examples of these in their own and client behaviour; students can facilitate an interpersonal interaction using skills of transactional analysis and helping; students recognise difficulties in interaction and choose appropriate skills to overcome some difficulties.

**Credit Points:** 6 **Contact Hours:** 3 per week

#### ■ MND033 PSYCHOLOGY II

This subject seeks to enable students to outline assumptions of stage and learning theory approaches to understanding development; outline the following theories of development- Piaget, Erikson, social learning theory; state main research findings for each

of the following stages of the life cycle (childhood, adolescence, young adulthood, middle age, ageing); distinguish between normal and abnormal adjustment, and explain issues regarding the definition of "normal" behaviour; recognise when referral for specialised help is required; state types of programs available and basic assumptions of different treatment strategies.

**Credit Points:** 6      **Contact Hours:** 3 per week

#### ■ MND055 PSYCHOLOGY III

The main objective of this subject will be to educate students to identify problem behaviours in clients and indicate, select and use appropriate intervention and interpersonal skills to assist adjustments of people with psychological problems. The topics covered in the subject include neurosis; psychosis; child psychology; mental retardation and other psychological approaches.

**Prerequisite:** MND033

**Credit Points:** 6      **Contact Hours:** 3 per week

#### ■ MND066 PSYCHOLOGY IV

The purpose of this subject is to teach students to explain major theories of counselling; initiate the counselling process; identify appropriate goals and strategies; use appropriate skills and techniques to facilitate client change; evaluate the outcome of counselling.

**Prerequisite:** MND055

**Credit Points:** 6      **Contact Hours:** 3 per week

#### ■ MND129 PSYCHOLOGY FOR HEALTH PROFESSIONALS A

The purpose of this subject is to teach students to be able to demonstrate effective interpersonal skills in relation to patients and other health professionals; diagnose patient needs and respond appropriately; state causes of stress, effects on health, and indicate appropriate techniques to reduce stress; indicate techniques that may be used to modify patient attitudes and behaviour; demonstrate appropriate problem solving skills in their work situation.

**Credit Points:** 4      **Contact Hours:** 3 per week

#### ■ MND222 MANAGEMENT PERSPECTIVES

This subject will teach students to apply a basic knowledge of the management process to the administration of nursing service; analyse the decision-making process; utilise a management by objects approach in administering nursing service; utilise selected management techniques appropriately; explore methods by which nurse administrators may participate in and initiate change in organisations; examine the relevance of the concepts and principles derived from these models for the administration of nursing service.

**Credit Points:** 6      **Contact Hours:** 3 per week

#### ■ MND415 PSYCHOLOGY

The main purpose of this subject is to educate students to recognise the need for and demonstrate effective interpersonal skills in relation to clients and co-workers; diagnose client and co-worker needs and respond appropriately; state causes of stress, effects on health, and indicate appropriate techniques to reduce stress; outline theoretical frameworks for effective helping, characteristics of effective helpers, and demonstrate appropriate helping skills; develop strategies for dealing with groups and team indicate appropriate strategies for dealing with groups and team problems in their work area; and use appropriate research material to conceptualise issues, and provide a framework for practice.

**Credit Points:** 6      **Contact Hours:** 3 per week

#### ■ MND501 PSYCHOLOGY

In this subject, the students shall be able to demonstrate effective interpersonal skills in relation to patient and other health professionals, diagnose patient needs and respond appropriately; state causes of stress, effects on health, and indicate appropriate techniques to reduce stress; indicate techniques that may be used to modify patient attitudes and behaviour and demonstrate appropriate problem-solving skills in their work situation.

**Credit Points:** 6      **Contact Hours:** 3 per week

#### ■ MNN100 INTRODUCTION TO MANAGEMENT

This subject explores the process of management, both analytically and experientially. Using a series of case-studies and other learning activities a series of issues typical of those faced by managers are addressed. The tools of various disciplines are used to examine the definition and solution to these problems. Upon completion of the subject, students will be aware of the various means of management, variations over time in what is managed and in the techniques of management. They will be aware of international differences in the management process. Students will confront the gaps between how they think they ought to act, and how they do act in interpersonal managerial contexts. They will also be competent in understanding issues such as pricing, market research, promotional expenditure, staffing levels, wage negotiations and capital expenditure decisions.

**Credit Points:** 12      **Contact Hours:** 3 per week

#### ■ MNN106 MANAGERIAL ECONOMICS

This subject examines principles of economics pertinent to managerial decision-making in an economic environment. Topic areas include an introduction to economics, the macroeconomic environment, demand analysis and forecasting, cost analysis, market strategy, and investment analysis. At the completion of the subject students will be capable of applying economic principles to problems of resource allocation at the firm, in industry and the economy. A principal means of achieving this end will be completion of an industry study by each student, and an analysis of the Commonwealth budget strategy.

**Credit Points:** 12      **Contact Hours:** 3 per week

#### ■ MNN201 LABOUR-MANAGEMENT RELATIONS

This subject focuses on the development of managerial policy towards employee relations in the industrial and human resource management sphere. It looks at employee and union action and the role of governments and industrial tribunals. It assesses alternative methods and pressures to change traditional Australian systems. As a result of studying this subject a student will understand the Australian system of labour/management relations, be able to evaluate different systems of regulation in the employment area, understand negotiating processes and develop negotiating skills, and both appreciate and be able to utilise the resources required for mobilising change in this area.

**Credit Points:** 12      **Contact Hours:** 3 per week

#### ■ MNN202 DECISION SUPPORT SYSTEMS

Timely and accurate information is a management resource, and computers can process much of this information to augment and extend a manager's capacity. This subject provides an understanding of the importance, variety and value of both quantitative

and qualitative decision support systems, including a significant emphasis on computer-based information systems (such as data bases and expert systems) from the point of view of systems users rather than of specialist system analysis. With personal computers, managers can themselves build logical decision models, and so the subject also develops skills of building models, applying personal computer software (e.g., IFPS/Personal, spreadsheets) to analyse those models, and incorporating the analyses in complex managerial decision making processes. The subject will also address issues that relate to the human and organisational elements that support managerial decision making.

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ MNN203 GOVERNMENT BUSINESS RELATIONS

This subject examines the nature of the relationship between government and business, especially in the Australian context. It focuses both upon the historical development of the relationships that exist between the private and public sectors and of the impact that the policy decisions of each has on the operations of the other.

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ MNN204 MARKETING METHODS & PRACTICES

This introductory subject focuses on the role of marketing, and how marketing fits into the strategic processes of firms and institutions. The subject material covers the key marketing decision areas marketing concept, marketing research, consumer behaviour, marketing segmentation and positioning, product policy, pricing, promotion and distribution.

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ MNN302 PEOPLE IN ORGANISATIONS

The subject examines the internal operation of organisations and the behaviour of those in them. The subject explores a range of theories and models of individual and group behaviour including the structural and action perspectives, role theory, conflict and change. This exposure will encourage students to critically evaluate such theories and models, and their implications for management behaviour. Students will also be encouraged to develop the analytical, attitudinal, behavioural and emotional resources necessary to enable them to cope effectively with the complexities and demands of the human resource system in organisations.

**Prerequisite:** MNN100

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ MNN307 STATISTICAL METHODS

Statistics is the study of the procedures for collecting, analysing and interpreting the quantitative data required for effective decision making. The aim of this subject is to develop an understanding of the basic concepts and techniques of statistical analysis, with particular reference to their application in management. The campus computer may be used. Among the topics covered are graphs and charts, descriptive statistics, probability, sampling methods, analysis of sample results and regression and correlation.

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ MNN403 BUSINESS POLICY

Business Policy aims to integrate and focus students' earlier studies by developing a general manager's knowledge, analytical understanding and action-taking competencies. A general manager is involved in the decision processes of matching a whole

organisation's capabilities to its environment, which includes responsibilities to many stakeholders. Thus tasks of general managers are more complex and interdependent than those of specialist or functional managers. The paradigm adopted in this subject is that of strategic management - analyses of stakeholders, environments and capabilities, strategy formulation, and strategy implementation. Teaching methodologies (such as case studies and real-world projects) used during the semester will emphasise the process of management as well as analysis, and will emphasise contexts as well as concepts. At the conclusion of this subject, students should understand how and why strategic decisions are made, and be prepared to make them.

**Prerequisite:** MNN202

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ MNN404 APPLIED RESEARCH PROJECT

This subject allows the student to demonstrate an ability to plan and execute a significant piece of applied research, or to conduct an independent study of an applied area, with a minimum of supervision. Students will be individually assigned to a project supervisor and should contract with them on the nature of the project to be undertaken and the methodology to be used. The final project report, of a maximum of 15,000 words, must demonstrate an ability to identify and research a significant managerial problem area. A comprehensive literature review of the area, and an appreciation of other relevant studies in the area must be included.

**Prerequisite:** 10 subjects in the MBA

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ MNN601 CONTEMPORARY HEALTH CARE ISSUES

Topics include a comparison of the Australian system of health care with another health care system. The social, political, geographical and economic factors which have shaped the organisation of health care services at local, state, national and/or international levels; funding and resource management; the level and nature of responsibility for health care and health care maintenance; planning for structural change. Among the topics to be considered are consumerism and health quackery; principles of epidemiology and demography; descriptive and analytic measure of health; social distribution of health and illness including the implications of changing patterns of health and disease, the influence of lifestyle factors on health, inequalities in health practices and health status and national goals and targets for improving health.

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ MNN602 HEALTH PLANNING, MANAGEMENT & EVALUATION

This subject applies the theory and principles of planning, management and evaluation to health services. It includes a detailed analysis of health services planning techniques. Information requirements and decision making for the strategic management of health services are examined, together with the principles of financial and personnel management required for the effective development and utilisation of health care. Process and program evaluation in health services and the application of evaluation research and cost-effectiveness will be considered.

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ MNN805 CURRENT ISSUES IN AUSTRALIAN MANAGEMENT A

This subject runs concurrently with MNN806 to provide a review of the substantive disciplines within



management and to highlight key issues in the current theory and practice of management. MNN805 covers an analysis of critical environmental changes. It focuses on changes in the economy and in the social and political environment including industrial relations and technological change outlining the key issues that are current in these areas.

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ **MNN806 CURRENT ISSUES IN AUSTRALIAN MANAGEMENT B**

This subject runs concurrently with MNN805 to provide a review of the substantive disciplines within management and to highlight key issues in the current theory and practice of management. MNN806 will focus on current issues within strategic management, with particular emphasis on financial management, strategy and planning and the management of human resources.

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ **MNN807 RESEARCH DESIGN & DATA ANALYSIS**

This subject aims to update and develop student's knowledge of research theory and research procedures in the social sciences with special reference to practical applications in management areas such as economics, marketing and human resource management. This subject also introduces students to problems of logical inference, observation techniques and to advanced data analysis techniques and the advantages and disadvantages of their use in different contexts.

**Prerequisites:** MNN805/806

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ **MNN808 MANAGEMENT, TECHNOLOGY & SOCIAL CHANGE**

This subject provides a critical and cross-cultural review of the development of management theory and an analysis of management within complex organisations. The course focuses on managers as participants in an organisational dynamic that is both influenced by and influences such factors as the current state of technology, labour markets, world markets and government and community pressures.

**Prerequisites:** MNN805/806

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ **MNN811 POLICY ANALYSIS**

Government-business relationships are complex and dynamic. The formulation and implementation of policy in both government and business organisations is particularly sensitive to these relationships. This subject focuses upon the policy process in both public and private sector organisations with an emphasis on the relationship between these sectors as an important determining variable. Models of the policy process will be used as the major explanatory device, and government policies towards business as the context within which their relationships are examined.

**Prerequisites:** MNN805/806

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ **MNN812 ORGANISATIONAL PSYCHOLOGY**

The course looks at the nature of organisations and the way in which individuals groups and leaders function within organisations. Theories of organisational structures, and the determinants of organisational structure are explored, leading to an examination of climate and culture within organisations. The place of the individual within the organisations and the assumptions underlying the psychological theories

which guide our treatment of employees are investigated. The traditional and recent developments in leadership theory are examined. The course ends with a consideration of the future of organisations and changes which will occur.

**Prerequisites:** MNN805, MNN806

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ **MNN813 ADVANCED MARKETING MANAGEMENT**

An advanced study of marketing, marketing systems and market management decision processes within the contemporary structure of social cultural, political, economic, business and organisational environments. The subject will cover advanced marketing theory from both strategic and tactical perspectives with emphasis on the relationship between marketing and corporate policy as well as both the internal and external social and behavioural and motivational factors that facilitate marketing exchange opportunities. The subject will address those marketing issues associated with both profit and non-profit organisations and the relevance of marketing theory to these institutions, and will include the developing area of international marketing.

**Prerequisite:** MNN805, MNN806

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ **MNN814 ORGANISATIONAL ECONOMICS**

This subject examines the internal structure operation and growth of organisations with special reference to commercial institutions. A wide range of analytical tools is used to address major issues which include the determinants of the internal structure of organisations. The relative effectiveness of the institutions of market and hierarchy in reaching decisions; the determinants of vertical integration; the determinants of the growth and functioning of internal labour markets, and the reasons for the development of firms as economic institutions.

**Prerequisite:** MNN806

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ **MNN815 CASE STUDY PROGRAM**

The purpose of this subject is to both study and develop case studies in management. Australian Case Studies (for example from the Melbourne University Data Base) will be included in the program, which is intended to develop the student's ability to analyse interdisciplinary problems, explore research problems and learn techniques of team-management and problem solving.

**Prerequisites:** MNN807, MNN806, MNN808

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ **MNN816 INITIAL PROJECT IN MANAGEMENT**

An investigation by individuals or small groups of students into a managerially significant issue or problem. Students will be expected to choose an area of investigation that will be connected with their final project (MNN830 and MNN831). For example, this may take the form of a review of a section of their proposed area of project work or be part of an initial or pilot study.

**Prerequisite:** MNN815

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ **MNN820 APPLIED RESEARCH & DESIGN**

This subject aims to give the student an opportunity to test out some practical applications of research theory and analysis. Students will be required to develop a research proposal of interest to them and

related to each student's proposed research project (MNN830). The student will be required to conduct a preliminary or pilot study on a limited number of cases or areas of interest in his/hers proposed research field and to complete a research report justifying and assessing the chosen research methodology and demonstrating the research techniques that will be used in the full study. Annotated comments on the report must also show awareness of different designs and statistical techniques etc. that might have been used demonstrating a good grasp of elements covered in MNN810 and the earlier analyses of case study material in this course.

**Prerequisite:** MNN807

**Credit Points:** 12 **Contact Hours:** 3 per week

#### ■ MNN830 PROJECT & SEMINAR A

#### ■ MNN831 PROJECT & SEMINAR B

Students are required to write an original project on an area of interest in the management field. During the first year of a full-time program (second of part-time) the student should finalise his/her choice of area. The Management Graduate Studies Board will then nominate a supervisor for the research. Once the area of interest is chosen, the student will be expected to relate to that specialism in other courses for example in the Case Study Program, in initial Project in Management and in Applied Research Design. A seminar program will be designed to enable students to give presentations on the course of their research and learn from the research experience of their colleagues. The project itself must demonstrate the student's ability to combine analytic and theoretical ability with an understanding of practical features.

**Prerequisite:** MNN816, MNN820

**Credit Points:** 12 (MNN830); (24 MNN831)

**Contact Hours:** 3 per week

#### ■ MNP054 MANAGEMENT & MARKETING

On completion of this unit, the student will be able to understand the development of human resources in an organisation; identify, describe and apply the functions of management in a hospital/service industry setting; analyse and critically examine organisations, especially the structure of the organisation and its relevance to the achievement of objectives; understand and assess the role of marketing in an organisation; define and analyse the influence of the marketing function in public health and nutrition.

**Credit Points:** 12 **Contact Hours:** 3 per week

#### ■ MNPI12 QUALITY SYSTEM MANAGEMENT

Introduction to the role of quality in a modern company. Quality as a measure of both organisational performance and of products and services. Quality if a total management philosophy. Comparative management practices in quality; Japan, Europe and North America; application to Australia. Organising for quality; organisational structure; the quality plan; the manual of procedures. Managing for quality; use of statistics; continuous improvement implementing company-wide quality control.

**Credit Points:** 6 **Contact Hours:** 3 per week

#### ■ MNPI13 MANAGING COMMUNICATIONS FOR QUALITY

Communication as part of a quality process; management, employees, customers and suppliers in the communication network. Communicating the quality plan; commitment; policy; objectives. Employee participation: consultation and feedback to improve quality; quality circles and Australian organisations.

Management communication on quality; what information should be reported; how to present it; interpersonal and negotiation skills; written communications. Introduction to market research. Communicating with the market and with the business environment. Quality as a customer determination; the Deming cycle and its implications.

**Credit Points:** 6 **Contact Hours:** 3 per week

#### ■ MNPI23 HUMAN FACTORS IN QUALITY

Human behaviour concepts and their application to quality management. Interpersonal skills and organisational culture, intrapersonal factors. Concepts in motivation, perception, learning, attitudes, etc. Ergonomics and work place design, aspects of the work environment which can affect performance.

**Credit Points:** 6 **Contact Hours:** 3 per week

#### ■ MNP218 ECONOMIC ANALYSIS

Australia's international trading performance relative to other industrialised nations. The potential economic impact on quality control systems on primary, secondary and tertiary sectors of Australian industry. Economics of the firm and the quality factor, quality as a determinant of demand, demand elasticity, goods attribute theory. Tools for incorporating quality into investment decision: opportunity and marginal costs; obsolescence and economic life; repair and major overhaul; criteria for comparing economic alternatives.

**Credit Points:** 6 **Contact Hours:** 3 per week

#### ■ MNP309 TECHNOLOGICAL INNOVATION

Technological innovation focuses primarily on the nature and management of research and development and technical aspects of innovative products and processes. In this regard, attention is given to such issues as product design and development and the assurance of quality and reliability. Furthermore, the subject aims at acquainting students with the multifaceted nature of product feasibility. Where applicable students will be provided with techniques and strategies relating to the above areas.

**Credit Points:** 12 **Contact Hours:** 3 per week

#### ■ MNP310 VENTURE MANAGEMENT & DEVELOPMENT

The subject will introduce students to concepts and techniques in general management, the management of self and the management of innovation and change. This will include fundamentals of business planning, organising, controlling and staffing. The subject will also require students to formulate a comprehensive business plan for an actual invention by working closely with inventors/entrepreneurs.

**Prerequisites:** All other subjects in Product Entrepreneurship Strand (B) except ACP851

**Credit Points:** 12 **Contact Hours:** 3 per week

#### ■ MNP333 GRADUATE PROJECTS

This subject aims to give the graduate student an opportunity to undertake an applied project as part of the Graduate Diploma in Business Administration. The graduate project may be in any of the major areas within the School of Management subject to approval of the Graduate Studies Board. Students wishing to undertake the graduate project should seek the agreement of a staff member to act as supervisor. Students will have completed such subjects in the GDBA course or in previous study which in the opinion of the supervisor and the Graduate Studies Board will stand as appropriate prerequisites for the project.

**Credit Points:** 12 **Contact Hours:** 3 per week

#### ■ MNP508 AUSTRALIAN POLICY STUDIES

This subject has two central themes. One, the critical analysis of public policy content, using a series of case studies. Two, the development and analysis of explanatory models of the Australian policy process. The role of key institutions and groups in the policy process will be examined in relation to the case studies selected and the explanatory models.

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ MSA111 BIOLOGICAL CHEMISTRY I

**Offered:** Autumn

A course introducing the basic biochemistry of major groups of biologically important compounds, including carbohydrates, lipids, nucleic acids and protein synthesis and proteins. Biochemical homeostasis in biological systems is considered.

**Credit Points:** 8    **Contact Hours:** 4 per week

#### ■ MSA112 BIOLOGICAL CHEMISTRY II

**Offered:** Spring

A course which deals with basic metabolism. Topics include: biological catalysis; energetics of biological systems; catabolic and anabolic pathways for the metabolism of carbohydrates, lipids, amino acids and nucleic acids; metabolic control and integration.

**Prerequisites:** MSA111, MSA123

**Credit Points:** 8    **Contact Hours:** 4 per week

#### ■ MSA113 INTRODUCTORY BIOCHEMISTRY

**Offered:** Spring

Molecular aspects of cellular structure and organisation. Nomenclature and basic chemistry of simple biological molecules. Amino acids and proteins: fibrous and globular proteins; enzymes and factors affecting their activity. Structure, function and reactions of carbohydrates and lipids and their role as structural components and metabolites. Nucleic acids in cell growth and syntheses. Cell dynamics and analytical methods.

**Credit Points:** 8    **Contact Hours:** 3 per week

#### ■ MSA120 PERSPECTIVES IN MEDICINE

**Offered:** Autumn

An introduction to the health care area. The course includes presentations by specialists in areas of health care and delivery. Topics addressed include safety, functioning of laboratories in hospitals, country pathology services, clinical measurement and research laboratories as well as related topics such as stress management and the roles of various laboratory personnel.

**Credit Points:** 4    **Contact Hours:** 1 per week

#### ■ MSA121 PATHOLOGY

**Offered:** Spring

Application of scientific methods to the study of the general principles of disease processes and the major diseases of the organ systems. Correct understanding and use of pathological terms and concepts are emphasised.

**Prerequisites:** PNA170, PNA171

**Co-requisite:** PNA171

**Credit Points:** 8    **Contact Hours:** 2 per week

#### ■ MSA123 LABORATORY INSTRUMENTATION I

**Offered:** Autumn

A course of lectures and practical work on the principles, care and effective usage of basic laboratory equipment including glassware, plastics, balances, spectrophotometers, flame photometers, autotitrators, pH meters and specific ion meters. Programmable calculators and computers are used during the practical

course to illustrate modern methods of data manipulation. In addition the practical course aims to provide experience in the handling of chemicals, and in the preparation of reagents and standards. In this work emphasis is placed on aspects of laboratory safety.

**Co-requisite:** MSA111

**Credit Points:** 8    **Contact Hours:** 4 per week

#### ■ MSA124 LABORATORY INSTRUMENTATION II

**Offered:** Spring

A course of lectures and practical work designed to integrate the principles and techniques of macromolecule separation by a variety of chromatographic procedures and various methods of electrophoresis, dialysis, filtration and centrifugation.

**Prerequisite:** MSA123

**Credit Points:** 8    **Contact Hours:** 4 per week

#### ■ MSA161 MICROBIOLOGY I

**Offered:** Autumn

An introduction to the biology of bacteria, fungi, algae, protozoa and viruses, with consideration of structure, nutrition, reproduction, genetics, and classification systems. The practical course is aimed at developing the manipulative skills necessary for laboratory identification of microbial forms.

**Credit Points:** 8    **Contact Hours:** 3 per week

#### ■ MSA162 MICROBIOLOGY II

**Offered:** Spring

The growth of microbial populations and methods of controlling growth; sterilisation and disinfection methods; enzymic activity of microorganisms; the identification of the microorganisms more important in public health; host-parasite relationships and an introduction to immunity.

**Prerequisite:** MSA161

**Credit Points:** 8    **Contact Hours:** 3 per week

#### ■ MSA435 IMMUNOLOGICAL TECHNIQUES III

**Offered:** Autumn

The subject aims to provide an introduction to immunology with particular emphasis on the principle and performance of basic immunological techniques including blood grouping. Topics include antigens, antibodies and the immune system.

**Prerequisites:** PNA170, PNA171

**Credit Points:** 8    **Contact Hours:** 4 per week

#### ■ MSA436 TRANSFUSION TECHNIQUES IV

**Offered:** Spring

A course applying the basic knowledge of immunology gained in Immunological Techniques III to the study of human blood group systems. Topics include principles of immunohaematology, ABO blood group, Rh blood group system, compatibility testing, antibody identification, investigation of transfusion reactions, antenatal testing, quality control and intravenous fluids and blood products.

**Prerequisite:** MSA435

**Credit Points:** 8    **Contact Hours:** 4 per week

#### ■ MSA441 CLINICAL MICROBIOLOGICAL TECHNIQUES III

**Offered:** Autumn

The techniques used in isolation and identification of bacteria important in human and animal infections; the use of computerised data bases to assist in bacterial identification; tests for the sensitivity of bacteria to antibiotics; preparation, sterilisation, quality control and use of bacteriological media.

**Prerequisite:** MSA162

**Credit Points:** 8    **Contact Hours:** 4 per week

#### ■ MSA442 CLINICAL MICROBIOLOGICAL TECHNIQUES IV

**Offered:** Spring

The course aims to teach basic microbiological techniques in the following disciplines; virology, mycology and parasitology (enteric parasites). The practical periods are used to reinforce the theoretical aspects of the subject.

**Prerequisite:** MSA162

**Credit Points:** 8      **Contact Hours:** 4 per week

#### ■ MSA463 HISTOLOGICAL TECHNIQUES III

**Offered:** Autumn

A basic course presenting methods of preparing tissue samples for examination by the various forms of light microscopy. Topics include fixation, tissue processing, microtomy and an introduction to staining and light microscope techniques.

**Prerequisites:** PNA170, PNA171, MSA123

**Credit Points:** 8      **Contact Hours:** 4 per week

#### ■ MSA464 HISTOLOGICAL TECHNIQUES IV

**Offered:** Spring

An advanced course dealing with specialised methods for identifying tissue components. Topics include electron microscopy, histochemistry, immunohistochemistry. Emphasis is placed on the practical application of these methods in histopathology.

**Prerequisites:** MSA112, MSA463

**Credit Points:** 8      **Contact Hours:** 4 per week

#### ■ MSA465 CYTOLOGICAL TECHNIQUES III

**Offered:** Autumn

A course of lectures and associated practical sessions in cytological methods and normal gynaecological cytology. The course provides a basis for the study of clinical cytology offered in MSA466.

**Prerequisite:** MSA112, PNA170, PNA171

**Credit Points:** 8      **Contact Hours:** 4 per week

#### ■ MSA466 CYTOLOGICAL TECHNIQUES IV

**Offered:** Spring

A course of lectures and associated practical work presenting specialised preparative methods for non-gynaecological cytology and demonstrating the evaluation of specimens commonly encountered in routine diagnostic cytology.

**Prerequisite:** MSA465

**Credit Points:** 8      **Contact Hours:** 4 per week

#### ■ MSA471 CLINICAL BIOCHEMICAL TECHNIQUES III

**Offered:** Autumn

A study of the basic chemical procedures used in biochemical laboratories with emphasis on technique and accuracy. Topics include tests of renal, pancreatic, hepatic and gastric functions, and the estimation of serum proteins and lipids.

**Prerequisite:** MSA112, PNA171

**Credit Points:** 8      **Contact Hours:** 4 per week

#### ■ MSA472 CLINICAL BIOCHEMICAL TECHNIQUES IV

**Offered:** Spring

A study of more complex techniques used in clinical biochemical laboratories, including enzyme assays, estimations of electrolytes, blood gases, drugs, vitamins and hormones. Auto analytical techniques and quality control are also treated.

**Prerequisite:** MSA471

**Credit Points:** 8      **Contact Hours:** 4 per week

#### ■ MSA481 HAEMATOLOGICAL TECHNIQUES III

**Offered:** Autumn

A course of lectures and associated practical work in basic haematological techniques. Topics include the counting of blood cells, the preparation, staining and examination of blood films, the determination of the red cell indices, supravital staining techniques erythrocyte sedimentation rate and origin and maturation of blood cells.

**Prerequisite:** PNA170, PNA171

**Credit Points:** 8      **Contact Hours:** 4 per week

#### ■ MSA482 HAEMATOLOGICAL TECHNIQUES IV

**Offered:** Spring

This subject is an extension of MSA481 Haematological Techniques III. The student is introduced to the common blood disorders. A brief outline of their courses and laboratory investigation is given. However the main emphasis is the use of the basic haematological techniques and some specialised laboratory procedures used in the investigation of commonly encountered blood disease. The basic theory of haemostasis and the screening tests used in the investigation of the bleeding disorders are discussed.

**Prerequisite:** MSA481

**Credit Points:** 8      **Contact Hours:** 4 per week

#### ■ MSB101 MICROBIOLOGY I

**Offered:** Autumn, Spring

The subject acts as an introduction to the study of microbiology, biochemistry & biotechnology. The diversity of microbes is presented together with the various forms of microscopy used to study them. Important biological molecules, both inorganic and organic, are discussed with emphasis on the mode of action of enzymes and their role in energy production. A detailed study is made of the morphology of eukaryotic cells, prokaryotic cells and viruses.

**Credit Points:** 6      **Contact Hours:** 3 per week

#### ■ MSB102 MICROBIOLOGY II

**Offered:** Autumn

A continuation of basic microbiology introduced in MSB101. Lectures and practical exercises will deal with aspects of microbial nutrition, control of microbial populations, genetics, principles of taxonomy and the identification of bacteria.

**Prerequisite:** MSB101, MSB474

**Credit Points:** 6      **Contact Hours:** 3 per week

#### ■ MSB103 MICROBIOLOGY III

**Offered:** Spring

The subject deals with aspects of applied microbiology and the taxonomy of important groups of microorganisms, pathways of metabolism, genetic manipulation, biodegradation and bioleaching, fermentations, biological waste treatment, microbial ecology, agricultural microbiology and water and food microbiology.

**Prerequisite:** MSB102

**Credit Points:** 8      **Contact Hours:** 3 per week

#### ■ MSB120 INTRODUCTION TO PATHOLOGY

**Offered:** Spring

Application of scientific methods to the study of the general principles of disease processes and the major diseases of the organ systems. Correct understanding and use of pathological terms & concepts are emphasised.

**Prerequisite:** PNB125

**Credit Points:** 6      **Contact Hours:** 2 per week

### ■ MSB145 LABORATORY TECHNOLOGY II

**Offered:** Spring

A course dealing with the theoretical and practical aspects of instrumental analysis in the clinical laboratory. Topics covered include glassware, plastics, balances, spectrophotometers, flame photometers, autotitrators, pH meters and specific ion meters. Programmable calculators and computers are used during the practical course to illustrate modern methods of data manipulation. Emphasis is placed throughout on the effective use of the instruments.

**Prerequisite:** PHB150

**Co-requisites:** CHB242, PHB250

**Credit Points:** 8      **Contact Hours:** 3 per week

### ■ MSB150 MICROBIOLOGY

**Offered:** Spring

This subject examines the characteristics of medically important organisms, sterilisation and disinfection, host parasite relationships, resistance and immunity, infectious diseases, diagnosis, selected microbial infections, chemotherapy and development of resistance by microorganisms.

**Credit Points:** 6      **Contact Hours:** 2 per week

### ■ MSB201 MICROBIOLOGY

**Offered:** Spring

An introductory core unit of lectures and practical exercises in microbiology dealing with cytology, nutrition, genetics, control of microbial populations, and principles of taxonomy.

**Credit Points:** 6      **Contact Hours:** 3 per week

### ■ MSB301 MICROBIOLOGY I

**Offered:** Autumn

This subject considers the classification and identification of microorganisms. Emphasis is on their microbiology and reproduction. Organisms dealt with the protozoa, helminths, fungi and bacteria and algae.

**Credit Points:** 6      **Contact Hours:** 3 per week

### ■ MSB310 BIOCHEMICAL METHODOLOGY III

**Offered:** Autumn

A companion to MSB415 emphasising biochemical laboratory methods and practice and dealing with pH measurement and buffers, UV and visible spectrophotometry, chromatography, electrophoresis and isotope techniques.

**Prerequisites:** MSB101, MAB208

**Co-requisite:** MSB415

**Credit Points:** 8      **Contact Hours:** 4 per week

### ■ MSB320 SYSTEMATIC PATHOLOGY

**Offered:** Autumn

Detailed study of the diseases of the organ systems: cardiovascular, respiratory, alimentary, urogenital, nervous musculoskeletal, endocrine, haematologic and skin.

**Prerequisite:** MSB120

**Credit Points:** 8      **Contact Hours:** 4 per week

### ■ MSB402 MICROBIOLOGY II

**Offered:** Spring

This subject extends the principles covered in MSB301 and considers the classification and identification of microorganisms, their infectious capability, host responses and the role of microorganisms in nature and in industrial processes, the enumeration of microorganisms, the control of microbial populations. The classification of viruses and their reproductive cycle is briefly considered.

**Prerequisite:** MSB301

**Credit Points:** 6      **Contact Hours:** 3 per week

### ■ MSB405 LABORATORY COMPUTING III

**Offered:** Autumn

The first section of this subject extends the knowledge of computing gained in Laboratory Computing I by examining the programming process in more detail. This leads on to the second section which concentrates on the practical application and operation of computers in a laboratory. The use of software packages forms an important part of this course.

**Prerequisite:** CSB259

**Credit Points:** 8      **Contact Hours:** 3 per week

### ■ MSB408 VIROLOGY IV

**Offered:** Spring

This subject is an introductory course in virology and will include the range of viruses and virus diseases, their morphology and composition; virus replication, taxonomy and classification and the major virus groups; purification of viruses; diagnosis and virus assay; transmission and "life" cycles; control and eradication of viruses.

**Prerequisite:** MSB415 or MSB473 and MSB450

**Credit Points:** 8      **Contact Hours:** 4 per week

### ■ MSB410 BIOCHEMICAL METHODOLOGY IV

**Offered:** Spring

A companion subject to MSB416 which continues the studies of MSB310. This unit extends studies of chromatographic and electrophoretic methods, protein binding techniques and the methodology of protein and nucleic analysis.

**Prerequisite:** MSB310 **Co-requisite:** MSB416

**Credit Points:** 8      **Contact Hours:** 4 per week

### ■ MSB412 IMMUNOLOGY IV

**Offered:** Spring

A study of the mechanisms of the immune process including the nature of antigen, antibodies, antigen-antibody reactions, antibody formation, control of the humoral and cell-mediated immune responses, hypersensitivity and allergy and immunisation of man against infections.

**Prerequisites:** PNB465, MSB445

**Credit Points:** 8      **Contact Hours:** 4 per week

### ■ MSB415 BIOCHEMISTRY III

**Offered:** Autumn, Spring

A course of 28 lectures and 42 hours laboratory work introducing properties, biological molecules and at the molecular level with particular emphasis on cell structure and function, the chemistry of proteins, enzymology, energy production and utilisation, the chemistry and functions of carbohydrates.

**Prerequisites:** CHB242, PHB250, MSB101

**Credit Points:** 10      **Contact Hours:** 5 per week

### ■ MSB416 BIOCHEMISTRY IV

**Offered:** Autumn, Spring

A course of 28 lectures and 42 hours laboratory work considering aspects of carbohydrate metabolism in mammals, the chemistry and metabolism of lipids, the basic catabolism of amino acids, the chemistry and function of the nucleic acids, protein biosynthesis and the molecular bases of genetic mutation.

**Prerequisite:** MSB415

**Credit Points:** 10      **Contact Hours:** 5 per week

### ■ MSB420 IMAGING PATHOLOGY

**Offered:** Autumn

A study of the appearances of pathology on medical images with particular emphasis on the radiographic image.

**Prerequisite:** MSB320

**Credit Points:** 4      **Contact Hours:** 2 per week

#### ■ MSB421 ELECTRON MICROSCOPY

**Offered:** Spring

A course providing a theoretical background to the operation, scanning and transmission electron microscopes and applications in biological, materials and forensic science. Basic principles of specimen preparation will be covered, both materials and biological samples and the analytical capabilities of electron beam instruments will be introduced.

**Credit Points:** 6      **Contact Hours:** 2 per week

#### ■ MSB426 HAEMATOLOGY IV

**Offered:** Spring

In the first of the three haematology subjects the student is introduced to the theory of the origin, development and composition of normal blood. Laboratory tests (principles, outline of the techniques and interpretation) used in the screening of blood samples are discussed in detail. Basic haematologic tests included in this unit include: preparation, staining and examination of blood films, determination of the red cell indices, supravital staining, erythrocyte sedimentation rate, screening tests used in the investigation of a bleeding disorder.

**Prerequisite:** MSB445, PNB132, PNB465

**Co-requisite:** MSB416

**Credit Points:** 8      **Contact Hours:** 4 per week

#### ■ MSB430 DISEASE PROCESSES IV

**Offered:** Spring

A course introducing the principles of the study of disease and dealing with the causes and nature of circulation disorders, degenerative processes, metabolic and nutritional disorders, disturbances of development and growth, inflammation, infections and infestations, regeneration and repair, and neoplasia. The course includes the applications of general pathology to the study of diseases of the heart and circulatory system, digestive system, respiratory system, urogenital system, endocrine system, nervous system, haematologic system and skin.

**Prerequisite:** PNB163 or PNB131

**Co-requisites:** PNB465 or PNB435

**Credit Points:** 4      **Contact Hours:** 2 per week

#### ■ MSB445 LABORATORY TECHNOLOGY III

**Offered:** Autumn

The course deals with techniques encountered in the clinical laboratory. Topics include immunoassay, enzymic analysis, electrophoresis, isoelectric focusing, and chromatography (gel filtration, ion exchange, affinity, and high performance liquid chromatography). Emphasis is placed on the maintenance of accuracy, precision and quality control in the clinical laboratory.

**Prerequisite:** MSB145

**Credit Points:** 8      **Contact Hours:** 3 per week

#### ■ MSB450 MICROBIOLOGY III

**Offered:** Autumn, Spring

An introductory core unit of lectures and practical exercises in microbiology dealing with cytology, nutrition, genetics, control of microbial populations, and principles of taxonomy.

**Prerequisite:** MSB101 (except optometry students)

**Co-requisite:** MSB415 (except optometry students)

**Credit Points:** 6      **Contact Hours:** 3 per week

#### ■ MSB454 MICROBIOLOGY IV

**Offered:** Autumn, Spring

An extension of the core course in Microbiology (MSB450), includes aspects of microbial taxonomy, food and water microbiology, microbial ecology, in-

dustrial and agricultural microbiology and the role of microorganisms as infectious agents.

**Prerequisite:** MSB450 **Co-requisite:** MSB416

**Credit Points:** 8      **Contact Hours:** 4 per week

#### ■ MSB471 BIOCHEMISTRY IV

**Offered:** Autumn

A course of 28 lectures and 28 hours of laboratory work introducing the structures and functions of proteins, carbohydrates, lipids and nucleic acids, basic enzymology, mechanisms of cellular energy production and the role of ATP, an outline of the metabolism of carbohydrates, lipids and amino acids and the fundamentals of protein biosynthesis and molecular biology.

**Prerequisite:** CHB242

**Credit Points:** 8      **Contact Hours:** 4 per week

#### ■ MSB473 BIOCHEMISTRY III

**Offered:** Autumn

This subject will cover the biochemistry of proteins including structure-function relationships, enzymology including basic kinetics and control mechanisms relevant to metabolism, the mechanism and role of the Krebs (Citric Acid) Cycle including stoichiometry and energetics and bioenergetics including the mechanisms of electron transport and synthesis at ATP.

**Prerequisite:** MSB101, CHB150, CHB250

**Credit Points:** 6      **Contact Hours:** 3 per week

#### ■ MSB492 HISTOPATHOLOGY IV

**Offered:** Spring

An introductory course presenting methods of preparing tissue samples for examination by the various methods of light and electron microscopy. Topics include fixation, embedding, microtomy and an introduction to staining and microscopy techniques.

**Co-requisites:** PNB132, CHB242

**Credit Points:** 8      **Contact Hours:** 4 per week

#### ■ MSB510 FOOD MICROBIOLOGY

**Offered:** Autumn

A course of lectures and associated practical work dealing with aspects of the microbiology of foods and water. Topics include foodborne infections and intoxications; food hygiene; food ecology and its relationship to spoilage and preservation; fermentations; methods of microbiological examination of foods.

**Prerequisite:** MSB454

**Credit Points:** 8      **Contact Hours:** 3 per week

#### ■ MSB511 MICROBIAL PHYSIOLOGY & METABOLISM V

**Offered:** Autumn

An advanced course of lectures and practical sessions relating to the composition, organisation, structure and activity of the microbial cell (bacteria, yeasts and fungi). Topics include light microscopy and staining methods; cell structure; enrichment, isolation & growth of cultures; cells, populations and the kinetics of growth; biosynthesis of cellular materials; regulation of metabolism; microbial genetics; sporogenesis and germination.

**Prerequisite:** MSB454

**Credit Points:** 10      **Contact Hours:** 4 per week

#### ■ MSB512 VIROLOGY V

**Offered:** Autumn

A course of lectures and laboratory exercises dealing with the nature of viruses; viral replication; viral transmission; viral diseases of humans, animals and plants and their diagnosis; virus purification and assay.

**Prerequisite:** MSB454

**Credit Points:** 8      **Contact Hours:** 3 per week

### ■ MSB520 BIOCHEMISTRY V

Offered: Autumn

An extension of studies begun in MSB415 and MSB416 considering further aspects of carbohydrate metabolism emphasising non-mammalian systems, lipid metabolism including steroid biosynthesis, amino acid metabolism in mammalian and non-mammalian systems and regulation and integration of metabolism.

Prerequisite: MSB416

Credit Points: 12 Contact Hours: 5 per week

### ■ MSB521 BIOCHEMICAL SEPARATIONS

Offered: Autumn

An advanced course of lectures and a comprehensive project designed to integrate a number of specialist biochemical procedures including centrifugation, chromatography, electrophoresis and spectrophotometry. Students will be required to design and execute an experimental protocol for the separation of selected macromolecules.

Prerequisite: MSB310 Co-requisite: MSB520

Credit Points: 10 Contact Hours: 4 per week

### ■ MSB530 INTRODUCTORY MOLECULAR BIOLOGY

Offered: Autumn

An introductory subject of lectures and practical exercises in molecular biology including types and structures of DNA and RNA, the genetic code and protein synthesis; DNA replication, repair and mutability; transcription and translation; gene structure, function and expression in prokaryotes and eukaryotes; transferable DNA including plasmids, bacteriophage and transposable elements.

Prerequisite: MSB416, MSB454

Credit Points: 10 Contact Hours: 5 per week

### ■ MSB610 MICROBIAL TECHNOLOGY

Offered: Spring

An advanced course of lectures and practical sessions dealing with the industrial use of microorganisms. Topics include screening and strain development; large scale fermentation; membrane filtration; product recovery; biochemical engineering; production of: immunising agents and diagnostic reagents; primary and secondary metabolites of industrial importance; single cell protein; microbial transformations; biodegradation and bioleaching.

Prerequisite: MSB511

Credit Points: 10 Contact Hours: 5 per week

### ■ MSB611 APPLIED MICROBIOLOGY

Offered: Spring

An advanced course of lectures and practical sessions with emphasis upon the applied aspects of microbiology. Topics to include electron microscopy; systematics and nomenclature; plant and soil microbiology; preservation of cultures and cell lines.

Prerequisite: MSB511

Credit Points: 10 Contact Hours: 4 per week

### ■ MSB620 BIOCHEMISTRY VI

Offered: Spring

An extension of studies begun in MSB415 and MSB416, considering further aspects of protein chemistry, physical biochemistry, enzymology, bioenergetics, applied biochemistry.

Prerequisite: MSB416

Credit Points: 12 Contact Hours: 5 per week

### ■ MSB621 ANALYTICAL BIOCHEMISTRY VI

Offered: Spring

A companion unit to MSB620 which extends the subject matter of MSB410 into biochemical analysis. This subject treats enzyme-based analyses, advanced analysis using isotopes, immunoassays and specific methods for the major biomolecules.

Prerequisite: MSB410 Co-requisite: MSB620

Credit Points: 10 Contact Hours: 4 per week

### ■ MSB630 GENETIC ENGINEERING

Offered: Spring

This subject of lectures and practical exercises introduces the techniques in genetic engineering including the enzymes, the vectors and hosts, gene isolation and detection of recombinant genes; strategies of gene cloning, genomic and cDNA libraries and gene identification; and applications of genetic engineering.

Prerequisite: MSB530

Credit Points: 10 Contact Hours: 5 per week

### ■ MSB631 NUTRITIONAL BIOCHEMISTRY

Offered: Spring

This subject builds on a student's background of basic biochemistry. The effect of nutrient intake on metabolic balance and the use of laboratory data for monitoring metabolic balance are highlighted. Specific topics include: the digestion, absorption and assimilation of the macronutrients; the metabolic basis of primary nutritional diseases; biochemical assessment of nutritional status; the clinical significance of pathology laboratory data; integration of metabolism in a variety of pharmacological and pathological conditions which require dietary intervention; drug-nutrient interactions.

Prerequisite: PNB305 + PNB405

Co-requisite: MSB719

Credit Points: 10 Contact Hours: 4 per week

### ■ MSB712 IMMUNOLOGY V

Offered: Autumn

This unit builds on the basic understanding provided in Immunology IV to provide an understanding of the genetic control of antibody diversity, the function of antibody and complement at a molecular level, cell interactions in the immune response and immunological process in resistance to and recovery from infection. Practical classes place emphasis on the competent performance of immunological procedures rather than just a demonstration of immunological principles.

Prerequisite: MSB412, MSB416, MSB454

Credit Points: 8 Contact Hours: 4 per week

### ■ MSB713 IMMUNOHAEMATOLOGY VI

Offered: Spring

This course is designed to supply the competence in theoretical and practical blood transfusion which would be required of a scientist working in a hospital blood bank. The understanding of immunology gained in Immunology IV and Immunology V is applied to the area of blood banking. Topics include blood group systems, compatibility testing, antibody identification, antenatal serology, clinical use of blood and blood products and quality control.

Prerequisite: MSB712

Credit Points: 8 Contact Hours: 4 per week

### ■ MSB718 CLINICAL BIOCHEMISTRY V

Offered: Autumn

This course introduces the study of chemical aspects of human life in health and illness and discusses the application of chemical laboratory methods to diag-

nosis, control of treatment and prevention of disease. Topics include kidney, pancreas, liver and gastric functions, and the metabolism of lipids, carbohydrates and proteins.

**Prerequisite:** MSB416, MSB445, PNB465

**Co-requisite:** MAB252

**Credit Points:** 8      **Contact Hours:** 4 per week

■ **MSB719 CLINICAL BIOCHEMISTRY VI**

**Offered:** Spring

This course further develops clinical biochemistry with emphasis on enzymes, electrolytes, blood gases, drugs, vitamins, functions of the thyroid and adrenal gland, auto-analyses, quality control and steroid metabolism.

**Prerequisite:** MSB718

**Credit Points:** 8      **Contact Hours:** 4 per week

■ **MSB726 HAEMATOLOGY V**

**Offered:** Autumn

Haematology V is the first of two units in which the student is introduced to the diseases of the blood. Each blood disease is considered under the following headings: cause, laboratory investigation, prognosis, principles of treatment and laboratory monitoring of treatment. The blood disorders discussed in this unit include - bleeding disorders, iron deficiency anaemia, anaemia of chronic disease, macrocytic academia and pancytopenia.

**Prerequisite:** MSB426

**Credit Points:** 8      **Contact Hours:** 4 per week

■ **MSB727 HAEMATOLOGY VI**

**Offered:** Spring

This unit continues the study of blood diseases. The format follows the one outlined for Haematology V. Topics in this unit include: haemolytic anaemia, leukaemia and related diseases, paediatric haematology, blood disorders in the elderly and veterinary haematology.

**Prerequisite:** MSB726

**Credit Points:** 8      **Contact Hours:** 4 per week

■ **MSB755 MICROBIOLOGY V**

**Offered:** Autumn

A study of parasitology (85 semester hours) directed towards the laboratory diagnosis of parasitic disease in man. It consists of a systematic study of identification, life history, incidence, modes of infection, epidemiology and control of the parasites of man. Emphasis is placed on parasites evident in Australia and on those most likely to penetrate the quarantine barrier. A study of clinical mycology (20 semester hours) including characterisation of fungi responsible for systemic and superficial infections in man.

**Prerequisite:** MSB454

**Credit Points:** 16      **Contact Hours:** 7 per week

■ **MSB756 CLINICAL BACTERIOLOGY VI**

**Offered:** Spring

A study of clinical bacteriology, dealing with the characteristics, isolation and identification of bacteria implicated in human disease, the collection and examination of clinical specimens, the initial use of computerised data bases in bacterial identification and antibiotic sensitivity tests on laboratory isolates, the interpretation and clear reporting of results.

**Prerequisite:** MSB454, MSB416

**Credit Points:** 16      **Contact Hours:** 7 per week

■ **MSB761 FUNDAMENTALS OF MEDICINE I**

This subject provides medical record administration students with the theoretical basis for an understanding of the process of medical care. MRAs must

understand the nature of disease processes and the clinician's response to them in order to: design appropriate and efficient health information services for all types of health care facilities; communicate effectively with other health professionals involved in the care of patients; and assist in research and quality assurance programs in the health services. A review of the important and frequently encountered diseases and includes disorders of the major body systems.

**Prerequisite:** PNB262

**Credit Points:** 12      **Contact Hours:** 3 per week

■ **MSB762 FUNDAMENTALS OF MEDICINE II**

This subject continues the study of the process of medical care begun in Fundamentals of Medicine I. In addition it includes the study of the roles and functions of allied health professions, and of technological services in the diagnosis and treatment of disease.

**Prerequisite:** MSB761

**Credit Points:** 12      **Contact Hours:** 3 per week

■ **MSB792 HISTOPATHOLOGY V**

**Offered:** Autumn

A detailed study of techniques used in routine histopathology including methods for immunohistochemistry and transmission electron microscopy. Emphasis is placed on the application and relevance of methods to particular diagnostic areas.

**Prerequisite:** MSB492, MSB416, PNB465, MSB445, PNB132

**Credit Points:** 8      **Contact Hours:** 4 per week

■ **MSB793 HISTOPATHOLOGY VI**

**Offered:** Spring

The course reviews recent advances in diagnostic histopathology and introduces advanced and specialised methods including scanning electron microscopy and X-ray microanalysis. A major component is an overview of techniques for diagnostic cytology concentrating on specimen preparation and the microscopic detection of cancerous and other abnormal cells in human tissues and body fluids.

**Prerequisite:** MSB792

**Credit Points:** 8      **Contact Hours:** 4 per week

■ **MSD360 MICROBIOLOGY I**

**Offered:** Autumn

An introduction to the microbial world with emphasis on organisms causing disease in humans and on host-parasite relationships. The nature of bacteria, viruses, fungi and protozoa, their appearance and means of replication. Sterilisation and disinfection, antibiotics and chemotherapeutic agents. An introduction to bacterial genetics.

**Credit Points:** 3      **Contact Hours:** 2 per week

■ **MSD410 PATHOLOGY**

**Offered:** Autumn

An introduction to the process of disease and to the processes taking place in the production of conditions requiring clinical treatment.

**Prerequisite:** PND132 **Co-requisite:** PND430

**Credit Points:** 2      **Contact Hours:** 1 per week

■ **MSD460 MICROBIOLOGY II**

**Offered:** Spring

Sources of human infection and modes of transmission in bacterial, viral and fungal infections. Concepts of host resistance. Immunity to infectious disease and the broader concepts of immunology. Consideration of the more important microorganisms responsible for



human disease with emphasis on the causative agents, diagnostic measures, prophylaxis and therapy.

**Prerequisite:** MSD360

**Credit Points:** 6      **Contact Hours:** 3 per week

### ■ MSD680 EPIDEMIOLOGY

**Offered:** Autumn

An introduction into principles and application of epidemiology. The definition and application of terms and parameters. Agents of disease: physical, chemical, biological, social, and their interactions. Data used in epidemiology studies and their sources and accuracy. Methods and approaches. Examples will be freely chosen from communicable and non-communicable diseases and student will gain practice in model studies.

**Credit Points:** 6      **Contact Hours:** 3 per week

### ■ MSD751 INTRODUCTORY EPIDEMIOLOGY

**Offered:** Autumn

History and purposes of epidemiology, definitions and application of terms used in epidemiology, etiological agents of disease, measurement, methods and approaches.

**Credit Points:** 2      **Contact Hours:** 1 per week

### ■ MSN102 CELLULAR BASIS OF DISEASE

**Offered:** Spring

The following material will be presented in either lectures or tutorials. Cell injury and stress mechanisms. Cellular communication. The responses of organelles, cells and tissues to injury and stress including the following: immune, inflammation, thrombosis, ageing and neoplastic responses. Transplantation and regeneration.

**Prerequisite:** 24 Credit Points in Master of Health Science

**Credit Points:** 12      **Contact Hours:** 3 per week

### ■ MSN110 MOLECULAR BASIS OF DISEASE

**Offered:** Autumn

This course of study aims to provide an understanding, at the molecular level, of the aetiology, diagnosis and treatment of various diseases, by a study of molecular structures, biochemical reactions, and the integration and control of metabolism. Topics for study will include: gene structure and function, proteins-structure and molecular dysfunction, and enzymes-properties and alterations in diseases; metabolic integration and hormone action, hormones and organ disease, disorders of carbohydrate and lipid metabolism and chemotherapy.

**Prerequisite:** 24 Credit Points in Master of Health Science

**Credit Points:** 12      **Contact Hours:** 3 per week

### ■ MSN150 EPIDEMIOLOGY & RESEARCH STRATEGIES

**Offered:** Autumn

An introduction to the principles and applications of epidemiology with emphasis given to its scope and value in establishing disease aetiology. Course topics will include epidemiological methods (descriptive, analytical and experimental), epidemiological concepts, causal relationships, measurement of morbidity and mortality statistical overview of the health of the Australian population, and the investigation of an epidemic.

**Credit Points:** 12      **Contact Hours:** 3 per week

### ■ MSN306 PATHOPHYSIOLOGY

**Offered:** Spring

A study of selected pathophysiological states which represent major alteration in physiological functioning, occurring in each developmental phase.

**Prerequisite:** 72 Credit Points in Master of Health Science

**Credit Points:** 12      **Contact Hours:** 3 per week

### ■ MSN401 ADVANCES IN MEDICAL LABORATORY SCIENCE

**Offered:** Spring

A series of lectures to provide current and topical information across the general field of medical laboratory science. In addition, topics which have significant implications on the advancement of the profession will be presented, e.g., computers, laboratory automation, biotechnology, self-diagnosis. The lecture program will be flexible to allow for the incorporation of visiting speakers or for the introduction of a current interest topic. In addition to formal lectures the unit will offer tutorial and student seminar sessions.

**Prerequisite:** 72 Credit Points in Master of Health Science

**Credit Points:** 12      **Contact Hours:** 3 per week

### ■ MSN510 CLINICAL BIOCHEMISTRY I

**Offered:** Autumn

This subject is designed to emphasise the use of clinical biochemistry in the diagnosis of diseases. Disorders of fluid and electrolyte balance systems, disorders of the gastrointestinal, pancreatic and hepatobiliary systems, and disorders of the cardiovascular system and hypertension will be studied, concentrating on diagnosis and the interpretation of biochemical results. In addition, aspects of instrumentation and laboratory methods will be reviewed.

**Prerequisite:** 96 Credit Points in Master of Health Science

**Credit Points:** 12      **Contact Hours:** 3 per week

### ■ MSN511 HAEMATOLOGY I

**Offered:** Autumn

This subject studies in depth a number of haematologic diseases; their aetiology, laboratory investigation, pathogenesis, principles of treatment and laboratory monitoring. The study program includes seminars, oral presentations and assignments. Topics will be chosen from the following areas: haemopoietic kinetics, haematologic oncology, haemolytic disease, haemostasis and the haematologic manipulations of systemic disease. Assessment will be by formal examination, assignments and seminar participation.

**Prerequisite:** 96 Credit Points in Master of Health Science

**Credit Points:** 12      **Contact Hours:** 3 per week

### ■ MSN512 HISTOPATHOLOGY I

**Offered:** Autumn

An in-depth review of recent advances and modern methods in diagnostic histopathology. Major topics will include immunohistochemistry, enzyme histochemistry and transmission electron microscopy methods.

**Prerequisite:** 96 Credit Points in Master of Health Science

**Credit Points:** 12      **Contact Hours:** 3 per week

### ■ MSN515 MICROBIOLOGY I

**Offered:** Autumn

These courses will explore, in-depth, areas of bacteriology, virology, mycology and parasitology. Topics will be chosen to increase the knowledge and

understanding of microorganisms associated with human infection. Recent trends and developments in diagnostic microbiology will be studied. A critical approach to the assessment of laboratory practices and interpretation of data will be developed.

**Prerequisite:** 96 Credit Points in Master of Health Science.

**Credit Points:** 12      **Contact Hours:** 3 per week

#### ■ MSN530 DISSERTATION

**Offered:** Full year

The dissertation includes a supervised project in an approved topic area selected by the student. The project area may be novel, developmental or directed at an investigation of the introduction of a new system into the laboratory. Other areas which are considered appropriate include epidemiological analyses, laboratory safety, laboratory design or the efficacy of laboratory service. Each student will submit a written report in a style to present the data.

**Prerequisite:** 96 Credit Points in Master of Health Science.

**Credit Points:** 12      **Contact Hours:** 3 per week

#### ■ MSN610 CLINICAL BIOCHEMISTRY II

**Offered:** Spring

This subject is designed to emphasise the use of clinical biochemistry in the diagnosis of diseases. Endocrinology, disorders of the muscular and skeletal systems, disorders of special groups, nutrition and drugs, neurochemistry and neural disorders, cancer-associated biochemical abnormalities, and the seriously-ill patients will be studied, concentrating on diagnosis and the interpretation of biochemical results.

**Prerequisite:** MSN510

**Credit Points:** 12      **Contact Hours:** 3 per week

#### ■ MSN611 HAEMATOLOGY II

**Offered:** Spring

This unit has the same aims and objectives as for Haematology I. Topics considered in this unit include: age-related changes to the haemopoietic system, (perinatal haematology, paediatric haematology and haematology in the elderly), nutrition anaemias, the role of the forensic laboratory, transplantation, automation and quality control. Since outside lecturers participate in these specialist electives some interchange of topics between the two units may be necessary.

**Prerequisite:** MSN511

**Credit Points:** 12      **Contact Hours:** 3 per week

#### ■ MSN612 HISTOPATHOLOGY II

**Offered:** Spring

Investigate methods in diagnostic histopathology. The design and assessment of diagnostic programs to aid the identification of tumours and diseases of selected organ systems. A study of specialised techniques including aspiration cytology, scanning electron microscopy and analytical electron microscope methods.

**Prerequisite:** MSN512

**Credit Points:** 12      **Contact Hours:** 3 per week

#### ■ MSN615 MICROBIOLOGY II

**Offered:** Spring

These courses will explore in-depth, areas of bacteriology, virology, mycology and parasitology. Topics will be chosen to increase the knowledge and understanding of microorganisms associated with human infection. Recent trends and developments in diagnostic microbiology will be studied. A critical approach to the assessment of laboratory practices and interpretation of data will be developed.

**Prerequisite:** MSN515

**Credit Points:** 12      **Contact Hours:** 3 per week

#### ■ MSP104 ANALYTICAL ELECTRON MICROSCOPY

**Offered:** Offered: Autumn

An advanced course in electron microscopy with emphasis on the applications of labelling and analytical techniques. Methods covered in lectures and practical sessions include immunocytochemistry, in situ hybridisation, energy and wavelength dispersive X-ray analysis, electron energy loss spectroscopy and image analysis. Specialised preparation methods necessary for use of these techniques in SEM, TEM and STEM instruments are discussed, together with their advantages and limitations. Applications are drawn from the biological, materials and forensic science areas.

**Credit Points:** 10      **Contact Hours:** 5 per week

#### ■ MSP105 MOLECULAR DIAGNOSIS OF DISEASE

**Offered:** Spring

This subject consists of a series of lectures and laboratory exercises in advanced molecular techniques of disease diagnosis. Included will be collection and preparation of samples; the use of DNA probes in dot blots, Southern blots and Northern blots, RFLP analysis and DNA fingerprinting; advanced immunological techniques such as Elisa and Western blotting.

**Credit Points:** 10      **Contact Hours:** 4 per week

#### ■ MSP120 ADVANCED GENETIC ENGINEERING

**Offered:** Spring

An advanced course of lectures and practical exercises dealing with advanced techniques of recombinant technology. Topics include strategies used for gene cloning; production of cDNA and expression libraries; cloning in other bacterial, yeast, virus and plant vectors; isolation of mRNA; separation of chromosomes by electrophoresis; use of gene probes for disease diagnosis and differentiation; a sequencing as well as applications of genetic engineering in the areas of disease resistance, vaccines, hormones, food, plants and industrial microbiology.

**Credit Points:** 10      **Contact Hours:** 6 per week

#### ■ MSP121 RESEARCH STRATEGIES I

**Offered:** Autumn

This subject consists of a series of seminars presented by staff of the Faculties of Health Science and Science and other research scientists on research strategies and directions in their area of expertise. A series of tutorials and lectures on such topics as library searches, oral communications, written communications and ethics. Several written assignments in the areas of microbiology, biochemistry and biotechnology. A seminar presented by the student covering the background literature relevant to the student's research project.

**Credit Points:** 8      **Contact Hours:** 3 per week

#### ■ MSP122 RESEARCH STRATEGIES II

**Offered:** Spring

This subject consists of a series of seminars presented by staff of the Faculties of Health Science and Science and other research scientists on research strategies and directions in their area of expertise. A series of lectures and tutorials on such topics as biometry and computer analysis, research strategies, applying for grants, photography for scientists. A seminar presented by the student covering the results obtained in the student's research project.

**Credit Points:** 8      **Contact Hours:** 3 per week

### ■ MSP123 READINGS IN BIOTECHNOLOGY I

**Offered:** Autumn

This subject consists of the preparation of a literature review of direct and associated relevance to the Honours Project (MSP125). The literature review, under the guidance of the supervisor(s), will include an "in-depth" computer search, the presentation of a written paper demonstrating a considerable knowledge, understanding and appreciation of the literature as well as a critical appraisal of future research requirements.

**Credit Points:** 8      **Contact Hours:** 3 per week

### ■ MSP124 READINGS IN BIOTECHNOLOGY II

**Offered:** Spring

This subject consists of the preparation of a paper reporting the methods and results of investigations in the Honours project (MSP125). The paper will also include an introduction, analysis and discussion of the project in a style and length deemed to be appropriate by the Head of Department. In the course of this subject students should relate their project work to published work already undertaken in the relevant field.

**Credit Points:** 8      **Contact Hours:** 3 per week

### ■ MSP125 PROJECT

**Offered:** Full Year

All students undertaking Honours in biotechnology, biochemistry or microbiology will be required to select and undertake, in consultation with a supervisor, a suitable project.

**Credit Points:** 5      **Contact Hours:** 9 per week

### ■ MSP126 ADVANCED GENETIC ENGINEERING II

**Offered:** Autumn

A course in advanced methods used in recombinant DNA technology. Topics will include isolation and cloning of genomic DNA, M13 and plasmid sequencing, DNA amplification and pulse field gel electrophoresis.

**Credit Points:** 10      **Contact Hours:** 5 per week

### ■ MSP127 TOPICS IN BIOTECHNOLOGY I

**Offered:** Autumn

This subject consists of invited lectures, departmental seminars and external public lectures or seminars in the area of biotechnology including both research and business topics.

**Credit Points:** 4      **Contact Hours:** 1 per week

### ■ MSP128 TOPICS IN BIOTECHNOLOGY II

**Offered:** Spring

This subject is the second semester continuation of MSP127.

**Credit Points:** 2      **Contact Hours:** 1 per week

### ■ MSP145 PROJECT

**Offered:** Full Year

All students undertaking the Graduate Diploma in Biotechnology will be required to select, in consultation with their employer and an academic supervisor, a suitable research project. The aims of the project are that students, under supervision, should: participate in the selection of a suitable topic for investigation; conduct a literature search in the subject area; plan an experimental program which includes scheduling laboratory space, equipment and consumables; undertake work at the bench; record, assess and interpret the results; write a concise thesis in a standard form of presentation.

**Credit Points:** 16      **Contact Hours:** 3 per week

### ■ MSP152 FOOD MICROBIOLOGY

**Offered:** Autumn

An introduction to food borne pathogens, microbial spoilage of foods; preservation; fermentation; hygiene; microbiological standards.

**Credit Points:** 6      **Contact Hours:** 3 per week

### ■ NSB110 FOUNDATIONS OF NURSING PRACTICE I

**Offered:** Autumn

The processes underlying nursing practice; use of nursing framework to examine relationships amongst health, environment, individual and nurse; therapeutic nurse-client relationship.

**Credit Points:** 12      **Contact Hours:** 4 per week

### ■ NSB111 FOUNDATIONS OF NURSING PRACTICE II

**Offered:** Spring

Components of nursing role and associated functions; theoretical approaches to counselling, learning and teaching, management, research and change.

**Prerequisite:** NSB110 **Co-requisite:** NSB112

**Credit Points:** 18      **Contact Hours:** 7 per week

### ■ NSB112 CLINICAL PRACTICE I

**Offered:** Spring

Application of theoretical concepts to the provision of nursing care in a clinical setting, based on content in year one of the course.

**Co-requisite:** NSB111 **Credit Points:** 6

**Contact Hours:** 40/1 week block

### ■ NSB120 NURSING IN SOCIAL SYSTEMS I

**Offered:** Autumn

Concepts of environment and health, and their impact on health care; nursing as part of the health care system; development of nursing theory.

**Credit Points:** 9      **Contact Hours:** 3 per week

### ■ NSB130 PROFESSIONAL ASPECTS OF NURSING I

**Offered:** Spring

Use of professional framework to analyse nursing practice; international, national and State nursing organisations and authorities; legal and ethical aspects of practice.

**Credit Points:** 12      **Contact Hours:** 4 per week

### ■ NSB201 PRINCIPLES OF PATIENT CARE

**Offered:** Autumn

This introductory unit emphasises the ethical, legal and clinical accountability of the radiographer for safe patient care. The subject aims to develop in radiography students an awareness of their responsibilities in protecting patients and promoting their well-being.

**Credit Points:** 4      **Contact Hours:** 2 per week

### ■ NSB210 THEORIES OF NURSING I

**Offered:** Autumn

Analysis of selected models of nursing; interrelationship between research and theory development; application of models/theories to health care settings.

**Co-requisites:** NSB212, NSB240

**Credit Points:** 9      **Contact Hours:** 3 per week

### ■ NSB211 THEORIES OF NURSING II

**Offered:** Spring

Relationship of research and development of nursing theory; use of a nursing model for generating research problems; application of statistical principles to data analysis; preparation of research reports.

**Prerequisite:** NSB210 **Co-requisite:** MAB156

**Credit Points:** 9      **Contact Hours:** 3 per week

## ■ NSB212 CLINICAL PRACTICE II

**Offered:** Autumn

Use of a nursing model as a basis for giving nursing care; selection of setting (hospital or community) and clients according to developmental stage; emphasis on clinical, teaching and counselling components of nursing role.

**Prerequisite:** NSB112

**Co-requisites:** NSB210, NSB240

**Credit Points:** 6

**Contact Hours:** 40 hrs/1 wk block

## ■ NSB220 NURSING IN SOCIAL SYSTEMS II

**Offered:** Autumn

Characteristics of Australian society - family, education systems, religion, economic and political order, race and ethnicity; implications for nursing practice.

**Prerequisite:** NSB120

**Credit Points:** 9 **Contact Hours:** 3 per week

## ■ NSB230 PROFESSIONAL ASPECTS OF NURSING II

**Offered:** Spring

Factors promoting professional leadership in nursing - leadership theory, evaluation of practice, societal issues affecting practice; legislation related to health care delivery.

**Prerequisite:** NSB130

**Credit Points:** 12 **Contact Hours:** 4 per week

## ■ NSB240 NURSING PRACTICE I

**Offered:** Autumn

Extension of knowledge of theory and skills related to the clinical, teaching and counselling components of the nursing role; use of case studies for the assessment of individual needs according to stage of development.

**Co-requisites:** NSB212, NSB210

**Credit Points:** 18 **Contact Hours:** 8 per week

## ■ NSB241 NURSING PRACTICE II

**Offered:** Spring

Care co-ordinator, change agent and client advocate components of the nursing role - application of management principles to job assignment; documentation; co-operative interaction with other health professionals; application of principles of change; process of client advocacy.

**Prerequisite:** NSB240

**Credit Points:** 15 **Contact Hours:** 6 per week

## ■ NSB250 PSYCHOSOCIAL ADAPTION

**Offered:** Autumn

Aetiological factors related to adaptive and maladaptive behaviour; assessment techniques to identify maladaptation in health-related situations; nursing participation in therapeutic intervention.

**Credit Points:** 6 **Contact Hours:** 2 per week

## ■ NSB252 PATHOPHYSIOLOGY

**Offered:** Autumn

A study of selected pathophysiological states which represent major alteration in physiological functioning, occurring in each developmental phase.

**Credit Points:** 6 **Contact Hours:** 2 per week

## ■ NSD120 PERSPECTIVES FOR NURSING PRACTICE I

**Offered:** Autumn

Views nursing from a conceptual viewpoint, examines the roles of the nurse in the provision of health care. Distinguishes between the independent and interdependent functions of the nurse.

**Credit Points:** 3 **Contact Hours:** 2 per week

## ■ NSD121 CONCEPTS FOR NURSING PRACTICE I

**Offered:** Autumn

Addresses the relationship between the individual and health. Examines human needs/adaptation theory and related concepts. Introduces the concept of health promotion - maintenance.

**Co-requisite:** NSD122

**Credit Points:** 6 **Contact Hours:** 3 per week

## ■ NSD122 CLINICAL PRACTICE IA

**Offered:** Autumn

Focuses on the acquirement of knowledge and experience in interpersonal, problem solving and psychomotor skills. Experience takes place in the college laboratory and community placements.

**Credit Points:** 9 **Contact Hours:** 8 per week

## ■ NSD123 CLINICAL PRACTICE IB

**Offered:** Autumn

Provides experience in the application of concepts and principles addressed during semester. Focuses on the acquisition of a specific level of competence. Settings may include: kindergartens, schools, senior citizens centres and maternity units.

**Co-requisite:** NSD122 **Credit Points:** 9

**Contact Hours:** 120 hrs/3 wk block following semester

## ■ NSD220 PERSPECTIVES FOR NURSING PRACTICE II

**Offered:** Spring

Critiques health care in Australia. Analyses nursing in hospitals. Determines specific attributes of the nursing roles of clinicians and teacher.

**Prerequisites:** NSD120

**Credit Points:** 6 **Contact Hours:** 2 per week

## ■ NSD221 CONCEPTS FOR NURSING PRACTICE II

**Offered:** Spring

Addresses the concept of illness and the effect on individuals. Examines strategies to promote adaptation to illness/hospitalisation of individuals from each developmental stage. Focuses on health promotion - maintenance, restoration, reorganisation.

**Prerequisite:** NSD121 **Co-requisite:** NSD122

**Credit Points:** 6 **Contact Hours:** 3 per week

## ■ NSD222 CLINICAL PRACTICE IIA

**Offered:** Spring

Focuses on the acquisition of knowledge and experience in interpersonal, problem solving and psychomotor skills. Experience takes place in the college laboratory and hospitals.

**Credit Points:** 9 **Contact Hours:** 8 per week

## ■ NSD223 CLINICAL PRACTICE IIB

**Offered:** Spring

Provides experience in the application of concepts and principles addressed during semester. Focuses on the acquisition of a specific level of competence. The setting will be hospitals.

**Co-requisite:** NSD222 **Credit Points:** 9

**Contact Hours:** 120 hrs/3 wk block following semester

## ■ NSD320 PERSPECTIVES FOR NURSING PRACTICE III

**Offered:** Autumn

Reviews the concept of the health care team. Addresses the roles of care co-ordinator and researcher.

**Prerequisite:** NSD220

**Credit Points:** 6 **Contact Hours:** 2 per week

### ■ NSD321 CONCEPTS FOR NURSING PRACTICE III

Offered: Autumn

Addresses the effects of pathophysiology or psychopathology on human needs - respiratory, cardiovascular, fluid/electrolyte imbalance, surgical intervention. Examines strategies - independent and interdependent to promote health - maintenance, restoration reorganisation.

Prerequisite: NSD221 Co-requisite: NSD322

Credit Points: 6 Contact Hours: 3 per week

### ■ NSD322 CLINICAL PRACTICE IIIA

Offered: Autumn

Focuses on the acquisition of knowledge and experience in interpersonal, problem solving and psychomotor skills. Experience takes place in the college laboratory and hospitals.

Credit Points: 9 Contact Hours: 10 per week

### ■ NSD323 CLINICAL PRACTICE IIIB

Offered: Autumn

Provides experience in the application of concepts and principles addressed during semester. Focuses on the acquisition of a specific level of competence. The setting will be hospitals.

Co-requisite: NSD322 Credit Points: 9

Contact Hours: 120 hrs/3 wk block following semester

### ■ NSD420 PERSPECTIVES FOR NURSING PRACTICE IV

Offered: Spring

Concentrates on ethical aspects of nursing - theory and practice. Addresses the role of the nurse as client advocate.

Prerequisite: NSD220

Credit Points: 6 Contact Hours: 2 per week

### ■ NSD421 CONCEPTS FOR NURSING PRACTICE IV

Offered: Spring

Addresses the effects of pathophysiology or psychopathology on human needs - urinary, gastro-intestinal, musculo-skeletal. Examines emergency/critical aspects of care. Examines strategies - independent and interdependent to promote health - maintenance, restoration, reorganisation.

Prerequisite: NSD221 Co-requisite: NSD422

Credit Points: 6 Contact Hours: 3 per week

### ■ NSD422 CLINICAL PRACTICE IVA

Offered: Spring

Focuses on the acquisition of knowledge and experience in interpersonal, problem solving and psychomotor skills. Experience takes place in the college laboratory and hospitals.

Credit Points: 9 Contact Hours: 10 per week

### ■ NSD423 CLINICAL PRACTICE IVB

Offered: Spring

Provides experience in the application of concepts and principles addressed during semester. Focuses on the acquisition of a specific level of competence. The setting will be hospitals.

Co-requisite: NSD422 Credit Points: 9

Contact Hours: 120 hrs/3 wk block following semester

### ■ NSD520 PERSPECTIVES FOR NURSING PRACTICE V

Offered: Autumn

Addresses the concepts of the community and family as systems. Focuses on crises intervention as a

therapeutic process. Examines the role of the nurse as counsellor.

Prerequisite: NSD220

Credit Points: 6 Contact Hours: 3 per week

### ■ NSD521 CONCEPTS FOR NURSING PRACTICE V

Offered: Autumn

Addresses the effects of pathophysiology or psychopathology on human needs - reproductive, neurological, psychiatric. Examines the childbearing experience. Examines strategies - independent and interdependent to promote health - maintenance, restoration, reorganisation.

Prerequisite: NSD221 Co-requisite: NSD522

Credit Points: 6 Contact Hours: 4 per week

### ■ NSD522 CLINICAL PRACTICE VA

Offered: Autumn

Focuses on the acquisition of knowledge and experience in interpersonal, problem solving and psychomotor skills. Experience takes place in the college laboratory, community and hospital.

Credit Points: 9 Contact Hours: 15 per week

### ■ NSD523 CLINICAL PRACTICE VB

Offered: Autumn

Provides experience in the application of concepts and principles addressed during semester. Focuses on the acquisition of a specific level of competence. The setting will be the community, community agencies and hospitals.

Co-requisite: NSD522 Credit Points: 9

Contact Hours: 120 hrs/3 wk block following semester

### ■ NSD620 PERSPECTIVES FOR NURSING PRACTICE VI

Offered: Spring

Addresses nursing from a historical and contemporary perspective. Looks at such issues as the nurse as a professional, leadership and the expanding role of the professional nurse.

Prerequisite: NSD220

Credit Points: 6 Contact Hours: 3 per week

### ■ NSD621 CONCEPTS FOR NURSING PRACTICE VI

Offered: Spring

Addresses the effects of pathophysiology and psychopathology on human needs - integumentary, endocrine, oncologic, immunologic problems. Examines strategies - independent and interdependent to promote health - maintenance, restoration, reorganisation.

Prerequisite: NSD221 Co-requisite: NSD622

Credit Points: 6 Contact Hours: 4 per week

### ■ NSD622 CLINICAL PRACTICE VIA

Offered: Spring

Focuses on the acquisition of knowledge and experience in interpersonal, problem solving and psychomotor skills. Experience takes place in the college laboratory, community and hospitals.

Credit Points: 9 Contact Hours: 15 per week

### ■ NSD623 CLINICAL PRACTICE VIB

Offered: Spring

Provides experience in the application of concepts and principles addressed during semester. Focuses on the acquisition of a specific level of competence. The setting will be the community, community agencies and hospitals.

Co-requisite: NSD622

Credit Points: 9 Contact Hours: 120 per week

## ■ NSN102 CONCEPTS FOR ADVANCED CLINICAL NURSING

**Offered:** Autumn

In recent years there has been significant development in the role of the professional nurse as an advanced-level planner and provider of care. At this level, it is expected that nurses show a high degree of competence with an independent problem solving approach to client care and are able to interact widely on intra-, inter- and extra-professional levels. Therefore, this subject is designed to enhance knowledge and skills involved in the selection, provision and communication of contemporary nursing care.

**Credit Points:** 12    **Contact Hours:** 3 per week

## ■ NSN103 RESEARCH METHODS IN NURSING

**Offered:** Autumn

This subject will provide opportunities for students to develop skills in research design and data collection processes related to clinical phenomena. The data analysis component will emphasise statistical techniques applicable to nursing research design.

**Credit Points:** 12    **Contact Hours:** 3 per week

## ■ NSN104 PROFESSIONAL ISSUES IN NURSING

**Offered:** Spring

This subject is designed to enable students to expand the concept of the social significance of nursing as well as analyse the profession's accountability and responsibility to health care at local, national and international levels. Major topics of study will include theoretical and ideological perspectives of professional regulation, nursing's approach to professionalisation and the involvement of national and international nursing organisations in health policy formulation. Students will be given the opportunity to consider the influence of other disciplines and the historical environment on the development of ideas in nursing theory.

**Credit Points:** 12    **Contact Hours:** 3 per week

## ■ NSN105 MEDICAL/SURGICAL NURSING I

**Offered:** Spring

Advanced specialisation in medical-surgical nursing requires the ability to deal critically and effectively with particular clinical phenomena so that the health of the individual, family or community is promoted. This subject, which focuses on the individual as client, will provide opportunities for students to enhance previous clinical knowledge and skills so that excellence in nursing care may be realised.

**Prerequisites:** NSN101, NSN102

**Credit Points:** 12    **Contact Hours:** 3 per week

## ■ NSN106 MEDICAL/SURGICAL NURSING II

**Offered:** Autumn (NSM253); Spring (HSN257-NRS)

Advanced specialisation in medical-surgical nursing requires the ability to deal critically and effectively with particular clinical phenomena so that the health of the individual, family or community is promoted. This subject adds a family focus to that of the individual. It will provide opportunities for students to enhance previous clinical knowledge and skills so that excellence in nursing care may be realised.

**Credit Points:** 12    **Contact Hours:** 3 per week

## ■ NSN107 MEDICAL/SURGICAL NURSING III

**Offered:** Spring

Advanced specialisation in medical-surgical nursing requires the ability to deal critically and effectively with particular clinical phenomena so that the health of the individual, family or community is promoted.

This subject adds a community focus to that of the individual and family. It will provide opportunities for students to enhance previous clinical knowledge and skills so that excellence in nursing care may be realised.

**Credit Points:** 12    **Contact Hours:** 3 per week

## ■ NSN108 PRIMARY HEALTH CARE NURSING I

**Offered:** Spring

Advanced specialisation in primary health care nursing requires the ability to critically analyse issues and trends affecting the health and lifestyle of individuals, families and communities. This subject focuses on the individual as client and provides the foundation for the primary health care nursing stream by exploring a broad range of factors which together define the parameters of primary health care practice.

**Credit Points:** 12    **Contact Hours:** 3 per week

## ■ NSN109 PRIMARY HEALTH CARE NURSING II

**Offered:** Spring (HSN257-NRS); Autumn (NSM253)

Advanced specialisation in primary health care nursing requires the ability to critically analyse issues and trends affecting the health and lifestyle of individuals, families and communities. This subject focuses on the family as client and will provide opportunities to enhance previous clinical knowledge and skills through the application and evaluation of appropriate health education strategies.

**Credit Points:** 12    **Contact Hours:** 3 per week

## ■ NSN110 PRIMARY HEALTH CARE NURSING III

**Offered:** Spring

Advanced specialisation in primary health care nursing requires the ability to critically analyse issues and trends affecting the health and lifestyle of individuals, families and communities. This subject focuses on the community as client and will provide opportunities to enhance previous clinical knowledge and skills through the application and evaluation of appropriate health education strategies.

**Credit Points:** 12    **Contact Hours:** 3 per week

## ■ NSN111 PSYCHIATRIC/MENTAL HEALTH NURSING I

**Offered:** Spring

Advanced clinical practice in psychiatric-mental health nursing requires the ability to deal critically and effectively with interpersonal processes and strategic therapeutic use of self to restore, maintain, promote and prevent mental and psychiatric disability. Particular attention is given to interpersonal dynamics and behaviour as basic processes by which nursing assessment and intervention occur. This subject, which focuses on the individual as client, will provide opportunities to enhance previous clinical knowledge and skills through the application and testing of interpersonal theory and therapeutics.

**Credit Points:** 12    **Contact Hours:** 3 per week

## ■ NSN112 PSYCHIATRIC/MENTAL HEALTH NURSING II

**Offered:** Autumn (NSM253); Spring (HSN257-NRS)

In this subject, particular attention is given to family dynamics and behaviour as basic processes by which nursing assessment and intervention occur. By focussing on the family as client, it will provide opportunities to enhance previous clinical knowledge and skills through the application and testing of family theory and therapeutics.

**Credit Points:** 12    **Contact Hours:** 3 per week

■ **NSN113 PSYCHIATRIC/MENTAL HEALTH NURSING III**

**Offered:** Spring

Particular attention is given to current trends and approaches to the organisation and delivery of mental health services within Australia with selected international comparisons.

**Credit Points:** 12      **Contact Hours:** 3 per week

■ **NSN201 GRIEF & BEREAVEMENT**

**Offered:** Spring

Advanced level clinical practice in any field of nursing requires the ability to deal effectively and sensitively with grieving and bereaved individuals and families. The purpose of such practice is two fold: to enable the dying to experience a dignified and peaceful death; and to assist with the grieving/bereaved individual's families' adaptation to the loss. This subject will provide opportunities for student to enhance previous clinical knowledge and skills so that excellence in nursing care may be realised when caring for grieving and bereaved individuals and families in hospital and community settings.

**Credit Points:** 6      **Contact Hours:** 1.5 per week

■ **NSN202 NURSING & HEALTH EDUCATION PRACTICE**

**Offered:** Spring

This elective unit of study introduces practising nurses to the theoretical perspectives of health education. Particular attention is given to the development, implementation and evaluation of health education programs which focus on specific needs of groups and/or communities.

**Credit Points:** 6      **Contact Hours:** 1.5 per week

■ **NSN203 HUMAN SEXUALITY & HEALTH**

**Offered:** Spring

Human sexuality remains a controversial and highly debated topic in Australian society. Although there is a growing awareness amongst nurses of the significance of human sexuality to patient care, many nurses suffer from the same paucity of information, myths and misconceptions about sexuality that afflict the broader community. Students undertaking this elective will have the opportunity to explore a subject of considerable complexity within a nursing context.

**Credit Points:** 6      **Contact Hours:** 1.5 per week

■ **NSN204 PAIN: A NURSING FOCUS**

**Offered:** Spring

Pain is a universal experience which may cause individuals, together with their families, great distress. It is also a subjective, personal experience about which much is still being learnt and understood. This subject will provide opportunities for students to extend previous clinical knowledge and skills so that a contemporary and comprehensive approach to pain assessment and management may be initiated by the nurse.

**Credit Points:** 6      **Contact Hours:** 1.5 per week

■ **NSN205 INDEPENDENT STUDY**

**Offered:** Spring

The intention of this unit of study is to increase flexibility and provide the opportunity for in-depth study in an approved area of study interest to meet the diverse needs and interest of practising Registered Nurses.

**Credit Points:** 6      **Contact Hours:** 1.5 per week

■ **NSN301 ADVANCED NURSING EDUCATION I**

**Offered:** Spring

This subject is designed to increase students' knowledge of the theoretical bases of teaching and learning in order to promote and facilitate learning. Students from various disciplines on campus can be accommodated within this subject. Students of nursing will focus on the professional practice of that discipline.

**Credit Points:** 12      **Contact Hours:** 3 per week

■ **NSN302 ADVANCED NURSING EDUCATION II**

**Offered:** Autumn

This subject will provide opportunities for students to view measurement and evaluation as essential components of sound educational decision making. Students from various disciplines on campus are able to be accommodated within this subject. Students of nursing will focus on the professional practice of that discipline.

**Prerequisite:** NSN301

**Credit Points:** 12      **Contact Hours:** 3 per week

■ **NSN303 ADVANCED NURSING EDUCATION III**

**Offered:** Autumn

This subject will enable students to explore aspects of curriculum development which are relevant to their specific areas of interest. Students from various disciplines on campus are able to be accommodated with this subject. Students of nursing will focus on the professional practice of that discipline. Content will focus on perspectives, principal issues and theoretical approaches to curriculum assessment, planning implementation, evaluation and innovation.

**Prerequisite:** NSN301

**Credit Points:** 12      **Contact Hours:** 3 per week

■ **NSN304 ADVANCED NURSING MANAGEMENT I**

**Offered:** Spring

This unit will provide opportunities for students to examine the organisation context of nursing and health care from a number of theoretical perspectives and to enable them to contribute effectively to debate on the nature of nursing and health care organisation.

**Credit Points:** 12      **Contact Hours:** 3 per week

■ **NSN305 ADVANCED NURSING MANAGEMENT II**

**Offered:** Autumn

This subject provides an opportunity for students to examine management processes of nursing divisions within health care organisations enabling them to have creative input into the nursing environment.

**Prerequisites:** NSN301

**Credit Points:** 12      **Contact Hours:** 3 per week

■ **NSN307 ADVANCED NURSING CLINICAL I**

**Offered:** Spring

This subject allows the student to develop an advanced clinical nurse practice role. It focuses on the role of the advanced clinical nurse practitioner; and includes role creation/development including role theory, role application, role analysis and strategies for implementing role. Students will develop a conceptual framework for advanced clinical practice which will include but not be limited to: expert clinical practitioner advocate, change agent, professional role model, clinical teacher/mentor and motivator.

**Prerequisite:** Clinical Specialisation III

**Credit Points:** 12      **Contact Hours:** 3 per week

**■ NSN308 ADVANCED NURSING CLINICAL II****Offered:** Autumn

This subject allows the students to implement functions of the advanced clinical practice role. The content of this subject focuses on implementing the advanced clinical practice role in a selected area. It will provide experiences to strengthen clinical skill, knowledge and judgment.

**Prerequisite:** NSN301**Credit Points:** 12    **Contact Hours:** 3 per week**■ NSN309 ADVANCED NURSING CLINICAL III****Offered:** Autumn

This subject is designed to develop knowledge and skill in the consultative function of the advanced clinical practitioner role. It also develops skill in the implementation of an innovative change utilising skills from leadership, innovation, and change theory. This subject examines consultation theory and practice in detail. The areas of study include a focus on relationship between the nurse consultant and the client, problems that can arise, planning intervention and evaluation of the consultative process.

**Prerequisite:** NSN301**Credit Points:** 12    **Contact Hours:** 3 per week**■ NSN401 STRATEGIES FOR NURSING RESEARCH****Offered:** Autumn

This subject introduces postgraduate students to the use and application of qualitative research techniques in nursing practice. The content will be selected from techniques such as participant observation and unstructured interviewing as well as qualitative approaches in nursing research such as phenomenology, grounded theory, ethnography and historical research.

**Credit Points:** 12    **Contact Hours:** 3 per week**■ NSN403 DISSERTATION****Offered:** Autumn

The dissertation should be a substantive and original research study. It should provide evidence that the student has identified a significant problem, reviewed the relevant literature, developed appropriate methodology to collect and analyse data, implemented the study and presented the findings in a form consistent with school requirements.

**Prerequisites:** NSN401, MSN150**Credit Points:** 24    **Contact Hours:** 6 per week**■ NSP171 PRINCIPLES OF EDUCATION****Offered:** Autumn

Learning theories; the teaching process; readiness for learning; organisation of instruction - group and individual methods; teaching techniques; audio and visual aids; and place of evaluation in educational process. Practice of principles of education will be incorporated in the practice of diet therapy as students practise instructing patients on therapeutic diets.

**Credit Points:** 4    **Contact Hours:** 2 per week**■ OPB132 OPHTHALMIC OPTICS II****Offered:** Spring

An introduction to ophthalmic optics. Optical properties of spherical and astigmatic lenses and of ophthalmic prisms. Bifocals, multifocals and special lens types. Ophthalmic lens materials and lens quality. The ophthalmic prescription, its interpretation and verification.

**Prerequisite:** PHB150 **Co-requisite:** PHB240**Credit Points:** 12    **Contact Hours:** 4 per week**■ OPB312 VISUAL SCIENCE III****Offered:** Autumn

The performance of the eye as an optical system is considered in the context of ocular aberrations, refractive errors and image formation and quality. An introduction to visual performance characteristics includes absolute and relative thresholds, dark and light adaptation and relative luminous efficiency curves.

**Prerequisite:** PHB240 **Co-requisite:** PHB340**Credit Points:** 14    **Contact Hours:** 5 per week**■ OPB401 OCULAR & REGIONAL ANATOMY****Offered:** Spring

The gross anatomy of the head and neck region with particular reference to the central nervous system. The macroscopic and microscopic anatomy of the orbit, extraocular muscles, eyelids, lacrimal apparatus, cornea, conjunctiva, sclera, uveal tract, lens, retina, optic nerve, aqueous, vitreous and the neural pathways and vascular circulation subserving vision. Ocular embryology.

**Prerequisite:** PNB363**Co-requisites:** PNB435; OPB412**Credit Points:** 8    **Contact Hours:** 3 per week**■ OPB412 VISUAL SCIENCE IV****Offered:** Spring

Visual performance is examined with respect to its spatial and temporal characteristics. Perceptual aspects of vision as well as binocular and colour vision performance characteristics are also included.

**Prerequisites:** OPB312; PHB340**Co-requisite:** OPB401**Credit Points:** 14    **Contact Hours:** 5 per week**■ OPB504 OPHTHALMIC OPTICS V****Offered:** Autumn

A continuation of OPB132 Ophthalmic Optics II, with emphasis on problems with spectacle lenses. The practical application of theory to ophthalmic dispensing in the laboratory.

**Prerequisites:** OPB132, PHB340**Credit Points:** 6    **Contact Hours:** 4 per week**■ OPB505 CLINICAL OPTOMETRY V****Offered:** Autumn

The clinical application of techniques learnt in OPB509 Optometry V (studied concurrently) in the management of patients presenting for eye examinations.

**Prerequisite:** OPB412**Co-requisites:** OPB509, OPB508, OPB527**Credit Points:** 8    **Contact Hours:** 4 per week**■ OPB508 OCULAR PHYSIOLOGY****Offered:** Autumn

This course covers all aspects of ocular physiology including the vegetative physiology of various ocular structures, visual neurophysiology and an introduction to electrophysiological techniques.

**Prerequisites:** OPB412, OPB401**Co-requisites:** OPB503, OPB505, OPB527**Credit Points:** 8    **Contact Hours:** 4 per week**■ OPB509 OPTOMETRY V****Offered:** Autumn

The aim of this subject is to teach the theory and practice of clinical procedures which are used in routine eye examinations.

**Prerequisites:** OPB412**Co-requisite:** OPB508, OPB505**Credit Points:** 18    **Contact Hours:** 9 per week



### ■ OPB527 DISEASES OF THE EYE V

**Offered:** Autumn

The detection, diagnosis, referral and management of ocular disease. General pathological considerations. The writing of reports, referral letters and referral procedures. The nature, aetiology and management of congenital, developmental, dystrophic and degenerative anomalies of the external and internal ocular structures and ocular adnexae. The ocular manifestation of systemic disease including cardio-vascular, metabolic, endocrine, central nervous system and malnutritional disorders.

**Prerequisites:** PNB435, OPB401, MSB430

**Co-requisites:** OPB505, OPB508, OPB509

**Credit Points:** 8 **Contact Hours:** 3 per week

### ■ OPB605 CLINICAL OPTOMETRY VI

**Offered:** Spring

The continuation of OPB505 Clinical Optometry V. The clinical application of techniques learnt in OPB509 Optometry V and OPB609 Optometry VI (studied concurrently) in the management of patients presenting for eye examinations.

**Prerequisites:** OPB505

**Co-requisites:** OPB608, OPB609, OPB627

**Credit Points:** 8 **Contact Hours:** 4 per week

### ■ OPB608 OCULAR PHARMACOLOGY

**Offered:** Spring

General pharmacological principles are presented as background to a study of pharmacological profiles of ophthalmic preparations; both diagnostic and topical therapeutic agents are considered. Particular emphasis is placed on those ophthalmic drugs used to facilitate an eye examination.

**Prerequisites:** OPB508, OPB509

**Co-requisites:** OPB605, OPB609, OPB627

**Credit Points:** 6 **Contact Hours:** 3 per week

### ■ OPB609 OPTOMETRY VI

**Offered:** Spring

This subject is a continuation of the theory and practice of routine and advanced clinical procedures which are used when conducting a complete eye examination. The areas covered include ocular photography, the management of binocular vision anomalies, methods of examining the visual fields and the measurement of intra-ocular pressure.

**Prerequisites:** OPB508, OPB509

**Co-requisites:** OPB608, OPB605

**Credit Points:** 16 **Contact Hours:** 8 per week

### ■ OPB617 CONTACT LENS STUDIES VI

**Offered:** Spring

This subject provides an introduction to the basic concepts of contact lens fitting. Areas covered include contact lens instrumentation, contact lens materials and designs, fitting and consultation techniques. The practical component of the subject focuses upon the fitting of contact lenses.

**Prerequisites:** OPB509, OPB505, OPB527

**Co-requisites:** OPB609, OPB605, OPB627

**Credit Points:** 6 **Contact Hours:** 2 per week

### ■ OPB627 DISEASES OF THE EYE VI

**Offered:** Spring

A continuation of OPB527 Diseases of the Eye V. The anatomical, physiological and pathological aspects of glaucoma. Its symptomatology, methods of detection and diagnosis, management and prognosis. Inflam-

matory diseases, trauma and tumours of the external and internal ocular structures and ocular adnexae.

**Prerequisite:** OPB527

**Co-requisites:** OPB605, OPB608, OPB609

**Credit Points:** 8 **Contact Hours:** 4 per week

### ■ OPB705 CLINICAL OPTOMETRY VII

**Offered:** Autumn

This is the clinical application of the procedures studied in OPB609 Optometry VI and OPB709 Optometry VII, and includes the management of patients in the clinical situation.

**Prerequisite:** OPB605

**Co-requisites:** OPB709, OPB717

**Credit Points:** 24 **Contact Hours:** 13

### ■ OPB709 OPTOMETRY VII

**Offered:** Autumn

This subject is a continuation of OPB609 Optometry VI and provides knowledge and understanding of the theory and clinical procedures involved in paediatric optometry, low vision, colour vision and aniseikonia.

**Prerequisite:** OPB609 **Co-requisite:** OPB705

**Credit Points:** 10 **Contact Hours:** 5 per week

### ■ OPB717 CONTACT LENS STUDIES VII

**Offered:** Autumn

A series of lectures and practical sessions in advanced aspects of contact lens practice. The subject includes topics such as the physiological consequences of contact lens wear, management of contact lens patients, and fitting of lenses for keratoconus, extended wear and presbyopia. Practical sessions provide training in advanced diagnostic and fitting techniques.

**Prerequisite:** OPB617

**Co-requisite:** OPB705, OPB709

**Credit Points:** 6 **Contact Hours:** 2 per week

### ■ OPB750 PROJECT

**Offered:** Full year

Students are required to undertake project work in semester 7 and 8 of the course. Students work in groups of up to 3 on projects of their own choosing or on a topic chosen from a suggested list. Project topics must be original. Students conduct a literature search (including a computer based search in conjunction with a reference librarian). They decide on the experimental hypotheses, plan and execute the experiment, analyse the results and write a report in manuscript form which it is hoped will be suitable for publication in the open literature. Students are encouraged to seek assistance from staff members of the Department of Optometry and other Departments within the University. Oral presentations are given by each group to their peers, third year students and staff, as part of a formal semester 8 colloquium.

**Co-requisites:** OPB709, MAB258

**Credit Points:** 5 **Contact Hours:** 3 per week

### ■ OPB803 OCCUPATIONAL/PUBLIC HEALTH OPTOMETRY

**Offered:** Spring

A course of study to introduce the basic concepts of eye safety and visual ergonomics. Content will include eye safety programs, occupational vision screening, legal aspects of eye safety, eye hazards - traumatic, radiation and chemical, eye protection, visual ergonomics and illumination engineering.

**Prerequisite:** OPB709 **Co-requisite:** OPB805

**Credit Points:** 6 **Contact Hours:** 2 per week

### ■ OPB805 CLINICAL OPTOMETRY VIII

**Offered:** Spring

A continuation of OPB705 Clinical Optometry VII. This subject places emphasis on the students decision

making skills in the evaluation, care and treatment of patients who may have a wide range of visual disorders.

**Prerequisites:** OPB705, OPB717

**Co-requisite:** OPB803

**Credit Points:** 32      **Contact Hours:** 17 per week

#### ■ PHA154 INTRODUCTORY PHYSICS

**Offered:** Autumn

An introduction to the basic concepts involved in the study of linear mechanics, ideal gases, liquids and solids, elasticity, surface tension, temperature and its measurements, heat content, heat transfer, reflection and refraction of light at plane surfaces, use of lenses in simple optical instruments, current electricity, e.m.f. resistance, circuit analysis, heating effect, electrical measurements using moving coil galvanometers, potentiometers and Wheatstone bridge, magnetic field with simple applications. A series of laboratory experiments emphasises the above concepts.

**Credit Points:** 8      **Contact Hours:** 3 per week

#### ■ PHB104 INTRODUCTORY PHYSICS

**Offered:** Autumn

This subject is intended to give the student a grounding in basic physics topics selected from the following areas: mechanics, heat, electricity, and magnetism and light.

**Credit Points:** 6      **Contact Hours:** 3 per week

**Note:** This subject is not compatible with Senior Physics.

#### ■ PHB110 PHYSICS IA

**Offered:** Autumn

A course of lectures, tutorials and laboratory work covering dynamics, fluid mechanics, mechanical properties of matter, gravitation and geometrical optics.

**Co-requisite:** PHB104 unless Senior physics has been undertaken.

**Credit Points:** 8      **Contact Hours:** 3 per week

#### ■ PHB111 PHYSICS IB

**Offered:** Autumn

A course of lectures and laboratory work on a.c. and d.c. circuit theory, electronics, vibrations and waves, sound.

**Co-requisite:** PHB104 unless Senior Physics has been undertaken.

**Credit Points:** 8      **Contact Hours:** 3 per week

#### ■ PHB132 ENGINEERING PHYSICS IA

**Offered:** Autumn

A basic subject in the physics of waves and optics; including moving and stationary waves in various media, interference of waves, beats acoustics and shock waves and measurement of sound; geometrical and physical optics including reflection, refraction, dispersion, interference and diffraction, polarisation, optical instruments, design and resolution, and photometry.

**Credit Points:** 6      **Contact Hours:** 3 per week

#### ■ PHB170 PHYSICS FOR SURVEYORS

**Offered:** Autumn

Mechanics. Geometrical optics. Physical optics. Quantum optics. Physics of materials. Physics of the lower atmosphere. Sound. Electromagnetic fields. Electronics.

**Credit Points:** 12      **Contact Hours:** 6 per week

#### ■ PHB178 PRINCIPLES OF MEDICAL RADIATIONS

**Offered:** Autumn

An introduction to the principles of medical imaging and to the methods of detection, diagnosis and treatment of cancer.

**Credit Points:** 10      **Contact Hours:** 5 per week

#### ■ PHB210 PHYSICS IIA

**Offered:** Spring

A course of tutorials, lectures and laboratory work on thermal physics and electromagnetic fields.

**Prerequisite:** PHB104 or Senior physics

**Credit Points:** 8      **Contact Hours:** 3 per week

#### ■ PHB211 PHYSICS IIB

**Offered:** Spring

A course of lectures and laboratory work on physical optics, and modern and radiation physics.

**Prerequisite:** PHB104 or Senior physics

**Credit Points:** 8      **Contact Hours:** 3 per week

#### ■ PHB232 ENGINEERING PHYSICS IIA

**Offered:** Spring

A basic subject in the physics of heat and properties of matter; including the kinetic theory of gases, temperature scales and thermometers, heat and heat measurement, thermodynamics and the molecular properties of matter; gravitational fields; basic radiation physics.

**Prerequisite:** PHB132

**Credit Points:** 6      **Contact Hours:** 3 per week

#### ■ PHB260 PHYSICS IIG

**Offered:** Spring

A course of lectures and tutorials in thermal physics, electrostatics, magnetostatics, electromagnetic fields and waves, quantum physics, nuclear and radiation physics.

**Credit Points:** 8      **Contact Hours:** 4 per week

#### ■ PHB272 RADIATION PHYSICS I

**Offered:** Spring

A course of lectures and practical sessions on electrodynamics, electromagnetism, the production of X-rays and their interaction with matter.

**Credit Points:** 12      **Contact Hours:** 5 per week

#### ■ PHB275 PROCESSING TECHNOLOGY

**Offered:** Spring

A study of the processes involved in the production of a visible image in radiography, including: latent image formation, processing, techniques and equipment relevant to radiography.

**Credit Points:** 4      **Contact Hours:** 2 per week

#### ■ PHB276 GENERAL RADIOGRAPHY I

**Offered:** Spring

A program of lectures and practical sessions relating to radiography of the skeletal system.

**Prerequisite:** PHB173 or PNB125

**Co-requisite:** PNB225

**Credit Points:** 14      **Contact Hours:** 7 per week

#### ■ PHB279 CLINICAL RADIOGRAPHY I

**Offered:** Spring

Practical programs carried out in approved clinical departments. Specific experiences relate to topics introduced in PHB276.

**Prerequisite:** as for PHB310

**Credit Points:** 4      **Contact Hours:** 2 per week

#### ■ PHB286 TREATMENT PLANNING I

**Offered:** Spring

An introduction to the techniques of radiotherapy treatment planning.

**Credit Points:** 6      **Contact Hours:** 3 per week

#### ■ PHB287 RADIOTHERAPY TECHNIQUE I

**Offered:** Spring

An introduction to the basic techniques of radiotherapy including beam direction and defining devices, modification of beam and dosimetry.

**Prerequisite:** PHB183 **Co-requisite:** PNB225

**Credit Points:** 12      **Contact Hours:** 6 per week

### ■ PHB289 CLINICAL RADIOTHERAPY I

Offered: Spring

Practical programs carried out in approved clinical departments. Specific experiences relate to topics introduced in PHB287.

Credit Points: 4      Contact Hours: 2 per week

### ■ PHB308 ELECTRONICS I

Offered: Autumn

A program of lectures and laboratory work covering basic measurement techniques and instrumentation, solid state components such as diodes, transistors, FETs and optoelectronics, feedback theory and applications.

Prerequisite: 2 semesters tertiary study (PHB111 preferred)

Credit Points: 8      Contact Hours: 3 per week

### ■ PHB310 WAVE THEORY & A.C. CIRCUITS

Offered: Autumn

A course of lectures and tutorials on undamped and damped oscillations, forced oscillations, coupled oscillations, wave transmission and reflection, examples of wave systems, a.c. network analysis, resonance, transformers, bridges.

Prerequisite: At least three of PHB110, PHB111, PHB210, PHB211 and at least two of MAB211, MAB224, MAB225

Co-requisite: MAB411 is recommended

Credit Points: 8      Contact Hours: 3 per week

### ■ PHB311 OPTICS & ACOUSTICS

Offered: Autumn

A course of lectures and tutorials on interference and diffraction, Fourier methods, coherence and correlation, lasers and holography, sound waves, loudspeakers and microphones, acoustic properties of materials, architectural acoustics and measurement of noise.

Prerequisite: as for PHB310

Credit Points: 8      Contact Hours: 3 per week

### ■ PHB312 PHYSICAL PROPERTIES OF MATERIALS

Offered: Autumn

Forces between atoms and the condensed state. Properties of fluids - static and dynamic. Metallic, organic and ceramic phases and their properties. Perfect and imperfect structures. Mechanisms of deformation on a macroscopic and microscopic scale including diffusion, elastic and plastic characteristics, creep and fatigue. Reactions and modifications of phase properties, reaction rates.

Prerequisite: PHB110 + PHB210

Credit Points: 8      Contact Hours: 3 per week

### ■ PHB316 EXPERIMENTAL PHYSICS III

Offered: Autumn

This course is designed to further the education of students in the field of experimental physics. They are exposed to activities including laboratory experiments in electricity and magnetism, acoustics, optics and materials physics.

Prerequisite: At least three of PHB110, PHB111, PHB210, PHB211

Co-requisite: At least one of PHB310, PHB311

Credit Points: 8      Contact Hours: 3 per week

### ■ PHB373 NUCLEAR MEDICINE IMAGING I

Offered: Autumn

A course of lectures on the principles, equipment and applications of nuclear medicine imaging.

Credit Points: 4      Contact Hours: 2 per week

### ■ PHB374 RADIOGRAPHIC EQUIPMENT I

Offered: Autumn

Detailed discussion of design considerations of X-ray generators and equipment used for control of beam direction.

Credit Points: 6      Contact Hours: 3 per week

### ■ PHB376 GENERAL RADIOGRAPHY II

Offered: Autumn

An extension of topics introduced in PHB276 to include more advanced techniques of skeletal radiography, ward and operating theatre radiography, and examinations utilising contrast media.

Prerequisite: PHB276 + PHB279 + PNB225

Credit Points: 12      Contact Hours: 5 per week

### ■ PHB379 CLINICAL RADIOGRAPHY II

Offered: Autumn

Clinical experiences in radiographic examinations introduced in PHB276 and PHB376. Experience is obtained in approved clinical departments.

Prerequisite: PHB276 + PHB279 + PNB225

Credit Points: 10      Contact Hours: 5 per week

### ■ PHB382 RADIOTHERAPY PHYSICS I

Offered: Autumn

A study of the design, physical aspects and operating characteristics of megavoltage and telecurie units.

Prerequisite: PHB272

Credit Points: 4      Contact Hours: 2 per week

### ■ PHB386 TREATMENT PLANNING II

Offered: Autumn

An extension of the study of treatment planning introduced in PHB286 to the planning of complex techniques of photon therapy. The planning of electron therapy.

Credit Points: 4      Contact Hours: 2 per week

### ■ PHB387 MEGAVOLTAGE THERAPY I

Offered: Autumn

A series of lectures and practical exercises on the principles and applications of megavoltage therapy including techniques for specific sites.

Prerequisite: PHB287 + PNB225

Credit Points: 14      Contact Hours: 6 per week

### ■ PHB389 CLINICAL RADIOTHERAPY II

Offered: Autumn

Practical exercises in megavoltage therapy related to topics introduced in PHB287 and PHB387. The programs are carried out in approved clinical departments.

Prerequisites: PHB289, PNB225

Co-requisite: PHB387

Credit Points: 10      Contact Hours: 5 per week

### ■ PHB401 THERMAL & VACUUM PHYSICS

Offered: Spring

A study of statistical mechanics, thermodynamics and vacuum physics.

Prerequisite: as for PHB310

Credit Points: 8      Contact Hours: 3 per week

### ■ PHB402 RELATIVITY & RADIATION PHYSICS

Offered: Spring

A study of relativity and particle physics.

Prerequisite: as for PHB310

Credit Points: 8      Contact Hours: 3 per week

### ■ PHB405 INSTRUMENTATION

Offered: Spring

A course of lectures, laboratory work and field trips on instrumentation systems, transducers, signal

processing, telemetry, control systems, display and recording systems.

**Prerequisite:** PHB308

**Credit Points:** 8      **Contact Hours:** 3 per week

#### ■ PNB406 ADVANCED ORTHOSES

**Offered:** Autumn

This subject is designed to demonstrate a broad knowledge of orthotic and prosthetic devices as applicable to podiatric practice. The student will be required to display a high standard of practical skills in producing a range of orthoses e.g., butt edge seams, latex bandage technique, rubber butter devices, expandable foams, latex dipped devices, and specialised thermoplastic, display a high standard of practical skills in producing a range of orthoses for specialised patients e.g., partial or complete forefoot amputees, diabetics, arthritic conditions, post operative patients.

**Prerequisites:** PNB506, PNB503

**Co-requisites:** PNB603

**Credit Points:** 6      **Contact Hours:** 3 per week

#### ■ PHB408 ELECTRONICS II

**Offered:** Spring

A program of lectures and laboratory work covering radio-frequency circuits, noise, analogue integrated circuits and applications, digital circuitry, counters, shift registers, A-D and D-A conversion.

**Prerequisite:** PHB308

**Credit Points:** 8      **Contact Hours:** 3 per week

#### ■ PHB411 ASTRONOMY

**Offered:** Spring

An introduction to the theory and practice of observational astronomy: astronomical coordinate systems, time systems, celestial mechanics and gravitation, stellar measurements. Other topics may include the planets and the solar system in general, stellar spectra, formation and evolution, the structure of the universe, and cosmology. The subject will include practical exercises, and observing sessions as weather permits.

**Prerequisite:** any three of PHB110, PHB111, PHB210, PHB211

**Credit Points:** 8      **Contact Hours:** 3 per week

#### ■ PHB416 EXPERIMENTAL PHYSICS IV

**Offered:** Spring

This unit consists of an extension of the laboratory program of PHB316 together with experimental radiation physics and a project performed either individually or in a small group. The project occupies approximately six weeks.

**Prerequisite:** PHB316

**Co-requisite:** at least one of PHB401, PHB402

**Credit Points:** 12      **Contact Hours:** 6 per week

#### ■ PHB471 RADIATION PHYSICS II

**Offered:** Spring

A study of the philosophy and protocol of radiation protection. The question of protection is treated in a manner which brings into perspective the details of protection dealt with in other units of the course.

**Credit Points:** 4      **Contact Hours:** 2 per week

#### ■ PHB473 MEDICAL ULTRASOUND

**Offered:** Spring

A course of lectures and practical exercises on the physical principles and application of ultrasound.

**Credit Points:** 4      **Contact Hours:** 2 per week

#### ■ PHB474 RADIOGRAPHIC EQUIPMENT II

**Offered:** Spring

A study of the equipment used in specialised radiography; including mobiles, tomographic units, skull tables and mammography units.

**Credit Points:** 4      **Contact Hours:** 2 per week

#### ■ PHB475 MEDICAL RADIATION COMPUTING I

**Offered:** Spring

An introduction to the capabilities of computer hardware and software, and image processing.

**Credit Points:** 8      **Contact Hours:** 3 per week

#### ■ PHB476 SPECIAL PROCEDURES

**Offered:** Spring

A course of lectures and practical exercises on specialised techniques of radiography, including the skull, obstetrics, gynaecology, CNS and paediatric radiography.

**Prerequisites:** PHB376 + PHB379

**Credit Points:** 8      **Contact Hours:** 3 per week

#### ■ PHB479 CLINICAL RADIOGRAPHY III

**Offered:** Spring

Clinical experience in approved departments in radiographic examinations discussed in PHB376.

**Prerequisites:** PHB376 + PHB379

**Credit Points:** 8      **Contact Hours:** 3 per week

#### ■ PHB481 DOSIMETRY

**Offered:** Spring

A study of the measurement and dosimetry of external beam X-ray and gamma ray radiotherapy.

**Credit Points:** 6      **Contact Hours:** 3 per week

#### ■ PHB482 RADIOTHERAPY PHYSICS II

**Offered:** Spring

A study of radioactivity including methods of radiation detection, radioactive equilibrium and production of radioisotopes, the principles of brachytherapy.

**Prerequisite:** PHB382

**Credit Points:** 6      **Contact Hours:** 3 per week

#### ■ PHB484 PRINCIPLES OF TREATMENT I

**Offered:** Spring

A course of lectures on the principles underlying the choice of treatment of cancer in specific sites including consideration of associated treatment.

**Credit Points:** 6      **Contact Hours:** 3 per week

#### ■ PHB487 MEGAVOLTAGE THERAPY II

**Offered:** Spring

An extension of the topic introduced in PHB387 to include the full range of treatment by megavoltage therapy for cancer in specific sites. Consideration includes techniques, planning, patient positioning, outlines and measurements.

**Prerequisites:** PHB387 + PHB389

**Credit Points:** 10      **Contact Hours:** 4 per week

#### ■ PHB489 CLINICAL RADIOTHERAPY III

**Offered:** Spring

Clinical experiences in approved departments in techniques of megavoltage therapy.

**Prerequisites:** PHB389 + PHB387

**Co-requisite:** PHB487

**Credit Points:** 8      **Contact Hours:** 3 per week

### ■ PHB501 APPLIED QUANTUM MECHANICS

Offered: Autumn

A course of lectures on quantum mechanics and theory of spectra.

Prerequisites: PHB310(R)\* + MAB411 and MAB412

Credit Points: 8      Contact Hours: 3 per week

### ■ PHB502 ELECTROMAGNETIC FIELD THEORY

Offered: Autumn

A course of lectures on electromagnetic field theory. Includes static field theory, wave equation, plane and spherical wave solutions, properties of plane waves, reflection, refraction, wave guides, cavity resonators and radiation theory.

Prerequisites: PHB310(R)\* + MAB411 + MAB412

Credit Points: 8      Contact Hours: 3 per week

### ■ PHB508 ELECTRONICS III

Offered: Autumn

A program of lectures and laboratory work covering microprocessor fundamentals and interfacing to computers, displays and instrumentation. Design of microprocessor controlled data collection and analysis systems.

Prerequisite: PHB408

Credit Points: 8      Contact Hours: 3 per week

### ■ PHB510 PHYSICAL METHODS OF ANALYSIS I

Offered: Autumn

A course of lectures and associated practical work on a range of physical techniques of analysis, including for example X-ray diffraction and fluorescence, electron microscopy, neutron activation analysis, electron microprobe analysis. Emphasis is on the physical principle, instrumentation and nature of information available from each techniques. Industrial visits may be included.

Prerequisite: PHB312

Credit Points: 8      Contact Hours: 3 per week

### ■ PHB516 EXPERIMENTAL PHYSICS V

Offered: Autumn

Laboratory and field work in applied physics with emphasis on open ended experiments with modern equipment. Field trips may be necessary.

Prerequisite: PHB416

Co-requisite: at least one of PHB501, PHB502

Credit Points: 12      Contact Hours: 6 per week

### ■ PHB572 IMAGE RECORDING & EVALUATION

Offered: Autumn

A course of lectures and practical exercises on non-film image formation evaluation. Information theory.

Credit Points: 4      Contact Hours: 2 per week

### ■ PHB573 DIGITAL IMAGING MODALITIES

Offered: Autumn

A study of the principles, methods and applications of CT, digital radiography and MRI in medical imaging.

Credit Points: 6      Contact Hours: 2 per week

### ■ PHB574 QUALITY ASSURANCE IN MEDICAL IMAGING

Offered: Autumn

A study of the principles and techniques used in the quality assurance of medical imaging apparatus and ancillary equipment.

Credit Points: 6      Contact Hours: 3 per week

\* See note, page 374.

### ■ PHB575 MEDICAL RADIATIONS COMPUTING II

Offered: Autumn

A course of lectures and practical exercises related to the applications of computers in image processing and radiotherapy.

Credit Points: 8      Contact Hours: 3 per week

### ■ PHB576 ADVANCED RADIOGRAPHIC TECHNIQUE I

Offered: Autumn

A study of the principles and techniques used in advanced radiographic techniques including angiography, the salivary glands, arthrography, sinography, the lacrimal system, arteriography and venography.

Prerequisites: PHB476 + PHB479

Co-requisite: PHB578

Credit Points: 12      Contact Hours: 6 per week

### ■ PHB578 IMAGE INTERPRETATION I

Offered: Autumn

A course of lectures and practical exercises on image interpretation. Including: technical and diagnostic quality.

Credit Points: 4      Contact Hours: 2 per week

### ■ PHB579 CLINICAL RADIOGRAPHY IV

Offered: Autumn

Clinical experience in special radiographic procedures as introduced in PHB476.

Prerequisites: PHB476, PHB479

Credit Points: 8      Contact Hours: 4 per week

### ■ PHB583 COMPLEMENTARY & EVOLVING TECHNIQUES

Offered: Autumn

A course of lectures on the principles, strengths and stage of development of techniques which are complementary to radiotherapy treatment of cancer. Including: hyperbaric O<sub>2</sub> therapy, neutron therapy, pi-meson therapy, chemotherapy, cryotherapy and hyperthermia.

Credit Points: 6      Contact Hours: 3 per week

### ■ PHB584 PRINCIPLES OF TREATMENT II

Offered: Autumn

A continuation of the detailed discussion started in PHB484 to include the principles of treatment of cancer in all sites, and benign diseases.

Credit Points: 4      Contact Hours: 2 per week

### ■ PHB585 COMPUTER ASSISTED TREATMENT PLANNING I

Offered: Autumn

A study of planning hardware and software to include two dimensional planning. Development of concepts to an advanced level of understanding of computer assisted optimisation of isodose distributions.

Credit Points: 8      Contact Hours: 3 per week

### ■ PHB587 ORTHOVOLTAGE & SUPERFICIAL THERAPY

Offered: Autumn

A course of lectures and practical exercises on the specialised techniques of orthovoltage and superficial radiotherapy.

Prerequisites: PHB489 + PHB487

Credit Points: 10      Contact Hours: 4 per week

### ■ PHB589 CLINICAL RADIOTHERAPY IV

Offered: Autumn

Clinical experience in the techniques of radiotherapy employing orthovoltage and superficial therapy.

Prerequisites: PHB489 + PHB487

Co-requisite: PHB587

Credit Points: 12      Contact Hours: 6 per week

**■ PHB601 SOLID STATE PHYSICS****Offered:** Spring

A course of lectures on the physics of materials, including mechanical, thermal and electrical properties.

**Prerequisites:** PHB401 + PHB501 + PHB312**Credit Points:** 8      **Contact Hours:** 3 per week**■ PHB602 NUCLEAR PHYSICS & ENERGY****Offered:** Spring

A course of lectures on applied nuclear physics, neutron physics, reactor technology and energy.

**Prerequisite:** PHB402**Credit Points:** 8      **Contact Hours:** 3 per week**■ PHB608 APPLIED ACOUSTICS****Offered:** Spring

A course of lectures and associated practical work. Standards, principles of methods and instrumentation used in vibration, noise and sound measurements with emphasis upon architectural acoustics and traffic, industrial and community noise. Brief treatment of underwater acoustics and recording and reproduction of sound. Legal and technical aspects of professional practice. Field trips.

**Prerequisite:** PHB311**Credit Points:** 8      **Contact Hours:** 3 per week**■ PHB609 APPLIED RADIATION PHYSICS****Offered:** Spring

A course of lectures and associated laboratory work covering special techniques of radiation counting and applications, health physics, radiation protection, and radiobiological effects.

**Prerequisite:** PHB402**Credit Points:** 8      **Contact Hours:** 3 per week**■ PHB613 BIOPHYSICS****Offered:** Spring

A course dealing with the biophysics of selected biological systems (e.g., electrical transmission systems, amplifiers, mechanical systems, molecular behaviours in fields) and instrumentation for inter-cellular and inter-organ measurements (micro-electronics, transducers, etc.).

**Prerequisites:** At least 24 credit points in first level physics subjects and successful completion of at least 80 credit points of second level subjects.**Credit Points:** 8      **Contact Hours:** 3 per week**■ PHB616 PROJECT****Offered:** Autumn, Spring

A supervised project on some aspect of applied physics which could involve the extension and application of existing techniques or the development of new techniques.

**Prerequisite:** PHB516**Co-requisite:** At least one third level physics unit**Credit Points:** 16      **Contact Hours:** 6 per week**■ PHB620 TOPICS IN PHYSICS****Offered:** Spring

Lectures, laboratory work and industrial visits in several topics relating to current advances in physics. The nature of the subject is dependent on departmental and staff activities at the time.

**Prerequisite:** At least 32 credit points in second level physics subjects.**Credit Points:** 8      **Contact Hours:** 3 per week**■ PHB671 RADIATION BIOLOGY****Offered:** Spring

A study of the biological effects on ionising and non-ionising radiation.

**Credit Points:** 4      **Contact Hours:** 2 per week**■ PHB672 PROJECT****Offered:** Spring

A supervised project involving either application of existing theoretical practical knowledge or a literature survey of a selected relevant topic.

**Credit Points:** 8      **Contact Hours:** 3 per week**■ PHB676 ADVANCED RADIOGRAPHIC TECHNIQUE II****Offered:** Spring

An extension of topics in advanced radiographic technique as introduced in PHB576 - to include mammography, digital imaging techniques, technique for examination of the lymphatic system, and emerging techniques.

**Prerequisites:** PHB576 + PHB579**Co-requisite:** PHB678**Credit Points:** 8      **Contact Hours:** 3 per week**■ PHB679 CLINICAL RADIOGRAPHY V****Offered:** Spring

Clinical experience in advanced radiographic techniques introduced in PHB576.

**Prerequisites:** PHB576 + PHB579**Credit Points:** 14      **Contact Hours:** 6 per week**■ PHB680 NUCLEAR MEDICINE IMAGING II****Offered:** Spring

A course of lectures, practical exercises and clinical experiences in nuclear medicine imaging. This subject expands on topics introduced in PHB373 and provides an in-depth study of nuclear medicine imaging techniques.

**Prerequisite:** PHB373**Credit Points:** 10      **Contact Hours:** 5 per week**■ PHB681 COMPUTED TOMOGRAPHY IMAGING****Offered:** Spring

A course of lectures, practical exercises and clinical experiences in CT imaging. This subject expands on topics introduced in PHB573 and provides an in-depth study of CT imaging techniques.

**Prerequisite:** PHB573**Credit Points:** 10      **Contact Hours:** 5 per week**■ PHB683 ONCOLOGICAL IMAGING****Offered:** Spring

A study of the principles and techniques of medical imaging used in the detection of cancer. Including CT, MRI, U/S and NM.

**Credit Points:** 6      **Contact Hours:** 3 per week**■ PHB685 COMPUTER ASSISTED TREATMENT PLANNING II****Offered:** Spring

A course of lectures and practical exercises in the use of computers in the planning of non-standard and complex radiotherapy treatment. Including arc and rotation techniques, irregular field techniques, 3-D plans.

**Credit Points:** 8      **Contact Hours:** 4 per week**■ PHB687 SPECIALISED RADIOTHERAPY TECHNIQUE****Offered:** Spring

A study of specialised radiotherapy techniques. Including techniques applicable to the child patient, and patients with communicable disease, theatre procedures, total body photon and electron therapy.

**Credit Points:** 10      **Contact Hours:** 4 per week**■ PHB689 CLINICAL RADIOTHERAPY V****Offered:** Spring

Clinical experience in specialised radiotherapy treatment techniques.

**Prerequisite:** PHB589 **Co-requisite:** PHB687**Credit Points:** 8      **Contact Hours:** 4 per week

### ■ PHD471 RADIOBIOLOGY & PROTECTION

Offered: Spring

This unit treats aspects of radiobiology necessary for an appreciation of the philosophy and protocol of radiation protection. The question of protection is treated in a manner which brings into perspective the many details of protection dealt with throughout other units of the diagnostic radiography course.

Credit Points: 4      Contact Hours: 2 per week

### ■ PHD572 COMPLEMENTARY IMAGING TECHNIQUES

Offered: Autumn

This unit treats a number of topics which are complementary to diagnostic radiography and others in the fields of image presentation and evaluation, which are of potential importance in diagnostic radiography. Includes CT, MRI, nuclear medicine and computers.

Credit Points: 8      Contact Hours: 4 per week

### ■ PHD573 RADIOGRAPHIC TECHNIQUE III

Offered: Autumn

This section amplifies PHD473 in relation to the more extensive preparation and techniques for specialised radiographic procedures.

Prerequisites: PHD473, PHD477

Credit Points: 6      Contact Hours: 3 per week

### ■ PHD574 RADIOGRAPHIC EQUIPMENT III

Offered: Autumn

This unit covers the technology of X-ray equipment and its correct use in advanced radiographic techniques. Quality control and fault conditions.

Prerequisite: PHD474

Credit Points: 6      Contact Hours: 3 per week

### ■ PHD577 CLINICAL PRACTICE III D

Offered: Autumn

Practical programs carried out in approved clinical training centres under the supervision of qualified radiographers and radiologists. Detailed programs for each semester are specified by a Clinical Practice Supervisory Committee.

Prerequisites: PHD473, PHD477

Credit Points: 16      Contact Hours: 10 per week

### ■ PHD580 COMPLEMENTARY & EVOLVING TECHNIQUES I

Offered: Autumn

Consideration of specific imaging modalities used in treatment planning or cancer diagnosis.

Credit Points: 8      Contact Hours: 4 per week

### ■ PHD586 RADIOTHERAPY PRACTICE V

Offered: Autumn

This unit covers details of techniques and procedures used in treatment with emphasis on practical considerations.

Prerequisites: PHD485, PHD486

Credit Points: 6      Contact Hours: 3 per week

### ■ PHD587 CLINICAL PRACTICE IV T

Offered: Autumn

Practical programs carried out in approved clinical training centres under the supervision of qualified radiographers and radiation oncologists. Detailed programs for each semester are specified by a Clinical Practice Supervisory Committee.

Prerequisite: PHD487

Credit Points: 30      Contact Hours: 13 per week

### ■ PHD610 ADVANCED RADIOGRAPHIC TECHNIQUE

Offered: Spring

Assignments must be submitted on topics specified with the areas of modern trends in X-radiographic technique; computerised tomography scanners; digital radiography; nuclear medicine imaging apparatus and other complementary imaging modalities. No formal lecture classes are required.

Credit Points: 4      Contact Hours: 2 per week

### ■ PHD677 CLINICAL PRACTICE IVD

Offered: Spring

Practical programs carried out in approved clinical training centres under the supervision of qualified radiographers and radiologists. Detailed programs for each semester are specified by a Clinical Practice Supervisory Committee.

Prerequisites: PHD573 and PHD577

Credit Points: 44      Contact Hours: 16 per week

### ■ PHD680 COMPLEMENTARY & EVOLVING TECHNIQUES II

Offered: Spring

Applications of the computer to radiotherapy planning. Consideration of the principles and merits of evolving techniques.

Credit Points: 6      Contact Hours: 3 per week

### ■ PHD687 CLINICAL PRACTICE VT

Offered: Spring

Practical programs carried out in approved clinical training centres under the supervision of qualified radiographers and radiation oncologists. Detailed programs for each semester are specified by a Clinical Practice Supervisory Committee.

Prerequisite: PHD587

Credit Points: 22      Contact Hours: 16 per week

### ■ PHN101 ANALOGUE ELECTRONICS

Offered: Autumn

Principles of electronics applicable in the medical field; discrete circuits and integrated circuits in common use - design and limitations.

Credit Points: 6      Contact Hours: 2 per week

### ■ PHN102 INTRODUCTION TO MEDICAL STATISTICS COMPUTING

Offered: Autumn

Basic concepts of computing systems, programming, software engineering, introduction to medical applications. Medical applications of numerical methods and medical statistics.

Credit Points: 6      Contact Hours: 2 per week

### ■ PHN103 RADIATION PHYSICS I

Offered: Autumn

Study of the basic principles of radioactivity and radioactive decay and the interactions of ionising radiation with matter.

Credit Points: 6      Contact Hours: 2 per week

### ■ PHN104 RADIATION PHYSICS II

Offered: Autumn

Deals with phenomena related to interaction of ionising radiation with biological tissue. Emphasis on aspects of actual or potential importance in a clinical environment. Isotope production, nuclear radiation detectors.

Credit Points: 8      Contact Hours: 3 per week

### ■ PHN150 OPTICS

Offered: Spring

The objective of this subject is to provide understanding and knowledge of fundamental optical theory and its

application to optical instruments used in spectroscopy. Optical materials and devices - spectral ranges; diffraction gratings; spectrographs; spectrometers; monochromators; spectrophotometers; special purpose instruments; lasers and their applications; optimum illumination; reduction of scattered light; Fourier spectroscopy and grille spectrometers; manufacturer's specifications.

**Credit Points:** 6      **Contact Hours:** 2 per week

#### ■ PHN151 PHYSICS OF ULTRASOUND

**Offered:** Spring

A course of lectures and practical work covering the physical principles of diagnostic ultrasound including wave physics, propagation, the Doppler effect and the biological effects of ultrasound.

**Credit Points:** 6      **Contact Hours:** 2 per week

#### ■ PHN152 CROSS-SECTIONAL ANATOMY

**Offered:** Spring

A study of the cross-sectional anatomy of the head, neck, thorax and abdomen (including the pregnant uterus) with an emphasis on an appreciation of the structures demonstrated on ultrasound images.

**Prerequisite:** PNN161 (or equivalent)

**Co-requisite:** PNN165 (or equivalent)

**Credit Points:** 6      **Contact Hours:** 2 per week

#### ■ PHN153 ULTRASOUND EQUIPMENT I

**Offered:** Spring

A detailed study of medical ultrasound equipment, including aspects related to transducers, controls, display, image performance and artifacts.

**Co-requisite:** PHN151

**Credit Points:** 6      **Contact Hours:** 2 per week

#### ■ PHN154 PRINCIPLES OF ULTRASOUND IMAGING

**Offered:** Spring

A course of lectures and practical exercises on the general principles of ultrasound imaging techniques including scanning motions, coupling agents, transducer selection and the problems associated with respiration.

**Co-requisite:** PHN151

**Credit Points:** 6      **Contact Hours:** 2 per week

#### ■ PHN155 ULTRASONIC EXAMINATION IN OBSTETRICS & GYNAECOLOGY

**Offered:** Spring

A study of the normal and abnormal anatomy and function related to gynaecology and obstetrics, the ultrasonic techniques used and the appearance of related images.

**Credit Points:** 6      **Contact Hours:** 2 per week

#### ■ PHN156 ULTRASONIC EXAMINATION OF THE ABDOMEN

**Offered:** Spring

A study of the techniques used in the ultrasonic examination of the abdomen including the appearance on the ultrasound image of normal abdominal anatomy and its alteration by pathological processes.

**Co-requisite:** PHN154

**Credit Points:** 6      **Contact Hours:** 2 per week

#### ■ PHN157 CLINICAL ULTRASOUND I

**Offered:** Spring

A supervised practical program carried out in an approved clinical ultrasound department. Students must obtain hands-on-experience in specified ultrasound procedures used in examination of the abdomen, pelvis and in obstetrics and gynaecology.

**Co-requisites:** PHN154, PHN153

**Credit Points:** 12

#### ■ PHN202 BIOMECHANICS

**Offered:** Autumn

Study of mechanical principles and properties related to human tissues and physiological functions with emphasis on work ergonomics and occupational health measurement problems.

**Credit Points:** 8      **Contact Hours:** 3 per week

#### ■ PHN204 HEALTH & OCCUPATIONAL PHYSICS

**Offered:** Autumn

Deals with philosophy, protocol and practices necessary to minimise hazards associated with electrical, mechanical and biological techniques used in hospitals. Study of principles and techniques of dosimetry of ionising radiation with emphasis on aspects pertinent to actual or potential use in medicine.

**Credit Points:** 8      **Contact Hours:** 3 per week

#### ■ PHN206 MEDICAL IMAGING

**Offered:** Autumn

Study of the principles involved in the production of the radiographic and nuclear medicine image and the appropriate quality control protocols.

**Credit Points:** 8      **Contact Hours:** 3 per week

#### ■ PHN257 CLINICAL ULTRASOUND II

**Offered:** Summer Term

A period of additional clinical experience designed to refine basic skills acquired in PHN157.

**Prerequisite:** PHN157

**Credit Points:** 12

#### ■ PHN301 MICROPROCESSORS

**Offered:** Spring

Basic digital integrated circuits and their applications in logic design and microprocessor interfacing. Microprocessor programming and applications. Integrated with Instrumentation and Medical Imaging Science to develop an understanding of micro-computer function and applications.

**Credit Points:** 8      **Contact Hours:** 3 per week

#### ■ PHN302 INSTRUMENTATION

**Offered:** Spring

This subject concentrates on gaining experience in the use of a wide range of instrumentation. Topics included are generalised instrument, data transfer, data interpretation, servomechanisms, data recorders, systems, practical aspects of instrument use. Laboratory learning experience in the gathering, conditioning, storage and analysis of data, using skills learned in digital electronics, computing and instrumentation. Digital signal processing of physiological signals, digital image processing, medical applications of numerical methods and medical statistics.

**Credit Points:** 8      **Contact Hours:** 3 per week

#### ■ PHN304 MEDICAL IMAGING SCIENCE

**Offered:** Spring

Visual science, analogue and digital images, image enhancement, restoration and analysis, computed tomography, computer architectures, display instrumentation, recording and storage.

**Credit Points:** 6      **Contact Hours:** 2 per week

#### ■ PHN350 ELECTRONICS

**Offered:** Autumn

The purpose of the subject is to acquaint students with the basic principles associated with using modern high technology devices. It covers basic characteristics of PN junction diodes and their applications in power supplies. Transistor types. Operational amplifiers, linear integrated circuit applications, com-



mon mode rejection. Transistors as switches, multi-vibrators, decimal counters, binary codes. ASCII code, 7 segment displays, logic gates, flip-flops, analogue to digital conversion and applications. Electronic circuit applications in modern chemical instrumentation.

**Credit Points:** 6      **Contact Hours:** 2 per week

#### ■ PHN351 ULTRASOUND EQUIPMENT II

**Offered:** Autumn

A course of lectures and practical exercises on the principles and techniques of quality assurance protocols used in ultrasonic imaging.

**Prerequisite:** PHN153

**Credit Points:** 6      **Contact Hours:** 2 per week

#### ■ PHN352 ULTRASONIC EXAMINATION IN CARDIOLOGY

**Offered:** Autumn

A study of the techniques of ultrasound imaging used in investigating the cardio-vascular system including techniques for demonstration of mitral, aortic and tricuspid valves, cardiac chambers, aorta, large blood vessels and superior vena cava.

**Prerequisite:** PHN257

**Credit Points:** 6      **Contact Hours:** 2 per week

#### ■ PHN353 ULTRASOUND IN MEDICAL DIAGNOSIS

**Offered:** Autumn

A study of the role of ultrasound in medical imaging diagnosis.

**Credit Points:** 6      **Contact Hours:** 2 per week

#### ■ PHN354 ULTRASONIC EXAMINATIONS OF THE HEAD, NECK & PERIPHERAL ORGANS

**Offered:** Autumn

A course of lectures and practical work on the techniques ultrasound uses to examine the head, neck and peripheral organs and the ultrasonic appearance of normal and abnormal anatomy and pathology.

**Prerequisite:** PHN257

**Credit Points:** 6      **Contact Hours:** 2 per week

#### ■ PHN357 CLINICAL ULTRASOUND III

**Offered:** Autumn

A supervised practical program carried out in an approved clinical ultrasound department. Students must obtain experience of specified ultrasound examinations used in cardiology and in the examination of the head, neck and peripheral organs.

**Prerequisite:** PHN257 **Credit Points:** 12

#### ■ PHN402 RADIOTHERAPY

**Offered:** Spring

Considers the principles and techniques of clinical application of ionising radiation for diagnostic and therapeutic purposes. Emphasis is on radiotherapy physics and diagnostic X-rays.

**Credit Points:** 6      **Contact Hours:** 2 per week

#### ■ PHN405 PHYSIOLOGICAL MEASUREMENT

**Offered:** Spring

Introduction to the principles and techniques of the direct and indirect measurement of physiological variables.

**Credit Points:** 6      **Contact Hours:** 2 per week

#### ■ PHN407 CASE STUDIES

**Offered:** Autumn, Spring

Completion of three assignments in clinical practice procedures including reports written to journal publication standards.

**Credit Points:** 6      **Contact Hours:** 2 per week

#### ■ PHN520 PROJECT

#### ■ PHN540 PROJECT

**Offered:** Autumn, Spring

The project may take the form of research development, a design, a feasibility study, or the collation of scattered information on a given topic. The project can be undertaken externally under Queensland University of Technology supervision. Time spent on projects will be one year for full-time and two years for part-time students.

**Credit Points:** 96 (both)

**Contact Hours:** 18 & 9 respectively

#### ■ PHP700 PROJECT

**Offered:** Full Year

All students undertaking Honours are required to select and undertake, in consultation with a supervisor, a substantial project in an appropriate area. Each project is assessed on the basis of an extensive written report and an oral presentation.

**Credit Points:** 40

#### ■ PHP702 ADVANCED TOPICS IN PHYSICS I

#### ■ PHP703 ADVANCED TOPICS IN PHYSICS II

**Offered:** Autumn, Spring

Two topics in each unit, determined by current research interests, staff availability and modern international developments. Examples: shock processing of powders, applied acoustics, ultraviolet physics, laser physics, classical mechanics.

**Credit Points:** 6 (both)

**Contact Hours:** 2 (both)

#### ■ PHP704 ADVANCED MATERIALS SCIENCE A

**Offered:** Autumn

Physical and chemical properties of advanced materials. Includes mechanical, thermal, electrical, optical and magnetic properties of advanced materials, such as: fibre reinforced composites, rapidly solidified compounds, ceramics, inorganic polymers and shock processed materials.

**Credit Points:** 8      **Contact Hours:** 3 per week

**Note:** This subject is not compatible with CHP704; credit may not be retained for both.

#### ■ PHP705 ENVIRONMENTAL PHYSICS

**Offered:** Spring

This subject considers briefly various areas in which physicists are involved in the solution of significant environmental problems. The scale of the problems ranges from local to global concerns, with timescales ranging from minutes to decades. Some emphasis is placed on Australian conditions and recent research. The following topics are covered: fundamentals of environmental physics; boundary layer properties; air pollution concepts; thermal events; modelling and monitoring of environmental problems; remote sensing techniques; global environmental concerns.

**Credit Points:** 8      **Contact Hours:** 3 per week

#### ■ PNA170 ANATOMY & PHYSIOLOGY I

**Offered:** Autumn

This subject will introduce students to an integrated study of anatomy and physiology. Emphasis will be placed on gaining an appreciation of the relationship between structure and function at the levels of cells and tissues, organ and organ systems. Initially the morphology and physiology of cells and tissues will be examined and then the structure and function of the skeletal, muscular, nervous and integumentary systems will be studied.

**Credit Points:** 8      **Contact Hours:** 3 per week

#### ■ PNA171 ANATOMY & PHYSIOLOGY II

**Offered:** Spring

The broad objectives outlined PNA170 will be continued. Emphasis in this subject will be upon the relationships between structure and function at the level of organs and systems. The cardiovascular, lymphatic, respiratory, digestive, urinary, genital, and endocrine systems will be studied.

**Prerequisites:** PNA170 **Co-requisite:** MSA124

**Credit Points:** 8 **Contact Hours:** 3 per week

#### ■ PNA550 CARDIAC PHYSIOLOGY & ANATOMY

**Offered:** Autumn

A subject designed to develop a sound biological basis for application in the subjects Cardiac Instrumentation and Cardiac Measurement Techniques. It includes study of both normal and disordered structure and/or function of the cardiovascular system, as well as the significance of physiological and/or anatomical parameters commonly measured by instrumentation.

**Prerequisites:** PNA170, PNA171, MSA121

**Co-requisite:** PHA561, PHA562

**Credit Points:** 5 **Contact Hours:** 2 per week

#### ■ PNA650 RESPIRATORY PHYSIOLOGY & ANATOMY

**Offered:** Spring

A subject designed to develop a sound biological basis for application in the subjects Respiratory Instrumentation and Respiratory Measurement Techniques. It includes study of both normal and disordered structure and/or function of the respiratory system, as well as the significance of physiological and/or anatomical parameters commonly measured by instrumentation.

**Prerequisites:** PNA170, PNA171, PNA121

**Co-requisite:** PHA661, PHA662

**Credit Points:** 5 **Contact Hours:** 2 per week

#### ■ PNA750 NEUROLOGICAL PHYSIOLOGY & ANATOMY

A subject designed to develop a sound biological basis for application in the subjects Neurological Instrumentation and Neurological Measurement Techniques. It includes study of both normal and disordered structure and/or function of the nervous system as well as the significance of physiological and/or anatomical parameters commonly measured by instrumentation.

**Prerequisites:** MSA121, PNA170, PNA171

**Co-requisite:** PHA761, PHA762

**Credit Points:** 5 **Contact Hours:** 2 per week

#### ■ PNA850 UROLOGICAL PHYSIOLOGY & ANATOMY

**Offered:** Spring

A subject designed to develop a sound biological basis for application in the subjects Urological Instrumentation and Urological Measurement Techniques. It includes study of both normal and disordered structure and/or function of the urinary system, as well as the significance of physiological and/or anatomical parameters commonly measured by instrumentation.

**Prerequisites:** PNA170, PNA171, MSA121

**Co-requisite:** PHA861, PHA862

**Credit Points:** 5 **Contact Hours:** 2 per week

#### ■ PNB115 HUMAN PHYSIOLOGY I

**Offered:** Autumn

The aim of this subject is to enable students to enhance their knowledge of concepts related to a physiological basis for nursing practice. It is designed to enable students to effectively apply problem solving principles to health care delivery to clients in any age

group. This subject will introduce students to the functions of major systems under normal conditions in healthy humans and forms a firm basis for an understanding of abnormal function to be presented in PNB116.

**Credit Points:** 12 **Contact Hours:** 3 per week

#### ■ PNB116 HUMAN PHYSIOLOGY II

**Offered:** Spring

This subject considers the physiological basis of the clinical manifestation, pathogenesis and treatment of selected disorders of the cardiovascular, respiratory, haematological, renal, gastrointestinal, nervous and endocrine systems.

**Prerequisites:** PNB115

**Credit Points:** 6 **Contact Hours:** 2 per week

#### ■ PNB125 ANATOMY & PHYSIOLOGY I

**Offered:** Autumn

A study of human anatomy of the body as a whole including a detailed study of the skeletal system.

**Credit Points:** 10 **Contact Hours:** 4 per week

#### ■ PNB131 ANATOMY I

**Offered:** Autumn

An integrated course of lectures and practicals dealing with microscopic structure of the cell, epithelium, connective tissue, bone and cartilage, muscle tissue, nerve tissue, and cardiovascular system. Also deals with the gross anatomical of the skeletal, articular, and cardiovascular systems.

**Credit Points:** 6 **Contact Hours:** 3 per week

#### ■ PNB132 ANATOMY II

**Offered:** Spring

An extension of PNB131. A course dealing with the microscopic and macroscopic anatomy of the nervous, digestive, lymphatic, integumentary, respiratory, renal, endocrine and reproductive systems.

**Prerequisites:** PNB131

**Credit Points:** 6 **Contact Hours:** 3 per week

#### ■ PNB163 HUMAN ANATOMY I

**Offered:** Autumn

An integrated course of lectures and practicals dealing with microscopic structure of the cell, epithelium, connective tissue, bone and cartilage, muscle tissue, nerve tissue, and cardiovascular system. Also deals with the gross anatomical of the skeletal, articular, and cardiovascular systems.

**Credit Points:** 8 **Contact Hours:** 3 per week

#### ■ PNB165 PHYSIOLOGY II

**Offered:** Spring

A course of lectures and practicals. Basic mechanisms - cells, fluids, electrolytes; energy metabolism; essential nutrients; transport mechanisms; blood; communication and control; excitable tissues. Control systems - nervous and endocrine systems. This subject must be taken by students wishing to study nutrition electives.

**Co-requisite:** CHB201

**Credit Points:** 8 **Contact Hours:** 4 per week

**Note:** This subject is not compatible with PHB231; credit may not be retained for both.

#### ■ PNB202 ENVIRONMENTAL HEALTH II

**Offered:** Spring

Students will be introduced to a brief history of environmental health in Queensland, the current role of environmental health officers within the public health agencies at all levels of government and the principal public health legislation in the State. This subject also deals with the management of an environmental

health unit and provides a foundation for understanding the various legal procedures associated with the duties of such officers.

**Credit Points:** 16 **Contact Hours:** 7 per week

### ■ PNB203 ENVIRONMENTAL HEALTH III

**Offered:** Autumn

In this subject students will develop an understanding of the complexity of environmental systems, the effects of pollutants on such systems and the interdisciplinary approaches needed to address these problems. They will also study introductory food science and current food standards prescribed by legislation.

**Prerequisites:** CHB242, BEB103, BEB104

**Credit Points:** 14 **Contact Hours:** 7 per week

### ■ PNB204 ENVIRONMENTAL HEALTH IV

**Offered:** Spring

There are three major strands in this subject, covering the construction and design of food premises and their hygienic operation; the potential risks to water resources and design and operation of processes to treat drinking and recreational waters; and the management of community wastes, focusing on the origins, transport and disposal of liquid, solid and hazardous wastes.

**Prerequisites:** PNB203

**Credit Points:** 18 **Contact Hours:** 9 per week

### ■ PNB205 ENVIRONMENTAL HEALTH V

**Offered:** Autumn

This subject will address the causative agents of communicable and noncommunicable diseases and conditions and introduce students to the principles of and methods in epidemiology. The food hygiene foundation provided in PNB204 will be further developed to encompass food poisoning and spoilage. Students will gain a knowledge of relative pest control principles and practices, especially in relation to vectors of disease.

**Prerequisites:** PNB204, MSB402, PNB232

**Credit Points:** 30 **Contact Hours:** 16 per week

### ■ PNB206 ENVIRONMENTAL HEALTH VI

**Offered:** Spring

This subject will develop a sound theoretical and practical knowledge of a wide range of environmental health problems which confront the community. The underlying principles of health promotion and their effective practical application will be addressed. Food topics will be completed by considering aspects of food production and packaging and concepts of nutrition and malnutrition. Students will also gain an insight into obligations, responsibilities and ethics of professional practice.

**Prerequisites:** PNB205

**Credit Points:** 30 **Contact Hours:** 16 per week

### ■ PNB210 OCCUPATIONAL HEALTH & SAFETY I

**Offered:** Autumn

This subject will introduce students to the basic concepts of occupational health and safety, such that they can identify health and safety problems in the workplace; be aware of strategies for dealing with such problems, and become familiar with the legislation, government agencies and health personnel associated with the working environment. Topics covered will include the physical, chemical and biological working environments, temporal work patterns and the design and use of protective devices.

**Credit Points:** 6 **Contact Hours:** 3 per week

### ■ PNB211 OCCUPATIONAL HEALTH & SAFETY II

**Offered:** Spring

This subject develops further the principles covered in PNB210 and highlights their practical application to the workplace. Students will also develop knowledge and skills associated with the actual measurement of the physical and chemical working environment, physiological effects on humans in the workplace and evaluation of the data collected.

**Prerequisites:** PNB210

**Credit Points:** 8 **Contact Hours:** 4 per week

### ■ PNB220 SYSTEMATIC ANATOMY

**Offered:** Spring

An extension of PNB163. A course dealing with the microscopic and macroscopic anatomy of the nervous, digestive, lymphatic, integumentary, respiratory, renal, endocrine and reproductive systems.

**Prerequisite:** PNB163

**Credit Points:** 10 **Contact Hours:** 3 per week

### ■ PNB225 ANATOMY & PHYSIOLOGY II

**Offered:** Spring

A course of lectures and practical exercises involving a basic, yet comprehensive, study of the anatomy and physiology of the various body systems.

**Prerequisite:** PNB125

**Credit Points:** 10 **Contact Hours:** 4 per week

### ■ PNB231 ANATOMY & PHYSIOLOGY I

**Offered:** Autumn, Spring

This subject introduces students to an integrated study of anatomy and physiology at the degree level. Emphasis is placed on gaining an appreciation of the relationship between structure and function at the levels of cells, tissues, organs and organ systems. Initially the morphology and physiology of cells and tissues is examined. Metabolism, nutrition and temperature regulation are reviewed and then the skeletal, muscular, nervous and integumentary systems studied.

**Credit Points:** 8 **Contact Hours:** 4 per week

**Note:** This subject is not compatible with PNB165; credit may not be retained for both.

### ■ PNB232 ANATOMY & PHYSIOLOGY II

**Offered:** Autumn, Spring

The broad objectives outlined in PNB231 are continued. Emphasis in this subject is focused on structure-function relationships at the level of organs and systems. The cardiovascular, lymphatic, respiratory, digestive, urino-genital, and endocrine systems are studied. A review of the actions of drugs on cells, tissues, organs and systems is given at the end of the subject.

**Prerequisite:** PNB231

**Credit Points:** 8 **Contact Hours:** 4 per week

**Note:** This subject is not compatible with PNB465; credit may not be retained for both.

### ■ PNB261 ANATOMY & PHYSIOLOGY I

**Offered:** Autumn

This subject will introduce students to an integrated study of anatomy and physiology at the degree level. Emphasis will be placed on gaining an appreciation of the relationship between structure and function at the levels of cells, tissues, organs and organ systems. Initially the morphology and physiology of cells and tissues will be examined. The skeletal, muscular, nervous and integumentary systems will be studied.

**Credit Points:** 12 **Contact Hours:** 4 per week

## ■ PNB262 ANATOMY & PHYSIOLOGY II

**Offered:** Spring

This subject follows on PNB261, integrating the study of structure and function of the human body. The systematic physiology of organs and organ systems continues with the study of the cardiovascular, lymphatic, immune, endocrine, respiratory, digestive, urinary and reproductive systems. Metabolism, nutrition and temperature regulation will be reviewed. A brief study on pregnancy and human development will be included.

**Prerequisites:** PNB261

**Credit Points:** 12      **Contact Hours:** 4 per week

## ■ PNB301 ADVANCED ANATOMY

**Offered:** Autumn

On completion of this subject, students should be able to describe the structures, function and anatomical relationship of the components of the lower limb and demonstrate anatomical knowledge which will be fundamental to the understanding of the functional and applied aspects of podiatric anatomy.

This subject contains the major topics of osteology, myology, arthrology, angiology and neurology.

**Prerequisites:** PNB220 **Co-requisite:** PNB302

**Credit Points:** 8      **Contact Hours:** 3 per week

## ■ PNB302 PODIATRIC MEDICINE I

**Offered:** Autumn

This subject introduces the student to the health, social and economic implications of podiatric care in the general population with particular reference to specialised groups e.g., children, diabetics, the aged and sports patients. It also provides foundation studies essential to the pre-clinical student in the diagnosis and treatment of conditions commonly manifesting in the foot.

**Prerequisites:** PNB220

**Co-requisite:** PNB420, PNB303

**Credit Points:** 10      **Contact Hours:** 5 per week

## ■ PNB303 CLINICAL PODIATRY I

**Offered:** Autumn

On completion of this subject students should be able to demonstrate competent operating skills; expertise in clinical observation of the patient and the elicitation of an accurate medical record; recognise common clinical entities and implement appropriate treatment and develop a professional attitude towards patients, clinical teaching and care of equipment used during clinical practice.

**Prerequisites:** MSB031 **Co-requisite:** PNB302

**Credit Points:** 8      **Contact Hours:** 5 per week

## ■ PNB304 PHYSICAL MEDICINE

**Offered:** Autumn

This subject is designed to introduce the student to a wide range of diagnostic and physical treatment modalities used in modern podiatric practice. On completion of this subject, students should be able to understand the uses, applications, contra indications and limitations of each modality studied in direct connection with the ongoing clinical studies and theoretical component of podiatric medicine lectures.

**Prerequisites:** PNB435

**Co-requisite:** PNB504, PNB410

**Credit Points:** 6      **Contact Hours:** 2 per week

## ■ PNB305 HUMAN NUTRITION I

**Offered:** Autumn

This subject builds on student's foundations in physiology to gain an appreciation of the meaning of

nutrition, of methods used in its study, of food as a source of nutrients, of the nutritional impact of technology and other aspects of the subject.

**Co-requisite:** MSB415 + PNB165 or PNB231

**Credit Points:** 6      **Contact Hours:** 3 per week

## ■ PNB306 PHARMACOLOGY

**Offered:** Autumn

This course is designed to ensure that students understand basic system drug therapies their patients may be using, the groups of drugs for specific diseases and their application and relevance to Podiatry and Clinical Podiatry situation. Emphasis is placed on drug groups and their use for specific disease, rather than proprietary brands. Students will be able to recognise the drug groups and know the system they are acting on in the body. In addition, differentiation between the different groups within one group of systemic drugs and why they are used for a condition will be emphasised.

**Prerequisites:** CHB242 **Co-requisite:** MSB471

**Credit Points:** 8      **Contact Hours:** 3 per week

## ■ PNB325 REGIONAL & SECTIONAL ANATOMY

**Offered:** Autumn

An expansion of the topics introduced in PNB125 and PNB225 to a detailed study of regional and sectional anatomy of the human body.

**Prerequisite:** PNB225

**Credit Points:** 8      **Contact Hours:** 4 per week

## ■ PNB363 HUMAN ANATOMY III

**Offered:** Autumn

An extension of PNB163 Human Anatomy I. This integrated course of lectures and practicals will cover basic embryology, structure and development of the eye, and gross and microscopic anatomy of the major organ systems of the human body.

**Prerequisites:** PNB163

**Credit Points:** 10      **Contact Hours:** 5 per week

## ■ PNB406 ADVANCED ORTHOSES

**Offered:** Autumn

This subject is designed to demonstrate a broad knowledge of orthotic and prosthetic devices as applicable to podiatric practice. The student will be required to display a high standard of practical skills in producing a range of orthoses e.g. butt edge seams, latex bandage technique, rubber butter devices, expandable foams, latex dipped devices, and specialised thermoplastic, display a high standard of practical skills in producing a range of orthoses for specialised patients e.g. partial or complete forefoot amputees, diabetics, arthritic conditions, post operative patients.

**Prerequisites:** PNB506, PNB503

**Co-requisite:** PNB603

**Credit Points:** 6      **Contact Hours:** 3 per week

## ■ PNB410 MEDICINE

**Offered:** Autumn

Following completion of this subject students should be able to recognise and understand the clinical features, pathogenesis and significance of common conditions affecting the lower limb, e.g., oedema; obesity; motor, sensory and trophic disturbances and their resultant effects in paralysis, ataxia, deformity and ulceration; intermittent claudication, vascular spasm and cramp are taught so as to emphasise their significance. Medical conditions with manifestations in the feet are given particular attention.

**Prerequisites:** MSB430, PNB435

**Co-requisite:** PNB503

**Credit Points:** 8      **Contact Hours:** 3 per week

## ■ PNB411 ORTHOPAEDICS

**Offered:** Spring

The emphasis of this subject will be on orthopaedic surgery. It will seek to develop a detailed knowledge of general and specific orthopaedic conditions which have an effect on the lower limb and the surgical treatment of systemic conditions as seen by the podiatrist i.e., diabetes. In addition the subject will provide an understanding of the special problems associated with children and specific lower limb conditions with emphasis on the surgical techniques used in their treatment.

**Prerequisites:** PNB503, PHB313

**Co-requisite:** PNB505

**Credit Points:** 8      **Contact Hours:** 3 per week

## ■ PNB412 CLINICAL PODIATRY II

**Offered:** Spring

At this stage students will be able to follow cases through to observe the 'short term' effect of therapy and will be expected to commence case studies to develop comparative and recording skills. Students should now be adopting the standard medical terminology and abbreviations used in clinical situations.

**Prerequisites:** PNB303, PNB302

**Co-requisite:** PNB506

**Credit Points:** 8      **Contact Hours:** 6 per week

## ■ PNB420 ORTHOTIC SCIENCE I

**Offered:** Autumn

This subject will introduce the student to many of the commonly used types of orthoses and procedures employed in modern podiatric practice. The subject will enable students to discuss the main types of orthoses employed in podiatric practice and to give a reasoned explanation on choice of orthotic types and properties of materials. Students should also be able to explain the main techniques employed in producing orthoses i.e., non-casting and casting techniques and their uses in orthotic practice.

**Prerequisites:** PNB460 **Co-requisite:** PNB302

**Credit Points:** 6      **Contact Hours:** 3 per week

## ■ PNB421 PODIATRIC MEDICINE II

**Offered:** Spring

The foundation for study in the role of therapeutics in patient management including short term and long term managements of conditions. It will expand the range of understanding of the wide variety of conditions presenting to the podiatrist. On completion, students should be able to develop an understanding of the biomechanical principles affecting the joints of the foot and the structural and functional consequences presenting in podiatric practice.

**Prerequisites:** PNB302 **Co-requisite:** PNB412

**Credit Points:** 12      **Contact Hours:** 4 per week

## ■ PNB422 PODIATRIC ANAESTHESIOLOGY

**Offered:** Autumn

This subject is designed to provide a sound understanding of the science of anaesthetics as applicable to the practice of podiatry. Students will be required to understand the pharmacology of local anaesthetics in current use and their clinical usage, and be competent in injection techniques, including local infiltration and local nerve block in the lower limb.

**Prerequisites:** PNB305, PNB421

**Co-requisite:** PNB410

**Credit Points:** 6      **Contact Hours:** 2 per week

## ■ PNB425 IMAGING ANATOMY

**Offered:** Spring

A study of the appearances, on medical images, of normal and abnormal anatomy.

**Credit Points:** 8      **Contact Hours:** 4 per week

## ■ PNB435 HUMAN PHYSIOLOGY

**Offered:** Spring

A course of lectures and practicals. The lectures are the same as PNB165 Physiology II and PNB465 Physiology III. The course is presented as a one semester program.

**Prerequisite:** MSB471 **Co-requisite:** MSB430

**Credit Points:** 12      **Contact Hours:** 7 per week

## ■ PNB465 PHYSIOLOGY III

**Offered:** Autumn

A course of lectures and practicals. Maintenance systems - gastrointestinal; cardiovascular; respiratory; and renal systems. Integrated mechanisms - sexual development; pregnancy; parturition; lactation; control of growth, energy intake, organic metabolism, body temperature, ECF osmolality and volume, major cations, blood pressure and flow, respiration; response to tissue damage and foreign matter; adaptation to stress and exercise. This subject must be taken by students wishing to study Nutrition electives.

**Prerequisite:** PNB165

**Credit Points:** 8      **Contact Hours:** 4 per week

**Note:** This subject is not compatible with PNB232; credit may not be retained for more than one of these subjects. Consult Strand Co-ordinator.

## ■ PNB502 DERMATOLOGY

**Offered:** Spring

This subject is designed to provide an appreciation of the many varieties of skin lesions and their particular relevance when found in the lower limb. The lecture program will consist of classification of skin disease, vascular reaction group, vasculitis, ulcers, peripheral vascular disease, tumours, eczema, dermatitis, allergy, immunity, infections, psoriasis, squamous eruptions, nails and hair, skin manifestations of internal disease, pharmacology and general therapeutics. The clinical sessions will utilise this information in allowing students the opportunity to see and diagnose many of these conditions.

**Prerequisites:** PNB410, PNB421

**Co-requisite:** PNB503

**Credit Points:** 6      **Contact Hours:** 3 per week

## ■ PNB503 PODIATRIC MEDICINE III

**Offered:** Autumn

This subject develops the professional understanding of the general and specific effects of medical and surgical conditions on the human foot. It also expands the concept of total case management in terms of the interdisciplinary approach. Including physical, mechanical and surgical techniques. On completion of this subject students should be able to consolidate the role podiatrist in the health care team across the spectrum of practice.

**Prerequisites:** PNB421

**Co-requisite:** PNB504, PNB604

**Credit Points:** 10      **Contact Hours:** 3 per week

## ■ PNB504 CLINICAL PODIATRY III

**Offered:** Autumn

On completion of this subject the student should be able to consolidate upon skills acquired in operative mechanical, chemical and physical therapy and to demonstrate expertise in the treatment of the diabetic arthritic foot, and related circulatory and neurological

disorders. Diagnostic skills will also be developed with the wider range of patients being treated and the specialised study of disciplines such as dermatology and radiology further integrating academic and clinic studies.

**Prerequisites:** PNB412, PNB421

**Co-requisite:** PNB304

**Credit Points:** 6      **Contact Hours:** 9 per week

#### ■ PNB505 PODIATRIC SURGERY

**Offered:** Spring

The implementation of podiatric surgical techniques based on a strong theoretical component of knowledge. At the conclusion of this course students will be able to understand the principles and techniques of minimal incision surgery.

**Prerequisites:** PNB422, PNB410

**Co-requisite:** PNB603

**Credit Points:** 12      **Contact Hours:** 4 per week

#### ■ PNB506 ORTHOTIC SCIENCE II

**Offered:** Spring

A consolidation of Orthotic Science I; on completion students should be able to discuss the main types of functional and semi-rigid devices employed in orthotic therapy. The subject will also provide an understanding of the main techniques employed in dispensing orthotics made from a positive cast i.e., cast evaluation, bisection, pouring, modification, intrinsic and extrinsic posting. Students will also be informed how to write a prescription for the dispensing of an orthotic to comply with patients individual requirements i.e., children, adolescent, adult and special requirements of selected cases e.g., in-toe, out-toe, sprinters, marathoners, arthritic, post operative and obese patient.

**Prerequisite:** PNB420 **Co-requisite:** PNB421

**Credit Points:** 8      **Contact Hours:** 3 per week

#### ■ PNB602 SPORTS MEDICINE

**Offered:** Spring

This course provides an awareness of the importance of a multidisciplinary approach to the diagnosis, evaluation and treatment of sports injuries. Students will study the symptomology of lower limb functional pathologies as related to specific sports and devise treatment programs. An understanding of the principles of human fitness and potential in relation to athletic injuries and expectations forms the foundation for further studies.

**Prerequisites:** PNB503, PNB410

**Co-requisite:** PNB411

**Credit Points:** 10      **Contact Hours:** 3 per week

#### ■ PNB603 CLINICAL PODIATRY IV

**Offered:** Spring

This subject is designed to prepare the student for the transition to private practice. During this semester students will be introduced to the sports medicine patient in terms of the range of injuries which occur affecting the lower back, hip, knee, ankle and foot. Case presentations will be an integral part of clinical learning and sessions conclude with exchange between students and staff over case management.

**Prerequisite:** PNB504 **Co-requisite:** PNB411

**Credit Points:** 6      **Contact Hours:** 6 per week

#### ■ PNB610 PROJECT & PROFESSIONAL MANAGEMENT

**Offered:** Spring

The two component parts of this subject explain firstly how a professional practice may be set up and how a small practice can operate as a business enterprise.

Methods of budgeting, finance and control are explained. Secondly it aims to develop an interest in podiatry research using scientific methods of investigation and presentation. Students will be encouraged to publish these projects as original material in related professional journals.

**Credit Points:** 6      **Contact Hours:** 4 per week

#### ■ PNB665 CLINICAL PHYSIOLOGY

**Offered:** Spring

This subject aims to develop in the student an appreciation of the physiological basis of the pathogenesis, clinical features and treatment of the major disorders of the cardiovascular, respiratory, haematological, renal, gastrointestinal and endocrine systems. In addition, students will be introduced to topics of particular interest to those wishing to pursue a career in nutrition and dietetics, such as the chemical carcinogenesis, nutrition in cancer patients, and the metabolic response to stress.

**Prerequisite:** PNB165 + PNB465

**Credit Points:** 10      **Contact Hours:** 4 per week

#### ■ PNB667 ADVANCED NUTRITIONAL PHYSIOLOGY

**Offered:** Spring

This subject examines the links between normal and abnormal food intake and normal and abnormal physiological functions in the human body. Special attention is focused on the role of nutrition in the physiology of the cardiovascular, renal, gastrointestinal and nervous systems.

**Prerequisite:** PNB165 + PNB465

**Credit Points:** 10      **Contact Hours:** 4 per week

#### ■ PND131 ANATOMY

**Offered:** Autumn

Addresses the general principles of anatomy. Deals with the macroscopic and microscopic structures of the human body. Introductory surface and regional anatomy are dealt with in relation to systemic anatomy.

**Credit Points:** 9      **Contact Hours:** 4 per week

#### ■ PND241 BIOMEDICAL SCIENCE

**Offered:** Spring

Covers aspects of essential biochemical processes, basic physiological principles, fundamentals of disease processes and basic pharmacological principles.

**Prerequisites:** CHD148

**Credit Points:** 6      **Contact Hours:** 3 per week

#### ■ PND340 CLINICAL PHYSIOLOGY I

**Offered:** Autumn

Considers the physiological basis of the clinical manifestations, pathogenesis and principles of treatment of the major disorders of the respiratory, cardiovascular, haematological, urinary, digestive and musculo-skeletal systems.

**Prerequisites:** PND241

**Credit Points:** 9      **Contact Hours:** 4 per week

#### ■ PND420 ANATOMY II

**Offered:** Autumn

The structures, function and anatomical relationship of the components of the lower limb and its application to clinical podiatry.

**Prerequisites:** PND120 **Co-requisites:** PND431

**Credit Points:** 6      **Contact Hours:** 3 per week

#### ■ PND421 FOOD & NUTRITION

**Offered:** Spring

Addresses the role of nutrients in the body in health and disease. Examines nutritional issues of current

significance in the Australian diet. Highlights individuals and groups at risk of nutrition related disease and suitable goals for dietary modification of these people. Examines why people develop their food habits and their sources of nutrition information.  
**Prerequisites:** PND241  
**Credit Points:** 6      **Contact Hours:** 3 per week

#### ■ PND430 PHYSIOLOGY

**Offered:** Autumn

A course of lectures and practicals. The lectures are the same as PNB165 and PNB465. The course is presented as a one semester program.

**Prerequisite:** MSD114 **Co-requisite:** MSD410

**Credit Points:** 10      **Contact Hours:** 6 per week

#### ■ PND431 PODIATRY III

**Offered:** Autumn

Clinical teaching in practical podiatry extends throughout the course. Practical training is given in the management of a wide range of cases of increasing difficulty, these being representative of the wide field of practice in which skills must be at a high level in diagnosis, operating skill, therapeutic procedures and podiatric orthotics.

**Prerequisites:** PND132

**Co-requisites:** PND420, PHD441

**Credit Points:** 20      **Contact Hours:** 10 per week

#### ■ PND432 PODIATRY IV

**Offered:** Spring

Clinical teaching in practical podiatry extends throughout the course. Practical training is given in the management of a wide range of cases of increasing difficulty, these being representative of the wide field of practice in which skills must be at a high level in diagnosis, operating skill, therapeutic procedures and podiatric orthotics.

**Prerequisites:** PND431

**Co-requisites:** PND442, PND460

**Credit Points:** 18      **Contact Hours:** 10 per week

#### ■ PND441 ORTHOTICS III

**Offered:** Autumn

This subject expands upon PND142 Orthotics II by providing additional clinical instruction, where theoretical methods are related to patient diagnosis and treatment.

**Prerequisites:** PND142, PND132

**Co-requisites:** PND431

**Credit Points:** 6      **Contact Hours:** 3 per week

#### ■ PND442 ORTHOTICS IV

**Offered:** Spring

Expands orthotic practice by careful consideration of problems of abnormal posture and gait which may be appropriate and amenable to orthotic control.

**Prerequisites:** PND441, PND431

**Co-requisites:** PND432

**Credit Points:** 6      **Contact Hours:** 3 per week

#### ■ PND452 THERAPEUTICS II

**Offered:** Autumn

This subject is a continuation of Therapeutics I and endeavours to expand the student's knowledge in the way that chemotherapeutic agents and medicaments are used in podiatric and medical practice.

**Prerequisites:** PND132, PND451

**Credit Points:** 2      **Contact Hours:** 1 per week

#### ■ PND460 PODIATRIC ANAESTHESIOLOGY

**Offered:** Spring

The science of anaesthetics as applicable to the practice of podiatry. The pharmacological study of local

anaesthetics will be concurrent with instruction in their clinical usage. Injection techniques will include local infiltration and digital nerve block.

**Prerequisites:** PND452, PND431

**Co-requisite:** PND710

**Credit Points:** 4      **Contact Hours:** 2 per week

#### ■ PND461 SPECIAL PROCEDURES CLINIC

**Offered:** Autumn

A clinic in which procedures under local anaesthesia can be undertaken for those conditions requiring radical treatment. These procedures will include the use of cryotherapy, chemotherapy and electrocautery.

**Prerequisites:** PND460, PND471, PND710

**Co-requisites:** PND432

**Credit Points:** 6      **Contact Hours:** 2 per week

#### ■ PND469 MEDICINE

**Offered:** Spring

The course aims to provide a basic understanding of systemic disease. The etiology, pathology, symptomatology and principles of treatment are given for the more common systemic illnesses. Particular emphasis is given to those conditions which give rise to manifestations in the lower limb and their significance and recognition.

**Prerequisites:** MSD410, PND431

**Co-requisites:** PND471

**Credit Points:** 6      **Contact Hours:** 3 per week

#### ■ PND470 HUMAN GENETICS & DEVELOPMENT

**Offered:** Autumn

Genetic principles and their applications in the field and in medicine; normal and abnormal human development.

**Prerequisites:** BED150, PND120

**Credit Points:** 2      **Contact Hours:** 1 per week

#### ■ PND471 SURGERY

**Offered:** Spring

General surgical principles and practice techniques of general surgery with emphasis on orthopaedic surgery. The program includes lectures and attendance at a hospital orthopaedic clinic where possible.

**Prerequisites:** PND431 **Co-requisites:** PND469

**Credit Points:** 4      **Contact Hours:** 2 per week

#### ■ PND540 CLINICAL PHYSIOLOGY II

**Offered:** Autumn

Considers the physiological basis of the clinical manifestations, pathogenesis and principles of treatment of the major disorders of the nervous system.

**Prerequisites:** PND241

**Credit Points:** 6      **Contact Hours:** 3 per week

#### ■ PND640 CLINICAL PHYSIOLOGY III

**Offered:** Spring

Considers the physiological basis of the clinical manifestations, pathogenesis and principles of treatment of the major disorders of the endocrine, reproductive and integumentary systems.

**Prerequisites:** PND241

**Credit Points:** 6      **Contact Hours:** 3 per week

#### ■ PND701 DERMATOLOGY

**Offered:** Autumn

Students are taught to appreciate the varieties of skin lesions as they affect the lower limb. The program includes lectures and attendance at a hospital dermatology unit.

**Prerequisites:** PND469, PND471

**Co-requisites:** PND731

**Credit Points:** 4      **Contact Hours:** 2 per week

## ■ PND710 PHARMACOLOGY

**Offered:** Spring

Drug groups and their action on the body systems; the effect of certain drugs with manifestations pertaining to the podiatrist.

**Prerequisites:** PND452 **Co-requisites:** PND460

**Credit Points:** 4 **Contact Hours:** 2 per week

## ■ PND731 PODIATRY V

**Offered:** Autumn

Clinical teaching in practical podiatry extends throughout the course. Practical training is given in the management of a wide range of cases of increasing difficulty, these being representative of the wide field of practice in which skills must be at a high level in diagnosis, operating skill, therapeutic procedures and podiatric orthotics.

**Prerequisites:** PND432 **Co-requisites:** PND750

**Credit Points:** 26 **Contact Hours:** 13 per week

## ■ PND732 PODIATRY VI

**Offered:** Spring

Clinical teaching in practical podiatry extends throughout the course. Practical training is given in the management of a wide range of cases of increasing difficulty, these being representative of the wide field of practice in which skills must be at a high level in diagnosis, operating skill, therapeutic procedures and podiatric orthotics.

**Prerequisites:** PND731 **Co-requisites:** PND761

**Credit Points:** 26 **Contact Hours:** 13 per week

## ■ PND742 ORTHOTICS VI

**Offered:** Spring

This unit follows on from Orthotics IV and teaches the student to adapt previously learned principles of orthotic fabrication to incorporate prosthetic devices where appropriate.

**Prerequisites:** PND442 **Co-requisites:** PND732

**Credit Points:** 6 **Contact Hours:** 3 per week

## ■ PND752 CLINICAL BIOMECHANICS

**Offered:** Autumn

In this subject students are taught the biomechanical principles of foot function as used in the clinical situation.

**Prerequisites:** PHD460 **Co-requisites:** PND731

**Credit Points:** 6 **Contact Hours:** 3 per week

## ■ PND761 SPORTS MEDICINE

**Offered:** Spring

This course follows on from the Orthotics units and the subject Kinesiology and Biomechanics, and is designed to consider the special needs of athletes. Studies are undertaken in those conditions which affect foot function and subsequent athletic performance.

**Prerequisites:** PND750 **Co-requisites:** PND732

**Credit Points:** 6 **Contact Hours:** 3 per week

## ■ PND770 PROJECT

**Offered:** Spring

Students are required to undertake special projects and to submit a thesis related to either a theoretical or clinical topic of their own choice.

**Credit Points:** 6 **Contact Hours:** 2 per week

## ■ PNN101 ENVIRONMENTAL HEALTH

**Offered:** Spring

Currently, there is heightened awareness about the nature of industrialised human activity and its impact upon natural resources and human health. Nurses have traditionally been concerned with the provision of an environment which is conducive to the promotion, maintenance and/or restoration of health. Thus, an

understanding of contemporary environmental health issues is vital to the provision of effective health care which meets the needs of today's society. Content will be selected from an introduction of ecosystems or environmental factors and human health.

**Credit Points:** 6 **Contact Hours:** 1.5 per week

## ■ PNN102 NUTRITION & LIFESTYLE

**Offered:** Spring

A wide variety of illness has its basis in inappropriate nutrition. In this subject, particular emphasis is placed on current trends in nutrition epidemiology in order to assist practising nurses in their health education efforts with clients.

**Credit Points:** 6 **Contact Hours:** 1.5 per week

## ■ PNN161 ANATOMY & PHYSIOLOGY I

**Offered:** Autumn

A study of basic functional anatomy covering cells, tissues, and the organ systems of the human body. The lectures and practical work are integrated and emphasise the relationships between structure and function.

**Credit Points:** 6 **Contact Hours:** 2 per week

## ■ PNN165 ANATOMY & PHYSIOLOGY II

**Offered:** Spring

A study of the mechanisms and controls of body functions. Stress is placed on fundamental principles and the practical work serves to illustrate these principles, as well as providing experience in physiological recording and investigative techniques.

**Credit Points:** 8 **Contact Hours:** 3 per week

## ■ PNP104 APPLIED NUTRITION I

**Offered:** Autumn

The application of nutrition principles to groups and populations is examined. Tools used in assessment including recommended dietary intakes and food composition tables are discussed. External determinants on nutrition such as food legislation and financial constraints are also discussed. The role of agencies involved in nutrition education are included.

**Credit Points:** 4 **Contact Hours:** 2 per week

## ■ PNP108 APPLIED NUTRITION II

**Offered:** Spring

The application of nutrition knowledge and assessment techniques to groups of individuals and population. Nutrition problems in Australia as a whole will be addressed as will the nutritional needs of specific groups. Nutrition planning and policy and variations between states will be discussed.

**Prerequisites:** PNP104, PNP143

**Credit Points:** 6 **Contact Hours:** 3 per week

## ■ PNP111 FOOD STUDIES I

**Offered:** Autumn

The subject provides an overview of the structures and composition of food and its role in providing for nutritional requirements of the community. The impact of processing on nutrients in food is considered. The subject is closely allied with the subjects Foundations of Nutrition and Food Studies II.

**Credit Points:** 4 **Contact Hours:** 2 per week

## ■ PNP112 FOOD STUDIES II

**Offered:** Spring

Provides an opportunity to experiment with food commodities and to practise service planning, and food presentation. Examines the ingredient content of commercial foodstuffs. Examines the role of individual



ingredients of foodstuffs in the determination of food structure and organoleptic properties.

**Prerequisites:** PNP111

**Co-requisites:** PNP120, PNP108

**Credit Points:** 6      **Contact Hours:** 3 per week

#### ■ PNP115 OCCUPATIONAL HEALTH & SAFETY ADMINISTRATION I

**Offered:** Autumn

This fundamental subject will introduce students to basic concepts in occupational health and safety. They will develop both an understanding of and skills in not only basic management principles as they apply to this discipline but also in the development and delivery of health and safety training programs. A sound foundation in the principles and practice of health promotion will also be developed.

**Credit Points:** 12      **Contact Hours:** 3 per week

#### ■ PNP116 HUMAN FACTORS

**Offered:** Autumn

This subject will introduce the human factors in occupational health and safety. Basic human anatomy and physiology will be reviewed prior to a discussion of how the physico-chemical environment of the workplace can impinge on normal physiological function. The psychology of humans in the work environment will be discussed with consideration of attitudes towards health and safety. The use of ergonomics, anthropometry and biomechanics in the design of safer workplaces will be reviewed.

**Credit Points:** 12      **Contact Hours:** 3 per week

#### ■ PNP120 THERAPEUTIC DIETETICS

**Offered:** Spring

An extensive study of the application of dietary modifications and nutritional support in clinical settings. The emphasis is on dietary intervention for individuals particularly those with medical or surgical conditions where diet forms part of the treatment. There is a large practical component.

**Prerequisites:** PNP143, PNP104

**Credit Points:** 10      **Contact Hours:** 7 per week

#### ■ PNP122 PRACTICE IN THERAPEUTIC DIETETICS

**Offered:** Autumn

Practical experience and seminar presentations relevant to PNP120. The course will be conducted in institutions off-campus. (40 hours per week for 11 weeks).

**Prerequisites:** Completion of all subjects Semester 1 & Semester 2

**Credit Points:** 31      **Contact Hours:** 40 per week

#### ■ PNP123 PRACTICE IN COMMUNITY NUTRITION

**Offered:** Autumn

This subject enables students gain experience of nutrition and health care of individuals and groups in the community through off-campus practice. (40 hours per week for 3 weeks).

**Prerequisites:** Completion of all subjects Semester I & II

**Credit Points:** 7      **Contact Hours:** 40 per week

#### ■ PNP124 INTRODUCTION TO DIETETICS PRACTICE I

#### ■ PNP125 INTRODUCTION TO DIETETICS PRACTICE II

**Offered:** Autumn, Spring

These subjects offer an introduction to clinical dietetics. They involve one week each principally in

the hospital setting. They offer an opportunity to practise interviewing and dietary assessment.

**Credit Points:** (PNP124)-4; (PNP125)-6

**Contact Hours:** 40 per week

#### ■ PNP132 PRACTICE IN LARGE SCALE FEEDING

**Offered:** Autumn

Practical experience and seminar presentations relevant to PNP137. The course will be conducted in institutions off-campus (40 hours per week for 4 weeks).

**Prerequisites:** Completion of all subjects Semester 1 & Semester 2

**Credit Points:** 10      **Contact Hours:** 40 per week

#### ■ PNP137 CATERING STUDIES

**Offered:** Spring

This subject is an introduction to institutional food service administration. Topics include the organisation of foodservice, production, distribution and service of food menu planning, hygiene, maintenance, financial control, human resource management and computer assistance and quality assurance. Field trips are included.

**Prerequisites:** MSP152, PNP143, PNP111

**Co-requisites:** PNP112

**Credit Points:** 7      **Contact Hours:** 5 per week

#### ■ PNP142 MEDICINE

**Offered:** Spring

Artiology of disease. Brief description of treatment other than dietary of hypertension, cardiovascular, renal, gastro-intestinal and mental diseases, diabetes mellitus. Effect of nutrition on teeth, eyes, skin general dental care and the effects of special diets on teeth, child health, nutrition in pregnancy, lactation, the aged. Brief introduction to pharmacology and proprietary names of drugs.

**Credit Points:** 4      **Contact Hours:** 1.5 per week

#### ■ PNP143 FOUNDATION OF NUTRITION

**Offered:** Autumn

This subject builds on the background of biochemistry and human physiology of the students. It brings together, in an integrated manner, appropriate areas of biological chemistry and physiological function, to provide a scientific base on which the study of human nutrition can be built. Special attention is given to the development, structure and function of the gastro-intestinal tract and related organs, energy and work, interrelationships between food, additives and drugs.

**Credit Points:** 12      **Contact Hours:** 6 per week

#### ■ PNP151 PROJECT I

#### ■ PNP251 PROJECT II

**Offered:** Autumn, Spring

The aims of these subjects are to introduce and practice research skills which will enable the student to formulate, design and conduct a research project, to analyse and interpret research data and write a scientific report. Additionally there will be an introduction to costing projects, presenting findings to different audiences and media releases. A start will be made on the community nutrition project for third semester.

**Prerequisites:** Nil for PNP151; PNP151 for PNP251

**Credit Points:** PNP151-4, PNP251-5

**Contact Hours:** 1 per week

#### ■ PNP215 OCCUPATIONAL HEALTH & SAFETY ADMINISTRATION II

**Offered:** Spring

In this subject, students will develop an understanding of both the legal framework within which the discipline operates and industrial relations concepts and

practices in so far as they impinge upon occupational health and safety. Basic statistical techniques will be reviewed as an introduction to the study of concepts of epidemiology applicable to an occupational setting.  
**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ PNP415 OCCUPATIONAL HEALTH

**Offered:** Spring

This subject is designed to introduce students to basic disease processes in humans. They will also develop an understanding of the body's various uptake mechanisms of hazardous workplace agents and basic toxicological principles, including the body's various responses to toxic agents. Examples of acute and chronic occupational diseases will be discussed.

**Credit Points:** 12    **Contact Hours:** 3 per week

#### ■ PNP416 OCCUPATIONAL HEALTH & SAFETY PROJECT

**Offered:** Spring

This major project gives students an opportunity to research a particular aspect of their theoretical or practical studies, and thereby develop their research techniques, data collection and evaluation skills and ability to work independently under supervision. By submission of a written project report, they will draw upon many of the skills developed throughout the course.

**Credit Points:** 12

#### ■ SVB001 SURVEYING & MAPPING

**Offered:** Autumn

Instrumentation for land measurement, contour mapping; types of map, availability and interpretation; simple survey techniques; introduction to remote sensing techniques.

**Credit Points:** 2    **Contact Hours:** 2 per week

#### ■ SVB101 SURVEYING & MEASURING

**Offered:** Autumn

The study program is aimed at problems likely to be encountered by the builder. Basic concepts and applications of surveying and relationship with architecture and building. Instrumentation: level, steel tape, theodolite, compass traversing. Applications of instruments: running a flight of levels, cross sectioning, contours, detail surveying of sites, setting out of procedures as applied to large building projects, tachometry. Office applications: plotting of survey data, computations of volumes. Legal aspects: cadastral system and land tenure system, Titles Office procedures, searching, identification, types of surveys, easements, encroachments, interpretation of survey plans.

**Credit Points:** 2    **Contact Hours:** 2 per week

#### ■ SVB111 DATA PRESENTATION I

**Offered:** Autumn

Drafting instruments and techniques. Tinting and colouring. 'One-off' reproduction. Perspective.

**Co-requisite:** SVB121

**Credit Points:** 6    **Contact Hours:** 3 per week

#### ■ SVB121 LAND SURVEYING I

**Offered:** Autumn

Principles of surveying. Surveying instrumentation. Traversing. Levelling. Elements of tachometry. Contouring. Elementary theory of error. Plane surveying computations.

**Credit Points:** 13    **Contact Hours:** 6 per week

#### ■ SVB203 PROJECT SURVEY

**Offered:** Spring

Students will be required to carry out two surveys of a building site of approximately one acre in area of

undulating ground. The first survey is to be a chain survey with reduced levels taken on a grid to show the nature of the topography. The second survey on an alternative site of the same size is to be done by theodolite traverse.

**Prerequisite:** SVB101

**Credit Points:** 4    **Contact Hours:** 2 per week

#### ■ SVB211 DATA PRESENTATION II

**Offered:** Spring

Engineering survey drafting; working survey drawings. Basic principles of computer graphics, hardware, software. Programming. Plotter production of maps and plans.

**Prerequisites:** CSB294, SVB111

**Co-requisite:** SVB226

**Credit Points:** 6    **Contact Hours:** 3 per week

#### ■ SVB212 DATA PRESENTATION IIA

**Offered:** Spring

Develops drafting skills and introduces engineering survey drafting and computer graphics.

**Prerequisite:** SVB111 **Co-requisite:** SVB226

**Credit Points:** 2    **Contact Hours:** 1 per week

#### ■ SVB226 LAND SURVEYING II

**Offered:** Spring

Plane surveying computations. Detail surveying. Reconnaissance surveying. Route location. Curve theory. Setting out surveys. Earthworks computation. Elements of cadastral surveying.

**Prerequisite:** SVB121 **Co-requisite:** SVB211

**Credit Points:** 13    **Contact Hours:** 6 per week

#### ■ SVB270 LAND ADMINISTRATION I

**Offered:** Spring

Introduction to the elements of law. Law relating to land title and registration. Crown land administration in Queensland.

**Credit Points:** 6    **Contact Hours:** 3 per week

#### ■ SVB282 SEMINAR I

**Offered:** Autumn

Preparation of technical papers and reports for both written and oral presentation. Business correspondence. Meeting procedures.

**Credit Points:** 5    **Contact Hours:** 2 per week

#### ■ SVB306 SURVEYING I

**Offered:** Spring

Introductory surveying methods and instrumentation, use of level and theodolite for gathering and setting out data points, distance measurement, circular curves, areas and volumes, introductory photogrammetry and digital terrain models.

**Credit Points:** 8    **Contact Hours:** 3 per week

#### ■ SVB311 DATA PRESENTATION III

**Offered:** Autumn

Cadastral plan drawing. Introduction to cartography. Cartographic reproduction. Mapping agencies.

**Prerequisite:** SVB111 **Co-requisite:** SVB393

**Credit Points:** 5    **Contact Hours:** 3 per week

#### ■ SVB331 OBSERVATIONS & ADJUSTMENTS I

**Offered:** Autumn

Review of relevant statistical concepts, theory of observations and of random errors, linear and nonlinear functional model, stochastic model, the law of propagation of variances, the error ellipse. Practical applications.

**Prerequisites:** MAB495, MAB499

**Co-requisite:** MAB795

**Credit Points:** 4    **Contact Hours:** 2 per week

### ■ SVB343 PHOTOGRAMMETRY I

**Offered:** Spring

Introduction to photogrammetry. Photogrammetric optics. Aerial photography. Geometry and use of single photographs. Geometry and use of the stereogram. Students are required to undertake one half day visit to an aerial survey/mapping organisation in the greater Brisbane area.

**Prerequisite:** PHB170

**Credit Points:** 6      **Contact Hours:** 3 per week

### ■ SVB352 LAND STUDIES A

**Offered:** Autumn

Introductory ecology and conservation of resources. Introduction to physical aspects of land. Assessment of physical land parameters. Land classifications. Land utilisation. Sieve mapping and land use surveys. Regional geography. Students are required to undertake a full day ecology field trip to Stradbroke Island and a full day land evaluation exercise in the greater Brisbane area.

**Credit Points:** 6      **Contact Hours:** 6 per week

### ■ SVB393 LAND SURVEYING III

**Offered:** Autumn

Cadastral surveying. Field astronomy. Students are required to carry out offcampus field work in the greater Brisbane area or a contiguous shire.

**Prerequisites:** SVB121, SVB270

**Co-requisites:** SVB311, SVB573

**Credit Points:** 10      **Contact Hours:** 5 per week

### ■ SVB412 CARTOGRAPHIC PRACTICE

**Offered:** Spring

Reprographic processes; colour systems, colour separation and colour correction. Digital mapping techniques; cartographic data structures. Geographical surfaces.

**Prerequisite:** SVB311

**Credit Points:** 5      **Contact Hours:** 3 per week

### ■ SVB430 LAND SURVEYING IV

**Offered:** Spring

Primary traversing. Classical triangulation. Trigonometrical levelling. Precise levelling. Students are required to carry out offcampus field work in the greater Brisbane area or a contiguous shire.

**Prerequisite:** SVB121

**Co-requisites:** SVB431, SVB442

**Credit Points:** 9      **Contact Hours:** 4 per week

### ■ SVB431 OBSERVATIONS & ADJUSTMENTS II

**Offered:** Spring

Introduction to least squares adjustment. Standard problems I and II, extensive practical applications to linear and non-linear problems with both univariate data sets.

**Prerequisite:** SVB331

**Credit Points:** 4      **Contact Hours:** 2 per week

### ■ SVB442 GEODETIC COMPUTATIONS

**Offered:** Spring

Plane coordinate computation. Geometrical geodesy, geometry of spheroid, computation on the spheroid. Theory of map projections. The transverse mercator and UTM. Computations on the Australian Map Grid.

**Prerequisites:** MAB795, SVB121

**Co-requisite:** SVB430

**Credit Points:** 9      **Contact Hours:** 4 per week

### ■ SVB443 PHOTOGRAMMETRY II

**Offered:** Autumn

Principles of construction and operation of analogue stereoplotters. Aerial triangulation. Terrestrial

photogrammetry. Analytical photogrammetry. Students are required to undertake one half day visit to an aerial survey/mapping organisation in the greater Brisbane area.

**Prerequisites:** SVB343, MAB795

**Co-requisites:** SVB431

**Credit Points:** 11      **Contact Hours:** 6 per week

### ■ SVB451 LAND STUDIES B

**Offered:** Spring

An introduction to the theory of price. Location theory. Land economics.

**Credit Points:** 5      **Contact Hours:** 3 per week

### ■ SVB470 LAND ADMINISTRATION II

**Offered:** Autumn

Introduction to government and public administration. Australian public land administration. Private sector land administration.

**Credit Points:** 4      **Contact Hours:** 2 per week

### ■ SVB473 LAND INFORMATION SYSTEMS I

**Offered:** Autumn

Need for a computerised land information systems review of cadastral systems. Land title systems: the multipurpose cadastre and automation. Survey requirements for land information systems. Design principles, retrieval techniques.

**Prerequisites:** CSB294, SVB211, SVB393

**Co-requisite:** SVB573

**Credit Points:** 5      **Contact Hours:** 3 per week

### ■ SVB535 LAND SURVEYING V

**Offered:** Autumn

Hydrographic surveying. Topographic surveying.

**Prerequisites:** MAB495, SVB121

**Co-requisite:** SVB430

**Credit Points:** 5      **Contact Hours:** 3 per week

### ■ SVB551 LAND VALUATION

**Offered:** Autumn

Concepts and purposes of valuation. Improvements. Urban and rural valuation. Interest in land. Compensation. Legislation affecting land valuation. Land valuation practice.

**Prerequisite:** SVB451

**Credit Points:** 6      **Contact Hours:** 3 per week

### ■ SVB561 LAND DEVELOPMENT PRACTICE I

**Offered:** Autumn

Land development as an economic activity. Surveys for subdivision design. Site planning. Land use determinants; political, economic, social and physical. Traffic aspects affecting subdivision design. Case studies of recent land development projects.

**Prerequisites:** SVB351, SVB451

**Co-requisites:** CEB364, SVB551, SVB574

**Credit Points:** 10      **Contact Hours:** 6 per week

### ■ SVB563 LAND INFORMATION SYSTEMS II

**Offered:** Autumn

Data acquisition, storage and management. Spatial identifiers. Cartographic display and generalisation in an automated system. Implementation of a system.

**Prerequisite:** SVB473 **Co-requisite:** SVB412

**Credit Points:** 4      **Contact Hours:** 2 per week

### ■ SVB571 CADASTRE

**Offered:** Autumn

A series of lectures and tutorials dealing with more complex and modern problems involved in the cadastre.

**Prerequisite:** SVB393

**Credit Points:** 4      **Contact Hours:** 2 per week

### ■ SVB573 LAND ADMINISTRATION III

**Offered:** Autumn

Queensland case law and legislation affecting land and the survey of land including the registration of interests in land, and statutory control of land development.

**Prerequisite:** SVB270

**Credit Points:** 6      **Contact Hours:** 3 per week

### ■ SVB574 LAND ADMINISTRATION IV

**Offered:** Spring

An introduction to rural and urban sociology. Social aspects of land administration.

**Credit Points:** 4      **Contact Hours:** 2 per week

### ■ SVB634 TOPICS IN ENGINEERING SURVEYING

**Offered:** Spring

Lectures, tutorials and practical exercises dealing with the following topics: network reliability, deformation surveys, subsidence monitoring, precision alignment and distance measurement, jig surveys, high rise buildings.

**Prerequisite:** SVB431 **Co-requisite:** SVB639

**Credit Points:** 5      **Contact Hours:** 3 per week

### ■ SVB636 LAND SURVEYING VI

**Offered:** Spring

Geophysical surveying. Mine surveying. Field astronomical observation.

**Prerequisites:** PHB170, SVB430

**Credit Points:** 6      **Contact Hours:** 3 per week

### ■ SVB639 OBSERVATIONS & ADJUSTMENT III

**Offered:** Spring

Lectures, tutorials and practical exercises dealing with the design, preanalysis and optimisation followed by execution, adjustment and assessment of horizontal (two dimensional) control networks, traverse and level networks (one dimensional).

**Prerequisite:** SVB431

**Credit Points:** 4      **Contact Hours:** 2 per week

### ■ SVB640 GEODESY

**Offered:** Spring

An introduction to history, definitions, the gravity field of the earth, level surfaces, spherical harmonics, variations of the gravity field, gravity measurements, geodetic reference systems, datum transformations, satellite geodesy, satellite doppler surveying, the global positioning system, inertial surveying systems, and geodynamics.

**Prerequisites:** MEB221, PHB170, SVB430, SVB442

**Co-requisite:** SVB639

**Credit Points:** 6      **Contact Hours:** 3 per week

### ■ SVB643 PHOTOGRAMMETRY III

**Offered:** Spring

Numerical relative and absolute orientation. Independent model and bundle methods of block adjustment for triangulation, close range photogrammetry including nonconventional techniques. Analytical plotters including generation, manipulation and storage of digital data. The use of micro and mini computers in analytical photogrammetry.

**Prerequisite:** SVB443 **Co-requisite:** SVB431

**Credit Points:** 5      **Contact Hours:** 3 per week

### ■ SVB645 REMOTE SENSING

**Offered:** Spring

Definitions and major systems for remote sensing. Characteristic spectral reflectance of objects and spectral response of sensors, remote sensing acquisi-

tion hardware. Remote sensing satellites. Thermography and radar. Data processing for presentation and enhancement. Cartographic correction of remote sensing data for systematic geometric error.

**Prerequisite:** SVB343

**Credit Points:** 5      **Contact Hours:** 3 per week

### ■ SVB664 LAND DEVELOPMENT PRACTICE II

**Offered:** Spring

A series of lectures covering the preliminaries of development, data assembly, statutory approvals, elements of design, requirements of communication, hydraulic and energy services, factors affecting development costs, financial and technical controls of land development schemes. Projects covering neighbourhood development, residential development, industrial estate development, canal and reclamation estates, commercial development, rural development schemes and design of small towns as are associated with mining ventures.

**Prerequisites:** SVB561, SVB574

**Credit Points:** 10      **Contact Hours:** 6 per week

### ■ SVB670 LAND ADMINISTRATION V

**Offered:** Spring

Organisation theory. Development planning procedures. Land development analysis.

**Prerequisites:** SVB470, SVB451

**Credit Points:** 5      **Contact Hours:** 3 per week

### ■ SVB680 PROFESSIONAL PRACTICE

**Offered:** Spring

The history of surveying and surveyors. The surveyor in relation to statutory authorities, civil, commercial and taxation laws. The surveyor as employer, employee, expert witness. Surveyor-client-consultant relationships. Professional ethics.

**Prerequisite:** SVB470

**Credit Points:** 6      **Contact Hours:** 3 per week

### ■ SVB682 SEMINAR II

**Offered:** Spring

Each student will prepare and present at least one technically oriented seminar paper in a field germane to surveying.

**Prerequisites:** SVB282, successful completion of subjects totalling not less than 85 hours of weekly contact time

**Credit Points:** 2      **Contact Hours:** 1 per week

### ■ SVB683 PROJECT

**Offered:** Full year

Each student will undertake and report on an approved project in the field of surveying. Field trips on site or to local firms may be required for some projects.

**Prerequisite:** Successful completion of subjects totalling not less than 85 hours of weeks contact time

**Credit Points:** 4      **Contact Hours:** 2 per week

### ■ SVB684 MAP PRODUCTION PLANNING

**Offered:** Spring

Planning of photogrammetric projects: specifications, control, costs accuracy. Elements of critical path method.

**Prerequisites:** SVB412, SVB443

**Co-requisite:** SVB643

**Credit Points:** 5      **Contact Hours:** 3 per week

### ■ SVB685 PROJECT (CARTOGRAPHY)

**Offered:** Full year

Students are required to undertake a substantial mapping project utilising knowledge gained in photogrammetric, traditional and computer assisted

methods. The project may be topographic or thematic in nature.

**Prerequisites:** SVB311, SVB412

**Co-requisite:** SVB443

**Credit Points:** 8      **Contact Hours:** 4 per week

#### ■ SVB688 PROFESSIONAL PRACTICE A

**Offered:** Spring

This subject prepares surveyors for professional practice either as employer or employee.

**Prerequisites:** Successful completion of subjects totalling not less than 100 hours of weekly contact including SVB573

**Credit Points:** 4      **Contact Hours:** 2 per week

#### ■ SVB694 GEODESY II

**Offered:** Spring

Review of matrices, the Jacobian matrix, orthogonal matrices, transformations, coordinate transformations, rotations in three dimensions, Euler angles, datum transformations, the development of datums.

**Prerequisite:** SVB640

**Credit Points:** 5      **Contact Hours:** 3 per week

#### ■ SVT113 INTRODUCTORY CARTOGRAPHY

**Offered:** Autumn

Introduction to graphical presentation as a means of communication. Introduction to map projections. Map types, concepts of scale. The Queensland land tenure system. Introduction to map and plan reproduction. Simple plotting.

**Credit Points:** 8      **Contact Hours:** 3 per week

#### ■ SVT115 CARTOGRAPHIC COMPUTATIONS I

**Offered:** Autumn

Calculation and calculating. Plane geometry. A review of algebraic manipulation with cartographic applications. Matrices and transformations as used in mapping.

**Credit Points:** 8      **Contact Hours:** 3 per week

#### ■ SVT222 SURVEY DRAFTING

**Offered:** Spring

The Survey Plan Manual. Presentation standard for microfilming. Techniques of survey drafting. Sketches under the Survey Co-ordination Act. Identification survey and detail plans. Water course boundaries. Requirements of DMS, Mines Department and Titles Office and plotting of simple plans for registration.

**Prerequisite:** SVT113

**Credit Points:** 8      **Contact Hours:** 3 per week

#### ■ SVT225 SURVEYING

**Offered:** Spring

Basic principles of surveying techniques for providing survey control, especially for mapping purposes. Basic principles of measurement - angular and linear. Historical review of surveying.

**Credit Points:** 8      **Contact Hours:** 3 per week

#### ■ SVT243 PHOTOGRAMMETRY I

**Offered:** Spring

The photographic process, aerial survey and flight planning; geometry of the single photograph, scale etc; stereoscopy, stereoscopes and parallax bar; simple treatment of space resection; rectification and interpretation. Students are required to undertake one evening visit to an aerial surveying organisation in the greater Brisbane area.

**Credit Points:** 8      **Contact Hours:** 3 per week

#### ■ SVT306 ENGINEERING SURVEYING I

**Offered:** Autumn

A series of lectures, tutorials and practical classes covering fundamental survey concepts, coordinate systems, differential and simple trigonometric levelling; angular measurements; bearing and azimuth; linear measurement by steel tape and stadia.

**Credit Points:** 7      **Contact Hours:** 3 per week

#### ■ SVT315 CARTOGRAPHIC COMPUTATIONS II

**Offered:** Autumn

Computer systems for the solution of cartographic problems. The structure of cartographic data and its relevance to computer solution. Applications of mathematical languages.

**Prerequisite:** SVT115

**Credit Points:** 8      **Contact Hours:** 3 per week

#### ■ SVT316 LAND STUDIES I

**Offered:** Autumn

Introduction to the physical aspects of land. Assessment of physical land parameters, land classification systems. Land evaluation.

**Credit Points:** 8      **Contact Hours:** 3 per week

#### ■ SVT343 PHOTOGRAMMETRY II

**Offered:** Autumn

Use of stereoplotters, relative and absolute orientation; radial line methods. Terrestrial photogrammetry. Differential rectification and orthophoto construction. Positioning and identification of ground control. Introduction to remote sensing. Students are required to undertake one evening visit to a mapping organisation in the greater Brisbane area.

**Prerequisite:** SVT243 **Co-requisite:** SVT115

**Credit Points:** 8      **Contact Hours:** 3 per week

#### ■ SVT426 LAND STUDIES II

**Offered:** Spring

Introduction to the cultural aspects of land use.

**Prerequisite:** SVT316

**Credit Points:** 8      **Contact Hours:** 3 per week

#### ■ SVT443 PHOTOGRAMMETRY III

**Offered:** Spring

The operation of stereoplotting instruments. Aerial triangulation. Compilation of maps.

**Prerequisite:** SVT343

**Credit Points:** 8      **Contact Hours:** 3 per week

#### ■ SVT471 LAND LAWS & REGULATIONS

**Offered:** Autumn

Introduction to the Australian legal system, sources of law. The various acts affecting land and land surveying in Queensland.

**Credit Points:** 8      **Contact Hours:** 3 per week

#### ■ SVT511 CAD SYSTEMS

**Offered:** Autumn

Principles of digital mapping. The use of an interactive graphics system for mapping operations.

**Prerequisite:** SVT991

**Credit Points:** 8      **Contact Hours:** 3 per week

#### ■ SVT513 DIGITAL MAPPING

**Offered:** Autumn

Advanced three-dimensional mapping. Analytical plotting systems including digital and graphical mapping, digital evaluation models and unconventional mapping applications. This subject will be project oriented.

**Prerequisites:** SVT443, SVT315

**Credit Points:** 8      **Contact Hours:** 3 per week

#### ■ SVT623 PROJECT MAPPING

Offered: Spring

Introduction to the role of government and the private sector in project mapping. Planning projects for mapping purposes.

Prerequisite: SVT343, SVT443

Credit Points: 4      Contact Hours: 1.5 per week

#### ■ SVT626 SEMINAR

Offered: Spring

Preparation of technical papers and reports for both written and oral presentation. Business correspondence. Meeting procedures.

Credit Points: 4      Contact Hours: 1.5 per week

#### ■ SVT642 MAP PROJECTIONS I

Offered: Spring

Introduction to special trigonometry and its application to map projections. Tangential, cylindrical, conical and conventional projections using a sphere as reference surface.

Prerequisite: SVT115

Credit Points: 8      Contact Hours: 3 per week

#### ■ SVT715 CARTOGRAPHY I

Offered: Autumn

Introduction to design. Monochrome design. Map compilation. The process camera for cartographic use. Introduction to lithography.

Credit Points: 8      Contact Hours: 3 per week

#### ■ SVT742 MAP PROJECTIONS II

Offered: Autumn

Geodesy: geometry of ellipse and ellipsoid; descriptive treatment of gravity. Role of geodesy in mapping. Computations of spheroid. The traverse Mercator projection, UTM and the Australian Map Grid. Computations: geographic to grid and vice versa, computations on the grid.

Prerequisite: SVT642

Credit Points: 8      Contact Hours: 3 per week

#### ■ SVT815 CARTOGRAPHY II

Offered: Spring

Map production, registration systems, scribing and masking techniques, printing methods including letter press, gravure, offset lithography and silk screen, paper and ink manufacture. Colour theory. Munsell's system, colour synthesis, colour correction and proving.

Prerequisite: SVT715

Credit Points: 8      Contact Hours: 3 per week

#### ■ SVT826 CARTOGRAPHIC ADMINISTRATION

Offered: Spring

Introduction to government and public administration. Theory of organisations and its application to mapping agencies.

Credit Points: 8      Contact Hours: 3 per week

#### ■ SVT915 CARTOGRAPHY III

Offered: Autumn

Standard mapping, economics of standard mapping, standard sheet sizes, map specifications, map accuracy. Use of orthophotos as control for mapping. Thematic mapping. Special cartographic techniques, air brush tinting, hill shading, etc.

Prerequisite: SVT815

Credit Points: 8      Contact Hours: 3 per week

#### ■ SVT916 CARTOGRAPHY IV

Offered: Spring

Digital methods in cartography. Compilation of data for computer-assisted cartography. Coordinate systems and digitising. Representation of geographic surfaces. Methods of display and analysis of spatial data.

Prerequisites: SVT991, SVT315

Credit Points: 8      Contact Hours: 3 per week

#### ■ SVT945 REMOTE SENSING

Offered: Spring

Introduction to remote sensing. Data and information. Review of electromagnetic propagation. Spectral sensitivity and response. Systems in current use. Cartographic use of remote sensing imagery.

Prerequisite: SVT343

Credit Points: 8      Contact Hours: 3 per week

#### ■ SVT991 COMPUTER GRAPHICS I

Offered: Spring

Basic elements of computer graphics. Systems hardware and software. The AUTO-DRAFT system.

Prerequisite: SVT315

Credit Points: 8      Contact Hours: 3 per week

#### ■ SVT992 COMPUTER GRAPHICS II

Offered: Autumn

Generation of data for computer-assisted mapping. Programming techniques for automated drafting. The HP Graphics language for driving plotters.

Prerequisites: SVT991, SVT315

Credit Points: 8      Contact Hours: 3 per week

# List of Subjects

These subjects are listed in alphabetical order as a basis for reference to the Outline of Subjects section which is presented in subject code order.

## A

- ACB383 Accountancy for Administrators
- ACB180 Accounting for Managers
- ACB110 Accounting I
- ACB111 Accounting II
- ACB181 Accounting Inform Systems I
- ACN813 Accounting Principles
- ACB482 Accounting Principles C
- ACP111 Accounting Principles I
- ACN183 Accounting Principles (MGMTIII)
- ACN114 Accounting Research
- ACB410 Accounting Research
- ACB310 Accounting Theory & Practice
- MAB641 Actuarial Mathematics
- MAB741 Actuarial Mathematics
- MNB026 Administrat for Geologists
- MNB483 Administration Analysis
- MNB382 Administration Research I
- LWB311 Administrative Law
- MNA012 Administrative Practice
- MNB385 Administrative Theory
- ARP676 Adv Cad for Industrial Designers I
- ARP677 Adv Cad for Industrial Designers II
- CMN821 Adv Organisational Communication
- CMB543 Advanced Advertising
- CHB610 Advanced Analysis
- PNB301 Advanced Anatomy
- ACN152 Advanced Capital Budgeting
- NSD757 Advanced Clinical Nursing I
- NSD758 Advanced Clinical Nursing II
- ISB219 Advanced Cobol
- ACN112 Advanced Company Accounting
- LWN001 Advanced Company Law
- CSB311 Advanced Computer Architectures
- EET891 Advanced Computing Techniques
- LWN002 Advanced Constitutional Law
- CEB503 Advanced Construction Methods
- EEB621 Advanced Control Systems
- INN310 Advanced Data Communications
- ISB203 Advanced Database
- ISP301 Advanced Database
- MNB571 Advanced Economic Theory & Policy
- EEP125 Advanced Eng Software Tools
- ESP706 Advanced Engineering Geology
- ARP613 Advanced Ergonomics I
- ARP623 Advanced Ergonomics II
- LWN003 Advanced Family Law
- MSP120 Advanced Genetic Engineering
- MSP126 Advanced Genetic Engineering II
- LPP212 Advanced Graphics
- CSN350 Advanced Graphics I
- CSN360 Advanced Graphics II
- EEB890 Advanced Inform Tech Topics
- ISB301 Advanced Information Systems
- ISP381 Advanced Information Systems
- CHB631 Advanced Inorganic Chemistry
- CET735 Advanced Laboratory Testing I
- CET838 Advanced Laboratory Testing II
- LPP213 Advanced Landscape Construction
- LWN004 Advanced Law of Trusts
- MNN813 Advanced Marketing Management
- MEB531 Advanced Materials
- CHB690 Advanced Materials Science
- MEB680 Advanced Mechanical Design
- NSN307 Advanced Nursing Clinical I
- NSN308 Advanced Nursing Clinical II
- NSN309 Advanced Nursing Clinical III
- NSN301 Advanced Nursing Education I
- NSN302 Advanced Nursing Education II
- NSN303 Advanced Nursing Education III
- NSN304 Advanced Nursing Management I
- NSN305 Advanced Nursing Management II
- PNB667 Advanced Nutritional Physiology
- MNB462 Advanced Organisation Behaviour
- PNB406 Advanced Orthoses
- ISP400 Advanced Programming
- CMB651 Advanced Public Relations
- PHD610 Advanced Radiographic Tech
- PHB576 Advanced Radiographic Technique I
- PHB676 Advanced Radiographic Technique II
- ESP705 Advanced Resource Geology
- ESP704 Advanced Sedimentary & Environ Geol
- CHB641 Advanced Spectroscopy
- MNN303 Advanced Strategic Marketing
- CEB551 Advanced Structural Design
- ACN171 Advanced Taxation
- ARB497 Advanced Technology
- CMP562 Advanced Text Analysis
- CEP215 Advanced Traffic Engineering
- MNB420 Advanced Training Techniques
- CEP276 Advanced Treatment Processes
- LPP413 Advanced Urban Structure
- BGP422 Advanced Valuations
- MSN401 Advances in Medical Lab Science
- CMB641 Advertising Campaigns
- CMB364 Advertising Copywriting - Electronic
- CMB363 Advertising Copywriting - Print
- CMB542 Advertising Management
- MEB450 Air Conditioning
- EEP101 Algorithms for Control Signal Proc
- PHN101 Analogue Electronics
- EEB561 Analogue Communications
- MNB153 Analysis & Methodology in Mgmt
- MSB621 Analytical Biochemistry
- CHN110 Analytical Chemistry I

- CHB110** Analytical Chemistry I  
**CHA218** Analytical Chemistry I  
**CHA319** Analytical Chemistry II  
**CHN210** Analytical Chemistry II  
**CHB210** Analytical Chemistry II  
**CHN310** Analytical Chemistry III  
**CHB310** Analytical Chemistry III  
**CHN410** Analytical Chemistry IV  
**CHN510** Analytical Chemistry V  
**MSP104** Analytical Electron Microscopy  
**PND131** Anatomy  
**PNB231** Anatomy & Physiology I  
**PNA170** Anatomy & Physiology I  
**PNN161** Anatomy & Physiology I  
**PNB261** Anatomy & Physiology I  
**PNB232** Anatomy & Physiology II  
**PNA171** Anatomy & Physiology II  
**PNN165** Anatomy & Physiology II  
**PNB262** Anatomy & Physiology II  
**PNB125** Anatomy & Physiology I  
**PNB225** Anatomy & Physiology II  
**PNB131** Anatomy I  
**PND420** Anatomy II  
**PNB132** Anatomy II  
**BEA398** Animal & Plant Techniques  
**BEB411** Animal Physiology  
**BEA011** Animal Physiology  
**MAB924** App Statistical Techniques  
**ISB101** Application Systems  
**BEA399** Applications in Electron Microscopy  
**PHB608** Applied Acoustics  
**MNB413** Applied Cognitive Psychology  
**BGB642** Applied Computer Techniques  
**BGB667** Applied Computer Techniques  
**MNB572** Applied Econometrics  
**BTB512** Applied Economic Studies  
**EEB971** Applied Electronics  
**EET678** Applied Electronics  
**BTB644** Applied Environmental Science  
**LPP514** Applied Environmental Science  
**ESB520** Applied Geochemistry  
**ESB453** Applied Geomorphology  
**MNB430** Applied Health Care Analysis  
**BTB209** Applied Land Science for Designers  
**MAB610** Applied Linear Algebra  
**BTB110** Applied Maths for Designers I  
**BTB210** Applied Maths for Designers II  
**MET201** Applied Mechanics  
**MET210** Applied Mechanics I  
**MET310** Applied Mechanics II  
**MSB611** Applied Microbiology  
**LPP513** Applied Natural Science  
**LPP559** Applied Natural Science  
**BTB444** Applied Natural Sciences  
**PNP104** Applied Nutrition I  
**PNP108** Applied Nutrition II  
**PHB501** Applied Quantum Mechanics  
**PHB609** Applied Radiation Physics  
**MNN820** Applied Research & Design  
**BTN901** Applied Research Methods  
**MNN404** Applied Research Project  
**ASB991** Applied Science Elective I  
**ASB992** Applied Science Elective II  
**ASB993** Applied Science Elective III  
**ASB994** Applied Science Elective IV  
**ASB995** Applied Science Elective V  
**ASB996** Applied Science Elective VI  
**PHB144** Applied Science for Designers I  
**BTB204** Applied Science for Designers II  
**BEA499** Applns Electron Microscopy  
**ARB791** Approved Employment I  
**ARB792** Approved Employment II  
**ARB793** Approved Employment III  
**ARB794** Approved Employment IV  
**BEB388** Aquacultural I  
**BEB588** Aquacultural II  
**BEA016** Aquacultural Techniques  
**BTB451** Architectural Interior Systems I  
**BTB551** Architectural Interior Systems II  
**CSN220** Artificial Intelligence  
**CSB324** Artificial Intelligence  
**PHB411** Astronomy  
**CMB662** Audio Visual Seminar  
**ACN122** Audit Sampling  
**ACB311** Auditing  
**ACB312** Auditing & Prof Prac  
**ACB413** Auditing Honours  
**ACN124** Auditing Honours  
**ACN125** Auditing Standards & Practice  
**CMB291** Aust Literature & Film  
**MNB183** Aust National Government A  
**MNB181** Aust National Government B  
**ACB231** Australian Capital Markets  
**CMN825** Australian Communication Contexts  
**MNB330** Australian Health Industry  
**CMB423** Australian Media Institutions  
**MNP508** Australian Policy Studies  
**CMB212** Australian Studies  
**MEB640** Automation I  
**MEB710** Automation II

## **B**

- MAB499** Basic Statistics for Surveyors  
**MNB007** Behavioural Science  
**CHP150** Biochemical Engineering  
**CHP151** Biochemical Engineering II  
**MSB310** Biochemical Methodology III  
**MSB410** Biochemical Methodology IV  
**MSB521** Biochemical Separations  
**MSB415** Biochemistry III  
**MSB473** Biochemistry III  
**MSB416** Biochemistry IV  
**MSB471** Biochemistry IV  
**MSB520** Biochemistry V  
**MSB620** Biochemistry VI  
**ESP701** Biogeog, Palaeoecology & Evolution



**CHB651** Biological Chemistry  
**MSA111** Biological Chemistry I  
**MSA112** Biological Chemistry II  
**BEA297** Biological Data Handling  
**BEB563** Biological Resources  
**BEA207** Biological Systems  
**BEB207** Biological Systems  
**BEB150** Biology  
**BEB366** Biology & Soils  
**BEA200** Biology B  
**BEB103** Biology IA  
**BEB104** Biology IB  
**BEB303** Biology II  
**PHN202** Biomechanics  
**PND241** Biomedical Science  
**MAB259** Biomedical Statistics III  
**PHB613** Biophysics  
**BGB401** Bldg Econom & Cost Planning  
**BGB406** Bldg Financial Mgmt II  
**BGB014** Bldg Services II Electrical  
**BGB341** Building & Civil Eng Construction  
**CEB430** Building Construction  
**BTB310** Building Construction I  
**ARB295** Building Construction I  
**BTB410** Building Construction II  
**ARB296** Building Construction II  
**BTB510** Building Construction III  
**ARB395** Building Construction III  
**BTB610** Building Construction IV  
**ARB396** Building Construction IV  
**CET756** Building Construction Practice  
**ARP524** Building Economics  
**ARP600** Building Evaluation & Brief Devel  
**ACB281** Building Financial Management I  
**BGB403** Building Management I  
**BGB404** Building Management II  
**BGB656** Building Research  
**BTB517** Building Services I  
**ARB391** Building Services I  
**BGB013** Building Services I HVAC  
**BGB164** Building Services IA  
**BTB508** Building Services II  
**BTB617** Building Services II  
**ARB392** Building Services II  
**BGB361** Building Services IIA  
**BGB443** Building Services III  
**BGB264** Building Services IIIA  
**BGB161** Building Studies I  
**BGB162** Building Studies II  
**BGB261** Building Studies III  
**BGB262** Building Studies IV  
**CMB105** Business Communication  
**ISB493** Business Computer Programming  
**ISB392** Business Computing  
**MNB642** Business Forecasting  
**ACB140** Business Law  
**ACN834** Business Law & Business Ethics  
**ACB440** Business Law Honours

**LWN006** Business Plan Taxation Constraints  
**MNN403** Business Policy  
**MNB252** Business Statistics  
**MNB432** Business Strategy

## **C**

**BTB655** CAD for Industrial Designers  
**SVT511** CAD Systems  
**MET573** CAD/CAM Technology  
**SVB571** Cadastre  
**MAB301** Calculus & Analysis A  
**MAB302** Calculus & Analysis B  
**PNA550** Cardiac Physiology & Anatomy  
**SVT826** Cartographic Administration  
**SVT115** Cartographic Computations I  
**SVT315** Cartographic Computations II  
**SVB412** Cartographic Practice  
**SVT715** Cartography I  
**SVT815** Cartography II  
**SVT915** Cartography III  
**SVT916** Cartography IV  
**ARP642** Case Studies  
**PHN407** Case Studies  
**BEB655** Case Studies  
**MNN815** Case Study Program  
**PNP137** Catering Studies  
**BEB201** Cell Biology  
**BEA202** Cell Structure & Function  
**MSN102** Cellular Basis of Disease  
**BED107** Cellular Effects of Radiation  
**CHA320** Chemprocess Principles I  
**CHA520** Chemprocess Principles II  
**CHB327** Chemical Technology III  
**CHB427** Chemical Technology IV  
**CHB527** Chemical Technology V  
**CHB627** Chemical Technology VI  
**CHS200** Chemistry  
**CHD148** Chemistry  
**CHB991** Chemistry Course Elective 1  
**CHB992** Chemistry Course Elective 2  
**CHB993** Chemistry Course Elective 3  
**CHB994** Chemistry Course Elective 4  
**CHB995** Chemistry Course Elective 5  
**CHB996** Chemistry Course Elective 6  
**CHB142** Chemistry I  
**CHB101** Chemistry IA  
**CHB102** Chemistry IB  
**CHB242** Chemistry II  
**CHB201** Chemistry IIA  
**CHB202** Chemistry IIB  
**CHB382** Chemistry III  
**CHA230** Chemistry of Inorganic Mats  
**CHB640** Chemistry VI  
**EEB203** Circuit Analysis  
**EEB101** Circuits & Measurements  
**CET704** Civil Construction Practice  
**CEB304** Civil Eng Design I  
**CEB405** Civil Eng Design II

<b>CEB291</b>	Civil Eng Materials	<b>PHB279</b>	Clinical Radiography I
<b>CEB506</b>	Civil Eng Practice II	<b>PHB379</b>	Clinical Radiography II
<b>CEB701</b>	Civil Eng Quantities I	<b>PHB479</b>	Clinical Radiography III
<b>CEB801</b>	Civil Eng Quantities II	<b>PHB579</b>	Clinical Radiography IV
<b>CET585</b>	Civil Engineering Drafting	<b>PHB679</b>	Clinical Radiography V
<b>CET387</b>	Civil Engineering Drafting A	<b>PHB289</b>	Clinical Radiotherapy I
<b>CEB102</b>	Civil Engineering I	<b>PHB389</b>	Clinical Radiotherapy II
<b>CET195</b>	Civil Engineering I	<b>PHB489</b>	Clinical Radiotherapy III
<b>CEB501</b>	Civil Engineering Practice I	<b>PHB589</b>	Clinical Radiotherapy IV
<b>CET703</b>	Civil Engineering Practice I	<b>PHB689</b>	Clinical Radiotherapy V
<b>CET802</b>	Civil Engineering Practice II	<b>NSD759</b>	Clinical Teaching
<b>CET286</b>	Civil Office Practice	<b>PHN157</b>	Clinical Ultrasound I
<b>CET287</b>	Civil Office Practice A	<b>PHN257</b>	Clinical Ultrasound II
<b>LWB404</b>	Civil Procedure	<b>PHN357</b>	Clinical Ultrasound III
<b>CEB220</b>	Civil Systems I	<b>ESB607</b>	Coal Geology
<b>CEB421</b>	Civil Systems II	<b>CEB561</b>	Coastal Engineering
<b>MAB635</b>	Classical Theoret Mechanics	<b>MAB920</b>	Coding & Encryption Techniques
<b>MSA441</b>	Clin Microbiol Techs III	<b>ISP410</b>	Collection Build & Use I
<b>MSA442</b>	Clin Microbiol Techs IV	<b>ISP420</b>	Collection Build & Use II
<b>MSB756</b>	Clinical Bacteriology VI	<b>MNB121</b>	Colloquial Japanese
<b>MSA471</b>	Clinical Biochem Techs III	<b>ACB341</b>	Commercial & Securities Law
<b>MSA472</b>	Clinical Biochem Techs IV	<b>LWN007</b>	Commercial Arbitration
<b>MSN510</b>	Clinical Biochemistry I	<b>LWB303</b>	Commercial Law
<b>MSN610</b>	Clinical Biochemistry II	<b>ACN175</b>	Commercial Law Honours
<b>MSB718</b>	Clinical Biochemistry V	<b>LWN008</b>	Commercial Leases
<b>MSB719</b>	Clinical Biochemistry VI	<b>LWN013</b>	Commercial Remedies
<b>PND752</b>	Clinical Biomechanics	<b>CMB521</b>	Communic & Public Opinion
<b>MSN513</b>	Clinical Immunology I	<b>CMB321</b>	Communic in Small Groups
<b>OPB505</b>	Clinical Optometry V	<b>CMB134</b>	Communication
<b>OPB605</b>	Clinical Optometry VI	<b>CMN811</b>	Communication & Culture
<b>OPB705</b>	Clinical Optometry VII	<b>CMN810</b>	Communication & Society
<b>OPB805</b>	Clinical Optometry VIII	<b>CMP007</b>	Communication Concepts
<b>PNB665</b>	Clinical Physiology	<b>CMN720</b>	Communication Evaluation
<b>PND340</b>	Clinical Physiology I	<b>CMB135</b>	Communication for Engineers
<b>PND540</b>	Clinical Physiology II	<b>CMN824</b>	Communication Policy & Planning
<b>PND640</b>	Clinical Physiology III	<b>CMB211</b>	Communication Research
<b>PNB303</b>	Clinical Podiatry I	<b>CMN813</b>	Communication Strategies
<b>PNB412</b>	Clinical Podiatry II	<b>CMA133</b>	Communication Techniques
<b>PNB504</b>	Clinical Podiatry III	<b>EET560</b>	Communications Engineering I
<b>PNB603</b>	Clinical Podiatry IV	<b>EET760</b>	Communications Engineering II
<b>NSB112</b>	Clinical Practice I	<b>EEB961</b>	Communications Techniques
<b>NSD122</b>	Clinical Practice IA	<b>EET860</b>	Communications Technology
<b>NSD123</b>	Clinical Practice IB	<b>NSD780</b>	Community Nursing I
<b>NSB212</b>	Clinical Practice II	<b>NSD781</b>	Community Nursing II
<b>NSD222</b>	Clinical Practice IIA	<b>CMB351</b>	Community Relations
<b>NSD223</b>	Clinical Practice IIB	<b>ACB210</b>	Company Accounting
<b>NSD322</b>	Clinical Practice IIIA	<b>ACB342</b>	Company Law & Practice
<b>NSD323</b>	Clinical Practice IIIB	<b>LWB401</b>	Company Law & Partnership
<b>PHD577</b>	Clinical Practice IIID	<b>ACN119</b>	Company Secretarial Practice
<b>NSD422</b>	Clinical Practice IVA	<b>MNB683</b>	Comparative Administration
<b>NSD423</b>	Clinical Practice IVB	<b>ACB352</b>	Comparative Financial Systems
<b>PHD677</b>	Clinical Practice IVD	<b>CMB572</b>	Comparative Journalism
<b>PHD587</b>	Clinical Practice IVT	<b>MNB586</b>	Comparative Politics
<b>NSD522</b>	Clinical Practice VA	<b>CSN110</b>	Compiler Construction
<b>NSD523</b>	Clinical Practice VB	<b>CSN340</b>	Compiler Laboratory
<b>NSD622</b>	Clinical Practice VIA	<b>PHD580</b>	Complementary & Evolving Techs I
<b>NSD623</b>	Clinical Practice VIB	<b>PHD680</b>	Complementary & Evolving Techs II
<b>PHD687</b>	Clinical Practice VT	<b>PHB583</b>	Complementary & Evolving Techs

- PHD572** Complementary Imaging Techs  
**ASP702** Complementary Studies  
**CET894** Computations A  
**PHB681** Computed Tomography Imaging  
**LPP519** Computer Aided Data Analysis  
**MET920** Computer Aided Design & Drafting  
**CET887** Computer Aided Drafting  
**ISB180** Computer Applications  
**BEA349** Computer Applications in Biology  
**LPP335** Computer Applications in Planning  
**LPP418** Computer Applications in Planning  
**PHB585** Computer Assisted Treatment Plan I  
**PHB685** Computer Assisted Treatment Plan II  
**ACF421** Computer Auditing  
**ISB193** Computer Based Inform Systems  
**MEB977** Computer Control of Manuf Systems  
**EEB922** Computer Controlled Systems  
**MNB152** Computer Data Analysis  
**SVT991** Computer Graphics I  
**SVT992** Computer Graphics II  
**EEP103** Computer Hardware & Interfacing  
**MEB976** Computer Integrated Manufacturing  
**EET690** Computer Organisation  
**EET490** Computer Packages  
**CSB294** Computer Programming  
**EET790** Computer Programming I  
**CST390** Computer Programming I  
**EET791** Computer Programming II  
**ISP401** Computer Project  
**CSN200** Computer Security  
**ACB360** Computer Security & Audit  
**BGB455** Computer Software Applications  
**BGB451** Computer Software Applications I  
**BGB452** Computer Software Applications II  
**CSB101** Computer Systems I  
**CSB281** Computer Systems I  
**CSB201** Computer Systems II  
**CSB282** Computer Systems II  
**ISB492** Computerised Accounting Systems  
**LWB482** Computers & the Law  
**CHA410** Computers in Chemistry  
**CSB262** Computing  
**CSA165** Computing  
**INB350** Computing Practice  
**INB360** Computing Practice  
**INB001** Computing Practice (NOTE) I  
**INB002** Computing Practice (NOTE) II  
**ISB911** Computing Project I  
**ISB912** Computing Project II  
**NSN102** Concepts for Advanced Clinical Nurs  
**NSD121** Concepts for Nursing Practice I  
**NSD221** Concepts for Nursing Practice II  
**NSD321** Concepts for Nursing Practice III  
**NSD421** Concepts for Nursing Practice IV  
**NSD521** Concepts for Nursing Practice V  
**NSD621** Concepts for Nursing Practice VI  
**CMN709** Concepts in Communication  
**CEB532** Concrete & Masonry Structures  
**CET655** Concrete & Steel Design  
**CET435** Concrete Practice  
**CEB202** Concrete Structures  
**CEB306** Concrete Structures II  
**CEB231** Concrete Technology  
**LWB407** Conflict of Laws  
**BTN301** Conservation & Reuse in Urban Des  
**ARP602** Conservation of Historic Interiors  
**BTB649** Conservation Theory  
**LPP505** Conservation Theory  
**LWB203** Constitutional Law  
**BGB151** Construction I  
**BGB154** Construction II  
**BGB153** Construction II  
**BGB253** Construction III  
**BGB254** Construction IV  
**CET606** Construction Management  
**CEP107** Construction Management & Economics  
**CEB305** Construction Planning & Economics  
**CEB307** Construction Practice  
**MNB392** Consumer Behaviour  
**OPB617** Contact Lens Studies VI  
**OPB717** Contact Lens Studies VII  
**MNN601** Contemporary Health Care Issues  
**CMB311** Contemporary Social Issues  
**EEB520** Control Engineering  
**EEB620** Control Systems & Analysis  
**EET420** Control Systems I  
**EET522** Control Systems II  
**ACB220** Cost Accounting  
**BGP429** Cost Management & Economics  
**BGB646** Cost Planning & Cost Control  
**BGB647** Cost Planning & Cost Control I  
**BGB648** Cost Planning & Cost Control II  
**MNB666** Counselling for Health Professionals  
**CMB461** Creative Writing  
**LWB202** Criminal Law & Procedure  
**PHN152** Cross-sectional Anatomy  
**LPP201** Cultural Values  
**BGP430** Current Issues  
**MNN805** Current Issues in Aust Management A  
**MNN806** Current Issues in Aust Management B  
**CMN823** Current Issues in Communication  
**NSD738** Curriculum Development  
**MSA465** Cytological Techniques III  
**MSA466** Cytological Techniques IV

## **D**

- CSP790** Data Base  
**INP270** Data Communications  
**INB270** Data Communications  
**EEP124** Data Communications  
**INB285** Data Communications  
**ISP101** Data Design & Processing  
**SVB111** Data Presentation I  
**SVB211** Data Presentation II  
**SVB212** Data Presentation IIA  
**SVB311** Data Presentation III

**CSB323** Data Security  
**ISB202** Database & Procedural Languages  
**ISB283** Database & Procedural Languages  
**ISB302** Database Management  
**MNN202** Decision Support Systems  
**LPP215** Department Field Trip  
**LPP420** Dept Field Trip & Workshop  
**PND701** Dermatology  
**PNB502** Dermatology  
**EET880** Design  
**MEB381** Design II  
**MEB773** Design for Manufacturing I  
**MEB974** Design for Manufacturing II  
**ARB193** Design I  
**BTB300** Design I  
**EEB587** Design I  
**MEB101** Design I  
**ARB194** Design II  
**ARP521** Design II  
**BTB400** Design II  
**EEB788** Design II  
**ARB293** Design III  
**BTB500** Design III  
**EEB887** Design III  
**MEB483** Design III  
**ARB294** Design IV  
**BTB600** Design IV  
**EEB888** Design IV  
**ARB693** Design IX  
**BGP417** Design Management  
**MEB975** Design of Manufacturing Systems  
**MEB981** Design of Mats Handling Systems  
**MEB980** Design of Power Transmssn Systems  
**CEB401** Design Project  
**BTB307** Design Science I  
**ARB289** Design Science I  
**BTB407** Design Science II  
**ARB288** Design Science II  
**BTB527** Design Science III  
**ARB389** Design Science III  
**BTB627** Design Science IV  
**ARB388** Design Science IV  
**ARB393** Design V  
**ARB394** Design VI  
**ARB493** Design VII  
**ARB593** Design VIII  
**MNB250** Developmental Psychology  
**MAB612** Differential Equations  
**EEB967** Digital Communications  
**EET676** Digital Electronics  
**PHB573** Digital Imaging Modalities  
**SVT513** Digital Mapping  
**EEB272** Digital Principles  
**EEB968** Digital Signal Processing  
**CMB544** Direct Response Advertising  
**MAB216** Discrete Mathematics  
**MSB430** Disease Processes IV  
**OPB527** Diseases of the Eye V

**OPB627** Diseases of the Eye VI  
**MSN530** Dissertation  
**NSN403** Dissertation  
**ACB411** Dissertation  
**BGP442** Dissertation  
**ACN950** Dissertation  
**CMN910** Dissertation I  
**CMN911** Dissertation II  
**CSN210** Distributed Systems  
**MNB633** Distribution Management  
**PHB481** Dosimetry  
**LWB414** Drafting & Legal Transactions  
**MET121** Drafting Practice IA  
**MET221** Drafting Practice IIA  
**CEP361** Draining Engineering  
**ARP652** Dsgn Mgmt & Decision Theory  
**MEB111** Dynamics  
**MEB010** Dynamics 1  
**MEB012** Dynamics 2

## ■ E

**ESB411** Earth Resources  
**ESB101** Earth Science IA  
**ESB102** Earth Science IB  
**ESB201** Earth Science IIA  
**ESB202** Earth Science IIB  
**MNP218** Economic Analysis  
**ESB513** Economic Geology V  
**ESB367** Economic Mineral Deposits  
**MNB614** Economic Seminars  
**BGB343** Economics of Construction Industry  
**BTB552** Economics of Industrial Production  
**MNB591** Economics of Information  
**MNB639** Economics of Strategic Management  
**MNB535** Economics of the Service Sector  
**BTB561** Economics of Town Planning  
**LPP562** Economics of Town Planning  
**LPP209** Ecosystems  
**NSD786** Educational Interactions  
**NSD734** Educational Psychology  
**MET123** Elect Eng Drawing IA  
**MET223** Elect Eng Drawing IIA  
**CSB999** Elective I  
**ARB597** Elective I  
**CSB998** Elective II  
**ARB697** Elective II  
**CSB997** Elective III  
**CSB996** Elective IV  
**BGB661** Elective Research Project I  
**BGB662** Elective Research Project II  
**ARP522** Elective Study I  
**ARP531** Elective Study II (Thesis)  
**CSB995** Elective V  
**EEB954** Electrical Energy Utilisation  
**EET100** Electrical Eng Computations  
**EET111** Electrical Engineering I  
**EET211** Electrical Engineering II  
**EET350** Electrical Engineering III

<b>EEB209</b>	Electrical Engineering IIM	<b>BTB543</b>	Environ Studies V- Impact Analysis
<b>EET650</b>	Electrical Equipment	<b>BTB643</b>	Environ Studies VI - Issues & Ethics
<b>EET552</b>	Electrical Machines	<b>BTB403</b>	Environ Studies IV - Eng Impacts
<b>EEB404</b>	Electrical Machines	<b>MNP421</b>	Environment of Business
<b>EEB553</b>	Electrical Power Equipment	<b>CHB411</b>	Environmental Analyt Chem
<b>EEB400</b>	Electrical Power Systems	<b>BEA403</b>	Environmental Biology
<b>EET642</b>	Electrical Power Systems I	<b>CHB691</b>	Environmental Chemistry
<b>EEB531</b>	Electrical Power Transmission	<b>ARP502</b>	Environmental Communications
<b>EET500</b>	Electrical Technology	<b>PNN101</b>	Environmental Health
<b>PHB502</b>	Electromagnetic Field Theory	<b>PNB202</b>	Environmental Health II
<b>EEB202</b>	Electromagnetics	<b>PNB203</b>	Environmental Health III
<b>MSB421</b>	Electron Microscopy	<b>PNB204</b>	Environmental Health IV
<b>EEB371</b>	Electronic Devices	<b>PNB205</b>	Environmental Health V
<b>EET570</b>	Electronic II	<b>PNB206</b>	Environmental Health VI
<b>PHN350</b>	Electronics	<b>ARB387</b>	Environmental Impact Studies
<b>EEB471</b>	Electronics	<b>BEB447</b>	Environmental Monitoring
<b>PHB308</b>	Electronics I	<b>LPP511</b>	Environmental Psychology
<b>EET270</b>	Electronics I	<b>BTB103</b>	Environmental Studies I
<b>PHB408</b>	Electronics II	<b>BTB203</b>	Environmental Studies II
<b>PHB508</b>	Electronics III	<b>BTB303</b>	Environmental Studies III - Evaluation
<b>EEB302</b>	Electrotechnology	<b>MSD680</b>	Epidemiology
<b>MNB120</b>	Elementary Japanese	<b>MSN150</b>	Epidemiology & Research Strategies
<b>LPP352</b>	Employment & Industry	<b>CET776</b>	Equipment Operation & Maintenance
<b>MET850</b>	Energy Management	<b>LWB301</b>	Equity
<b>CHB628</b>	Energy Technology	<b>BTB220</b>	Ergonomics I
<b>CEB393</b>	Eng Investigating & Reporting I	<b>BTB320</b>	Ergonomics II
<b>CEB492</b>	Eng Investigating & Reporting II	<b>BTB420</b>	Ergonomics III
<b>CEP131</b>	Eng Management & Administration	<b>BGB446</b>	Estimating I
<b>MAB893</b>	Eng Mathematics III	<b>BGB540</b>	Estimating II
<b>MAB894</b>	Eng Mathematics IV	<b>NSD788</b>	Ethics for Health Profs
<b>CHB344</b>	Engineering Chemistry M	<b>NSD737</b>	Evaluation in Nursing Education
<b>MET101</b>	Engineering Drawing	<b>LWB402</b>	Evidence
<b>MET120</b>	Engineering Drawing I	<b>MAB258</b>	Experimental Design
<b>MET220</b>	Engineering Drawing II	<b>BEB358</b>	Experimental Design
<b>MET320</b>	Engineering Drawing III	<b>PHB316</b>	Experimental Physics III
<b>MET420</b>	Engineering Drawing IV	<b>PHB416</b>	Experimental Physics IV
<b>EEB430</b>	Engineering Fields	<b>PHB516</b>	Experimental Physics V
<b>ESB653</b>	Engineering Geology	<b>ISB313</b>	Expert Information Systems
<b>EST219</b>	Engineering Geology	<b>ISP313</b>	Expert Information Systems
<b>MEB121</b>	Engineering Graphics	<b>CSB325</b>	Expert Systems
<b>EEB820</b>	Engineering Management	<b>ESB533</b>	Exploration Geochemistry
<b>MET140</b>	Engineering Materials I	<b>ESB633</b>	Exploration Geophysics
<b>MET433</b>	Engineering Materials II	<b>MNB411</b>	Export Management
<b>MAB193</b>	Engineering Mathematics I	<b>MSN001</b>	External Elective (Supporting)
<b>MAB493</b>	Engineering Mathematics II	<b>MSN002</b>	External Elective (Supporting)
<b>CET135</b>	Engineering Mechanics	<b>MSN003</b>	External Elective (Supporting)
<b>CEB184</b>	Engineering Mechanics I	<b>MSN004</b>	External Elective (Supporting)
<b>CEB185</b>	Engineering Mechanics II	<b>BSN001</b>	External Elective Study - M Bus
<b>PHB132</b>	Engineering Physics IA	<b>BSN002</b>	External Elective Study - M Bus
<b>PHB232</b>	Engineering Physics IIA	<b>BSN003</b>	External Elective Study - M Bus
<b>MEB772</b>	Engineering Project Appraisal	<b>BEA090</b>	External Projects I
<b>CEB364</b>	Engineering Science II	<b>BEA099</b>	External Projects II
<b>CEB504</b>	Engineering Science III	<b>ACN127</b>	External Reporting Issues
<b>ENS100</b>	Engineering Skills	<b>ISB215</b>	External Sources of Information
<b>SVT306</b>	Engineering Surveying I		
<b>IFB001</b>	English for Academic Purposes		
<b>INB099</b>	English for Academic Purposes		
<b>CMB108</b>	English for Technologists		

## F

<b>MEB700</b>	Failure Analysis
<b>LWB302</b>	Family Law

**ESB677** Field Excursions  
**ESB573** Field Excursions V  
**ESB577** Field Excursions V  
**ESB673** Field Excursions VI  
**NSD772** Field Experience  
**NSD773** Field Experience  
**NSD774** Field Experience  
**NSD771** Field Experience  
**ISP428** Field Experience  
**CET306** Field Practice IA  
**CET405** Field Practice IIA  
**BEB390** Field Studies I  
**BEB490** Field Studies II  
**LPP319** Field Studs & Workshops I  
**ESB397** Field Techniques  
**BEA498** Field Techniques  
**MAB782** Field Theory  
**BGP437** Field Trip  
**CEB404** Field Trip  
**CMB561** Film & Television Script Writing  
**CMB592** Film & Video Tape Editing  
**ARP601** Film, TV & Design for Theatre  
**ACB430** Finance Honours  
**ACN151** Finance Honours  
**ACB412** Financial Accounting Honours  
**ACN111** Financial Accounting Honours  
**MNB582** Financial Administration  
**ACB345** Financial Institutions - Law  
**ACB350** Financial Institutions - Lending  
**ACB351** Financial Institutions - Management  
**ACN835** Financial Management  
**ACB481** Financial Management for Engineers  
**ACB230** Financial Management I  
**ACB331** Financial Management II  
**MAB442** Financial Mathematics  
**ACN155** Financial Modelling  
**ACB659** Financial Modelling  
**ACN126** Financial Reporting  
**ACN156** Financial Risk Management  
**MEB911** Finite Element Analysis  
**CEB520** Finite Element Methods  
**CEB260** Fluid Mechanics  
**MET961** Fluid Mechanics  
**MEB660** Fluid Power  
**MET960** Fluid Power  
**MEB960** Fluid Systems Design  
**MNB361** Fluids I  
**MEB462** Fluids II  
**MEB464** Fluids III  
**PND421** Food & Nutrition  
**CHA580** Food Chemistry I  
**CHA680** Food Chemistry II  
**MSP152** Food Microbiology  
**MSB510** Food Microbiology  
**PNP111** Food Studies I  
**PNP112** Food Studies II  
**CSN320** Formal Secure Systems  
**CET856** Formwork Design

**BGB601** Formwork Design & Construct  
**LPP206** Forum Workshop A  
**LPP207** Forum Workshop B  
**MNB461** Foundation HR Competencies  
**PNP143** Foundation of Nutrition  
**CSB200** Foundations of Computing I  
**CSB290** Foundations of Computing I  
**CSB210** Foundations of Computing II  
**CSB292** Foundations of Computing II  
**NSB110** Foundations of Nursing Practice I  
**NSB111** Foundations of Nursing Practice II  
**MSB761** Fundamentals of Medicine I  
**MSB762** Fundamentals of Medicine II  
**CMB191** Fundamentals of Photography  
**CMP590** Fundraising Campaigns  
**CMP352** Fundraising Principles  
**BTB331** Furniture & Fittings I  
**BTB631** Furniture & Fittings IV  
**BTB431** Furniture & Fittings II  
**BTB531** Furniture & Fittings III

## **G**

**MNB130** General Psychology  
**PHB276** General Radiography I  
**PHB376** General Radiography II  
**MSB630** Genetic Engineering  
**BEB435** Genetics  
**ESB403** Geochemistry  
**SVB640** Geodesy  
**SVB694** Geodesy II  
**SVB442** Geodetic Computations  
**ESB487** Geological Field Studies  
**ESB687** Geological Investigations  
**ESA310** Geology  
**ESP702** Geology Case Studies I  
**ESP703** Geology Case Studies II  
**ESB519** Geology for Engineers  
**ESB437** Geophysics  
**CEB440** Geotechnical Engineering I  
**CEB541** Geotechnical Engineering II  
**CEB542** Geotechnical Engineering III  
**ACB320** Government Accounting  
**MNB686** Government & Business  
**MNN203** Government Business Relations  
**ISP419** Government Documents  
**MNB231** Government Economic Policy  
**ACB330** Government Finance  
**MNB451** Government, Business & Law  
**MNB613** Govt Policy & the Tourism Industry  
**BTB645** Grading  
**MNP333** Graduate Project  
**ARB911** Graphic Design I  
**ARB912** Graphic Design II  
**CSB321** Graphics  
**EEP122** Graphics & Computer Vision  
**NSN201** Grief & Bereavement

## H

MSA481 Haematological Techs III  
MSA482 Haematological Techs IV  
MSN511 Haematology I  
MSN611 Haematology II  
MSB426 Haematology IV  
MSB726 Haematology V  
MSB727 Haematology VI  
PHN204 Health & Occupational Physics  
MNB518 Health Admin Project  
ACB280 Health Administration Finance  
MNB331 Health Care Economics I  
MNB431 Health Care Economics II  
MNB618 Health Computer Systems  
MNB505 Health Management I  
MNB605 Health Management II  
MNN602 Health Planning, Mgmt & Evaluation  
MNB534 Health Services Evaluation  
MNB543 Health Services Planning  
MEB550 Heat Transfer  
EEB951 High Voltage Equipment  
CEB312 Highway Engineering  
MSA463 Histological Techs III  
MSA464 Histological Techs IV  
MSN512 Histopathology I  
MSN612 Histopathology II  
MSB492 Histopathology IV  
MSB792 Histopathology V  
MSB793 Histopathology VI  
ARP603 Historic Technologies  
ARB491 History of Architecture & Art III  
ARB591 History of Architecture & Art IV  
LPP503 History of Landscape Design  
LPP560 History of Planning  
ARB197 History of the Built Environ I  
ARB198 History of the Built Environ II  
BTB102 History of the Built Environment I  
BTB202 History of the Built Environment II  
ARP671 History, Theory & Criticism of Ind Des  
INN210 Honours Project II  
BTB656 Housing & Community Services  
LPP566 Housing & Community Services  
PNB163 Human Anatomy I  
PNB363 Human Anatomy III  
PNP116 Human Factors  
MNP123 Human Factors in Quality  
PND470 Human Genetics & Development  
PNB305 Human Nutrition I  
PNB435 Human Physiology  
PNB115 Human Physiology I  
PNB116 Human Physiology II  
MNB587 Human Resource Policies  
MNB361 Human Resources & the Organisation  
NSN203 Human Sexuality & Health  
CET365 Hydraulic Engineering  
CEB360 Hydraulic Engineering I  
CEB460 Hydraulic Engineering II  
CEB560 Hydraulic Engineering III

BEA060 Hydrobiological Techniques  
ESB523 Hydrogeology  
ESB527 Hydrogeology  
CEB361 Hydrology  
BGB345 Hygiene & Sanitation

## I

ESB417 Igneous & Metamorphic Petrology II  
ESB547 Igneous & Metamorphic Petrology III  
PHB578 Image Interpretation I  
PHB572 Image Recording & Evaluation  
PNB425 Imaging Anatomy  
MSB420 Imaging Pathology  
MSB713 Immunohaematology VI  
MSA435 Immunological Techniques III  
MSB412 Immunology IV  
MSB712 Immunology V  
NSN205 Independent Study  
MNB523 Independent Study HRD  
MNB561 Independent Study HRM  
MNB515 Independent Study Unit, Ind Rel  
CMN831 Individual Research  
CHA610 Industrial Analysis  
CHA368 Industrial Chemistry  
ARP672 Industrial Design I  
ARP673 Industrial Design II  
ARP674 Industrial Design Research I  
ARP675 Industrial Design Research II  
EEB573 Industrial Electronics  
EET870 Industrial Electronics  
ENT100 Industrial Employment I  
ENT200 Industrial Employment II  
ENT300 Industrial Employment III  
ENT400 Industrial Employment IV  
ENT500 Industrial Employment V  
ENT600 Industrial Employment VI  
ENT700 Industrial Employment VII  
ENT800 Industrial Employment VIII  
MEB670 Industrial Engineering I  
MEB771 Industrial Engineering II  
ASB300 Industrial Experience I  
ASB310 Industrial Experience I  
ASB320 Industrial Experience I  
ASB330 Industrial Experience I  
SVB199 Industrial Experience I  
ASB400 Industrial Experience II  
ASB410 Industrial Experience II  
ASB420 Industrial Experience II  
ASB430 Industrial Experience II  
SVB299 Industrial Experience II  
MEB600 Industrial Experience III  
SVB399 Industrial Experience III  
LWB308 Industrial Law  
MNB043 Industrial Management  
MET733 Industrial Metallurgy  
MEB810 Industrial Noise & Vibration  
MET971 Industrial Practice  
CMB451 Industrial Press

<b>MNB018</b>	Industrial Relations	<b>CMB163</b>	Intro to Audio-Vis Communic
<b>MNB363</b>	Industrial Relations I	<b>CHB002</b>	Intro to Engineering Chemistry
<b>MNB630</b>	Industrial Relations II	<b>MEB171</b>	Intro to Manufacturing
<b>INB280</b>	Industrial Training Experience	<b>CMB452</b>	Intro to Public Relations
<b>MET933</b>	Industrial Tribology	<b>MAB331</b>	Intro Vector Analysis
<b>MEB400</b>	Industrial Visits	<b>CSB100</b>	Intro to Computer Science
<b>CHB660</b>	Industrial Visits	<b>LPP404</b>	Intro to Theories of Planning
<b>LWS004</b>	Info Managers & the Law	<b>LPS102</b>	Intro to Town Planning
<b>ISB201</b>	Info Systems Analysis & Design I	<b>LPP561</b>	Intro to Urban Design
<b>ISB210</b>	Info Systems Analysis & Design II	<b>ISB263</b>	Intro to Computers & Infosystems
<b>ISP413</b>	Info Agency Mgt & Serv I	<b>PNP124</b>	Intro to Dietetics Practice I
<b>ISP423</b>	Info Agency Mgt & Serv II	<b>PNP125</b>	Intro to Dietetics Practice II
<b>ISP411</b>	Info Storage & Retrieval I	<b>ARP501</b>	Intro to Facilities Management
<b>ISP421</b>	Info Storage & Retrieval II	<b>PHN102</b>	Intro to Medical/Stats Computing
<b>ISB290</b>	Info Systems Analysis & Design II	<b>LPP321</b>	Intro to Theories of Ping
<b>ISB281</b>	Info Systems Analysis & Design I	<b>CMB241</b>	Introduction to Advertising
<b>ISP412</b>	Info Users & Services I	<b>BEA339</b>	Introduction to Bioculture
<b>ISP422</b>	Info Users & Services II	<b>CSB181</b>	Introduction to Computer Science
<b>ISP418</b>	Information & Referral Services	<b>LPP563</b>	Introduction to Computers
<b>ISP429</b>	Information Brokerage	<b>CSA259</b>	Introduction to Computing
<b>ASP701</b>	Information Retrieval Skills	<b>CSB155</b>	Introduction to Computing
<b>ISB316</b>	Information Support Systems	<b>CSB191</b>	Introduction to Computing
<b>ISN100</b>	Information Systems I	<b>ARB299</b>	Introduction to Computing I
<b>ISN300</b>	Information Systems II	<b>ARB290</b>	Introduction to Computing II
<b>ISB314</b>	Information Systems Management	<b>BTB440</b>	Introduction to Economics
<b>ISP314</b>	Information Systems Mgmt	<b>CSB291</b>	Introduction to FORTRAN
<b>EEB661</b>	Information Theory & Noise	<b>LPP552</b>	Introduction to Graphics
<b>MNN816</b>	Initial Project in Management	<b>BTB235</b>	Introduction to Interior Technology
<b>MNB514</b>	Innovation & Marketing Management	<b>LWB101</b>	Introduction to Law
<b>CHB230</b>	Inorganic Chemistry II	<b>LPP510</b>	Introduction to Law
<b>CHB430</b>	Inorganic Chemistry IV	<b>MNN100</b>	Introduction to Management
<b>CHB530</b>	Inorganic Chemistry V	<b>LPP564</b>	Introduction to Maps & Air Photos
<b>LWB307</b>	Insolvency Law	<b>CHA442</b>	Introduction to Occupational Safety
<b>CHB510</b>	Instrumental Analysis	<b>MSB120</b>	Introduction to Pathology
<b>CHA318</b>	Instrumental Analytical Chem	<b>LPP403</b>	Introduction to Planning Processes
<b>CHA240</b>	Instrumental Techniques	<b>LPP315</b>	Introduction to Planning Processes
<b>PHB405</b>	Instrumentation	<b>LPP508</b>	Introduction to Practice
<b>PHN302</b>	Instrumentation	<b>BTB343</b>	Introduction to Professions
<b>ACB335</b>	Insurance Risk Management	<b>BTB151</b>	Introduction to Technology
<b>EEB473</b>	Integrated Circuits	<b>ACB382</b>	Introductory Accounting
<b>EEB972</b>	Integrated Electronic Techniques	<b>MSA113</b>	Introductory Biochemistry
<b>BTB335</b>	Interior Technology I	<b>BEB149</b>	Introductory Biology
<b>BTB435</b>	Interior Technology II	<b>BEA108</b>	Introductory Biology
<b>BTB535</b>	Interior Technology III	<b>SVT113</b>	Introductory Cartography
<b>BTB635</b>	Interior Technology IV	<b>CHB001</b>	Introductory Chemistry
<b>ACN123</b>	Internal Auditing	<b>CHA145</b>	Introductory Chemistry
<b>MNB533</b>	Internat Health Care Syst	<b>CSB001</b>	Introductory Computing
<b>ACN118</b>	International Accounting	<b>BTB100</b>	Introductory Design I
<b>MNB626</b>	International Economics	<b>BTB200</b>	Introductory Design II
<b>ACN153</b>	International Finance	<b>MSD751</b>	Introductory Epidemiology
<b>ACB336</b>	International Finance	<b>ACB384</b>	Introductory Legal Studies
<b>ACN172</b>	International Law	<b>MNB253</b>	Introductory Marketing
<b>MNN305</b>	International Marketing	<b>MAS090</b>	Introductory Mathematics
<b>MNB526</b>	International Marketing	<b>ASB200</b>	Introductory Meteorology
<b>MNB504</b>	International Politics & Business	<b>MSB530</b>	Introductory Molecular Biology
<b>MNB661</b>	Interviewing & Counselling	<b>PHB104</b>	Introductory Physics
<b>MNB111</b>	Intro Psychology for Health Prof	<b>PHA154</b>	Introductory Physics
<b>MNB184</b>	Intro to Admin & Political Analysis	<b>MNB322</b>	Introductory Training Techniques



BGB466 Invest Dec & Fin Strategy II  
 BGB465 Invest Dec & Fin Strategy I  
 NSD763 Issues in Nursing I  
 NSD764 Issues in Nursing II

## ■ J

MET782 Jig & Tool Design  
 CMB673 Journalism Ethics & Issues  
 LWB305 Jurisprudence

## ■ K

PHD460 Kinesiology & Biomechanics  
 PHB252 Kinesiology & Biomechanics

## ■ L

CHN445 Laboratory Automation  
 CHB618 Laboratory Automation  
 CSB259 Laboratory Computing I  
 MSB405 Laboratory Computing III  
 MSA123 Laboratory Instrumentation I  
 MSA124 Laboratory Instrumentation II  
 CHN345 Laboratory Management  
 MSN405 Laboratory Medicine  
 CET837 Laboratory Practice  
 CET235 Laboratory Practice A  
 CHA111 Laboratory Techniques  
 MSB145 Laboratory Technology II  
 MSB445 Laboratory Technology III  
 MNB636 Labour Economics  
 MNN201 Labour-Management Relations  
 SVB270 Land Administration I  
 SVB470 Land Administration II  
 SVB573 Land Administration III  
 SVB574 Land Administration IV  
 SVB670 Land Administration V  
 LWB312 Land Contracts  
 BTB546 Land Development I  
 BTB646 Land Development II  
 SVB561 Land Development Prac I  
 SVB664 Land Development Prac II  
 BGB626 Land Development Studies  
 LPP524 Land Grading  
 SVB473 Land Information Systems I  
 SVB563 Land Information Systems II  
 LWB201 Land Law  
 ESB477 Land Law & Mining Applications  
 SVT471 Land Laws & Regulations  
 SVB352 Land Studies A  
 SVB451 Land Studies B  
 SVT316 Land Studies I  
 SVB351 Land Studies I  
 SVT426 Land Studies II  
 SVB121 Land Surveying I  
 SVB226 Land Surveying II  
 SVB393 Land Surveying III  
 SVB430 Land Surveying IV

SVB535 Land Surveying V  
 SVB636 Land Surveying VI  
 BTB547 Land Use Generation  
 LPP515 Land Use Generation  
 LPP551 Land Use Generation  
 BTB647 Land Use Policies  
 SVB551 Land Valuation  
 BTB511 Landscape Construction  
 LPP523 Landscape Construction  
 LPP205 Landscape Design  
 LPP214 Landscape Engineering  
 BTB565 Landscape Graphics  
 LPP520 Landscape Graphics  
 LPP210 Landscape Management A  
 LPP211 Landscape Management B  
 LPP204 Landscape Planning  
 LPP208 Landscape Practice  
 CSB212 Languages & Language Processing  
 CSP212 Languages & Language Processing  
 ACB380 Law & Communication  
 LWS003 Law & Environmental Health  
 BTN402 Law & Legislation in Urban Design  
 BGB243 Law 1 - Building Acts & Regulations  
 BGB342 Law 2 - Principles & Property  
 BGB440 Law 3 - Building Contracts  
 BGB543 Law 4 - Torts & Arbitration  
 BGB643 Law 5 - Commercial Law  
 LWB005 Law Elective  
 LWB006 Law Elective  
 NSD720 Law for Nurse Managers  
 LWD001 Law for Nurses  
 ACB240 Law of Business Associations  
 LWB102 Law of Contract  
 BTB609 Law of the Built Environment  
 ARB386 Law of the Built Environment  
 LWN009 Law Rel to Build & Eng Contracts  
 BGB668 Law VI Valuation of Land  
 BGB243 Law I Building Acts & Regulations  
 LWP001 Legal Practice  
 LWB104 Legal Research & Writing I  
 LWB415 Legal Research & Writing II  
 LWN010 Legislation  
 ISP414 Lib Service to Yng People  
 CHA991 Liberal Studies Elective  
 ISP430 Library Systems Evaluation  
 BTB132 Light & Colour Studies  
 MAB310 Linear Algebra  
 MAB410 Linear Algebra  
 MAB710 Linear Algebra B  
 ACN174 Liquidations & Receiverships  
 CMB161 Literature & Communication  
 CMB465 Literature, Language & Society  
 LWN011 Litigation  
 MNB482 Local Government  
 LWB306 Local Government Law  
 MNB684 Local Govt Admin Pract II  
 MNB584 Local Govt Admin Practice I

## **M**

- MET580** Machine Elements I  
**MET680** Machine Elements II  
**MNB251** Macroeconomic Analysis  
**MNB472** Macroeconomic Policy  
**MNB372** Macroeconomic Theory  
**CMB462** Magazine & Feature Writing  
**INN400** Major Project - Part I  
**INN450** Major Project - Part II  
**MNB004** Management  
**MNB040** Management  
**MNP054** Management & Marketing  
**MNB412** Management & Organisations  
**ARP523** Management & Law I  
**ARP532** Management & Law II  
**MNB302** Management for Info Technologists  
**MNB203** Management II  
**ISN156** Management Information Systems  
**ISB156** Management Information Systems  
**MND222** Management Perspectives  
**MNB405** Management Science A  
**ACB321** Managerial Accounting  
**ACB420** Managerial Accounting Honours  
**ACN231** Managerial Accounting Honours  
**ACN232** Managerial Accounting Issues A  
**ACN233** Managerial Accounting Issues B  
**MNN106** Managerial Economics  
**MNB651** Managerial Strategy  
**MNP113** Managing Communications for Quality  
**MEB471** Manufacturing Engineering I  
**MEB571** Manufacturing Engineering II  
**MEB673** Manufacturing Engineering III  
**MEB173** Manufacturing Practice  
**MEB900** Manufacturing Project  
**MEB978** Manufacturing Systems Engineering  
**MEB370** Manufacturing Systems I  
**MEB472** Manufacturing Systems II  
**MET170** Manufacturing Technology  
**BTB315** Manufacturing Technology I  
**BTB415** Manufacturing Technology II  
**BTB558** Manufacturing Technology III  
**BTB658** Manufacturing Technology IV  
**BTB135** Map & Air Photo Interpretation  
**LPP521** Map & Air Photo Interpretation  
**SVB684** Map Production Planning  
**SVT642** Map Projections I  
**SVT742** Map Projections II  
**BTB556** Marketing  
**MNB091** Marketing  
**MNB525** Marketing Decision Making  
**MNB391** Marketing Management  
**MNN204** Marketing Methods & Practices  
**MNB592** Marketing Research  
**CMN710** Mass Communication A  
**CMN711** Mass Communication B  
**BGB103** Material Science I  
**BGB104** Material Science II  
**BGB247** Material Science III  
**MEB339** Materials & Manufacturing Project  
**MET141** Materials (Civil)  
**MET600** Materials for Electrical Engineers  
**MEB133** Materials I  
**MEB230** Materials II  
**MEB231** Materials III  
**CHB590** Materials Science  
**MEB332** Materials Selection  
**MEB031** Materials Technology  
**MAB788** Mathematical Statistics  
**MAB417** Mathematical Statistics A  
**MAB418** Mathematical Statistics B  
**MAB317** Mathematical Statistics I  
**MAB318** Mathematical Statistics IIA  
**MAB608** Mathematical Statistics IIB  
**MAB907** Mathematical Stats IIIA  
**MAB908** Mathematical Stats IIIB  
**MAS091** Mathematics  
**MAB298** Mathematics & Statistics  
**MAS092** Mathematics A  
**MAB297** Mathematics for Construct  
**MAB251** Mathematics I  
**MAB211** Mathematics IA  
**MAB224** Mathematics IB  
**MAB225** Mathematics IC  
**MAB226** Mathematics ID  
**MAB411** Mathematics IIA  
**MAB412** Mathematics IIB  
**MAB425** Mathematics IIC  
**MAB342** Mathematics of Finance  
**BGB005** Measurement of Construction I  
**BGB131** Measurement of Construction IA  
**BGB245** Measurement of Construction IB  
**BGB006** Measurement of Construction II  
**BGB246** Measurement of Construction IIB  
**BGB009** Measurement of Construction III  
**BGB545** Measurement of Construction IV  
**BGB010** Measurement of Construction IV  
**BGB461** Measurement of Construction V  
**BGB462** Measurement of Construction VI  
**BGB524** Measurement of Construction VII  
**LPP522** Measurement of Sites  
**BGB444** Mechanical & Electrical Estimating  
**MEB489** Mechanical Design Project  
**MET940** Mechanical Measurements  
**MET601** Mechanical Plant  
**MET421** Mechanical Project IA  
**MAB735** Mechanics  
**MEB313** Mechanics I  
**MEB610** Mechanics II  
**LWB480** Media Law  
**CMB541** Media Strategy  
**CMB562** Media Text Analysis  
**PHN206** Medical Imaging  
**PHN304** Medical Imaging Science  
**PHA213** Medical Instrumentation II  
**PHB475** Medical Radiation Computing I  
**PHB575** Medical Radiation Computing II

**MNB319** Medical Record Admin I  
**MNB419** Medical Record Admin II  
**MNB519** Medical Record Admin III  
**MNB619** Medical Record Admin IV  
**MNB320** Medical Terminology  
**PHB473** Medical Ultrasound  
**NSN105** Medical/Surgical Nursing I  
**NSN106** Medical/Surgical Nursing II  
**NSN107** Medical/Surgical Nursing III  
**PNP142** Medicine  
**PND469** Medicine  
**PNB410** Medicine  
**LWS001** Medicine & the Law  
**PHB387** Megavoltage Therapy I  
**PHB487** Megavoltage Therapy II  
**MAB941** Methods of Math Economics  
**MAB921** Meths of Mathemat Physics A  
**MNN808** Mgmt, Technology & Social Change  
**PHN301** Microprocessors  
**ISB385** Microcomputer Software Applications  
**MSB511** Microbial Physiology & Metabolism V  
**MSB610** Microbial Technology  
**MSB150** Microbiology  
**MSD742** Microbiology  
**MSB201** Microbiology  
**MSB101** Microbiology I  
**MSB301** Microbiology I  
**MSD360** Microbiology I  
**MSA161** Microbiology I  
**MSN515** Microbiology I  
**MSB102** Microbiology II  
**MSB402** Microbiology II  
**MSD460** Microbiology II  
**MSA162** Microbiology II  
**MSN615** Microbiology II  
**MSB450** Microbiology III  
**MSB103** Microbiology III  
**MSB454** Microbiology IV  
**MSB755** Microbiology V  
**ISB382** Microcomputer Applications  
**EEB273** Microcomputers in Engineering  
**MNB151** Microeconomic Analysis  
**MNB471** Microeconomic Policy  
**MNB371** Microeconomic Theory  
**EET590** Microprocessor Systems  
**EEB472** Microprocessors  
**BEA198** Microscopy Techniques  
**EEB662** Microwave & Antenna Technology  
**EEB962** Microwave Systems Engineering  
**ESB613** Mineragraphy & Mining Geol  
**ESB320** Mineral Assemblages  
**ESB517** Mineral Exploration  
**LWB481** Mineral Law  
**ESB220** Mineralogy  
**ESA510** Mineralogy Techniques  
**ESB617** Mining Geology  
**ESB693** Mining Property Evaluation  
**INN300** Minor Project

**INN301** Minor Project  
**INN302** Minor Project  
**INN303** Minor Project  
**CSB350** Miscellaneous Studies  
**MAB309** Modern Algebra  
**MAB409** Modern Algebra  
**CMN814** Modern Communication Technologies  
**EET720** Modern Control Technology  
**CMB463** Modern Lit & Film in Soc  
**MSN110** Molecular Basis of Disease  
**MSN101** Molecular Basis of Disease I  
**MSN201** Molecular Basis of Disease II  
**MSP105** Molecular Diagnosis of Disease  
**MNB529** Monetary Economics  
**CMB442** Motivation & Ethics in Advertising  
**MAB601** Multivariable Calculus A  
**MAB602** Multivariable Calculus C  
**CET707** Municipal Engineering  
**CEP128** Municipal Engineering Planning  
**CEP213** Municipal Engineering Practice  
**CEP491** Municipal Engineering Practice  
**CEP109** Municipal Law & Regulations

## ■ N

**CMP421** National Media Institutions  
**CSN330** Natural Language Processing  
**EEB303** Network Theory I  
**EEB401** Network Theory II  
**EEP120** Networks & Distributed Computing  
**PNA750** Neurological Physiology & Anatomy  
**CMB359** Newswriting  
**MEB510** Noise & Vibrations  
**MET511** Noise, Stress & Vibration Practice  
**PHB373** Nuclear Medicine Imaging I  
**PHB680** Nuclear Medicine Imaging II  
**PHB602** Nuclear Physics & Energy  
**MAB718** Numerical Analysis A  
**MAB719** Numerical Analysis B  
**MAB618** Numerical Analysis I  
**MAB619** Numerical Analysis II  
**MAB913** Numerical Analysis III  
**NSN202** Nursing & Health Education Practice  
**NSB120** Nursing in Social Systems I  
**NSB220** Nursing in Social Systems II  
**NSD718** Nursing Management I  
**NSD719** Nursing Management II  
**NSB240** Nursing Practice I  
**NSB241** Nursing Practice II  
**NSD766** Nursing Research  
**PND750** Nutrition, Health & Disease  
**PNN102** Nutrition & Lifestyle  
**MSB631** Nutritional Biochemistry

## ■ O

**SVB639** Observations & Adjustments III  
**SVB331** Observations & Adjustments I  
**SVB431** Observations & Adjustments II

- PNP115 Occup Health & Safety Admin I  
 PNP215 Occup Health & Safety Admin II  
 PNP415 Occupational Health  
 NSD767 Occupational Health  
 PNB210 Occupational Health & Safety I  
 PNB211 Occupational Health & Safety II  
 PNP416 Occupational Health & Safety Project  
 PHP250 Occupational Hygiene  
 OPB803 Occupational/Public Health Optometry  
 OPB401 Ocular & Regional Anatomy  
 OPB608 Ocular Pharmacology  
 OPB508 Ocular Physiology  
 ISB303 Office Information Systems  
 ISP383 Office Information Systems  
 BGB552 Office Management  
 PHB683 Oncological Imaging  
 CSB301 Operating Systems  
 MNB551 Operations Management  
 MAB737 Operations Research  
 MAB637 Operations Research IA  
 MAB638 Operations Research IB  
 MAB927 Operations Research IIA  
 MAB928 Operations Research IIB  
 OPB132 Ophthalmic Optics II  
 OPB504 Ophthalmic Optics V  
 ESB317 Optical Mineralogy  
 PHN150 Optics  
 PHB311 Optics & Acoustics  
 PHB240 Optics II  
 PHB340 Optics III  
 OPB509 Optometry V  
 OPB609 Optometry VI  
 OPB709 Optometry VII  
 LPP517 Oral Communication Skills  
 BTB344 Oral Presentation  
 CHB150 Organic Chemistry I  
 CHA250 Organic Chemistry I  
 CHB250 Organic Chemistry II  
 CHA350 Organic Chemistry II  
 CHA550 Organic Chemistry III  
 CHB350 Organic Chemistry III  
 CHB351 Organic Chemistry IIIC  
 CHB450 Organic Chemistry IV  
 CHB451 Organic Chemistry IVC  
 CHB550 Organic Chemistry V  
 CHB551 Organic Chemistry VC  
 MNB463 Organisation Development  
 MNB351 Organisational Analysis & Management  
 CMP125 Organisational Communication  
 MNN814 Organisational Economics  
 MNN306 Organisational Economics  
 MNN812 Organisational Psychology  
 MNB516 Organisational Sociology  
 PNB411 Orthopaedics  
 PNB420 Orthotic Science I  
 PNB506 Orthotic Science II  
 PND441 Orthotics III  
 PND442 Orthotics IV  
 PND742 Orthotics VI  
 PHB587 Orthovoltage & Superficial Therapy
- P**
- CMB666 P R Consulting & Management  
 LWN012 Pacific Legal Systems  
 MNB528 Pacific Rim Economic Relations  
 CSP690 Package Development  
 NSN204 Pain: A Nursing Focus  
 CSN310 Parallel Processing  
 EEP121 Parallel & Supercomputing  
 MSD410 Pathology  
 MSA121 Pathology  
 MSN202 Pathology I  
 MSN302 Pathology II  
 NSB252 Pathophysiology  
 MSN306 Pathophysiology  
 MSN304 Pathophysiology I  
 MSN404 Pathophysiology II  
 MNN302 People in Organisations  
 MNB364 Pers Admin Systems/Occ Hlth & Safety  
 ACB480 Personal & Corporate Finance  
 MNP523 Personnel Functions  
 MNB254 Personnel Mgmt & Ind Relations  
 NSD120 Perspective for Nursing Practice I  
 NSD220 Perspectives for Nursing Practice II  
 NSD420 Perspectives for Nursing Practice IV  
 NSD520 Perspectives for Nursing Practice V  
 NSD620 Perspectives for Nursing Practice VI  
 NSD320 Perspectives for Nursing Practice III  
 MSA120 Perspectives in Medicine  
 ESB603 Petroleum & Coal Geology  
 ESB447 Petroleum Geology  
 ESB543 Petrology V  
 PND710 Pharmacology  
 PNB306 Pharmacology  
 SVB343 Photogrammetry I  
 SVT243 Photogrammetry I  
 SVB443 Photogrammetry II  
 SVT343 Photogrammetry II  
 SVB643 Photogrammetry III  
 SVT443 Photogrammetry III  
 CHB180 Physical & Inorganic Chemistry I  
 CHA270 Physical Chemistry I  
 CHB270 Physical Chemistry II  
 CHA370 Physical Chemistry II  
 CHA670 Physical Chemistry III  
 CHB370 Physical Chemistry III  
 CHB371 Physical Chemistry IIIC  
 CHB470 Physical Chemistry IV  
 CHB471 Physical Chemistry IVC  
 CHB570 Physical Chemistry V  
 CHB571 Physical Chemistry VC  
 PNB304 Physical Medicine  
 PHB510 Physical Methods of Analysis I  
 PHB312 Physical Properties of Materials  
 PHD351 Physics for Nurses  
 PHB170 Physics for Surveyors

<b>PHB110</b>	Physics IA	<b>BEB535</b>	Population Genetics
<b>PHB111</b>	Physics IB	<b>BEB653</b>	Population Management
<b>PHB150</b>	Physics IH	<b>ACB332</b>	Portfolio & Security Analysis
<b>PHB210</b>	Physics IIA	<b>BGB526</b>	Post Contract Services I
<b>PHB211</b>	Physics IIB	<b>BGB653</b>	Post Contract Services II
<b>PHB260</b>	Physics IIG	<b>EEB652</b>	Power Electronics
<b>PHB250</b>	Physics IIH	<b>EEB944</b>	Power Station Engineering
<b>PHN151</b>	Physics of Ultrasound	<b>EEB741</b>	Power System Analysis
<b>MNB450</b>	Physiological & Health Psychology	<b>EEB742</b>	Power Systems Engineering
<b>PHN405</b>	Physiological Measurement	<b>PNP123</b>	Prac in Community Nutrition
<b>PND430</b>	Physiology	<b>PNP132</b>	Prac in Large Scale Feeding
<b>PND759</b>	Physiology	<b>PNP122</b>	Prac in Therapeutic Dietetics
<b>PNB165</b>	Physiology II	<b>INB100</b>	Practice I (INJ232)
<b>PNB465</b>	Physiology III	<b>INB125</b>	Practice IA (IFJ222)
<b>LPP412</b>	Planning Prac & Law (Reg & Strateg)	<b>INB105</b>	Practice IA (INJ232)
<b>LPP326</b>	Planning Pract II (Urban)	<b>INB130</b>	Practice IB (IFJ222)
<b>LPP336</b>	Planning Practice & Law	<b>INB110</b>	Practice IB (INJ232)
<b>LPP411</b>	Planning Practice & Law (Urban)	<b>INB150</b>	Practice II (INJ232)
<b>BEA026</b>	Plant Cell Tissue Culture	<b>INB155</b>	Practice IIA (INJ232)
<b>MET650</b>	Plant Engineering IA	<b>INB180</b>	Practice IIB (IFJ222)
<b>CET876</b>	Plant Operation & Maintenance	<b>INB160</b>	Practice IIB (INJ232)
<b>BEB321</b>	Plant Physiology	<b>INB200</b>	Practice III (CSJ128)
<b>BEA021</b>	Plant Physiology	<b>INB201</b>	Practice III (ISJ210)
<b>BEB621</b>	Plant Physiology II	<b>INB202</b>	Practice III (ISJ243)
<b>BTB342</b>	Plant Recognition	<b>INB205</b>	Practice IIIA (CSJ128)
<b>BTB571</b>	Plant Recognition & Requirements	<b>INB225</b>	Practice IIIA (CSJ128)
<b>LPP512</b>	Plant Recognition & Requirements	<b>INB206</b>	Practice IIIA (ISJ210)
<b>BEB423</b>	Plant Tissue Culture I	<b>INB207</b>	Practice IIIA (ISJ243)
<b>BEB523</b>	Plant Tissue Culture II	<b>INB210</b>	Practice IIIB (CSJ128)
<b>BTB640</b>	Planting Design	<b>INB211</b>	Practice IIIB (ISJ210)
<b>LPP504</b>	Planting Design	<b>INB212</b>	Practice IIIB (ISJ243)
<b>BGB301</b>	PM1 - Advanced Constrn Methods	<b>INB250</b>	Practice IV (CSJ128)
<b>BGB529</b>	PM2 - Quantitative Techniques	<b>INB251</b>	Practice IV (ISJ210)
<b>BGB547</b>	PM3 - Construction Planning Techs I	<b>INB252</b>	Practice IV (ISJ243)
<b>BGB548</b>	PM4 - Construction Planning Techs II	<b>INB255</b>	Practice IVA (CSJ128)
<b>BGB550</b>	PM5 - Project Cost Control	<b>INB275</b>	Practice IVA (IFJ222)
<b>BGB623</b>	PM6 - Building Develop Techs I	<b>INB256</b>	Practice IVA (ISJ210)
<b>BGB624</b>	PM7 - Building Develop Techs II	<b>INB257</b>	Practice IVA (ISJ243)
<b>BGB606</b>	PM8 - Land Development Studies	<b>INB260</b>	Practice IVB (CSJ128)
<b>PND460</b>	Podiatric Anaesthesiology	<b>INB281</b>	Practice IVB (IFJ222)
<b>PNB422</b>	Podiatric Anaesthesiology	<b>INB261</b>	Practice IVB (ISJ210)
<b>PNB302</b>	Podiatric Medicine I	<b>INB262</b>	Practice IVB (ISJ243)
<b>PNB421</b>	Podiatric Medicine II	<b>MNB072</b>	Practice Management
<b>PNB503</b>	Podiatric Medicine III	<b>PHS021</b>	Preparatory Physics
<b>PNB505</b>	Podiatric Surgery	<b>BTN601</b>	Prescriptive Subject for Urban Des
<b>PND431</b>	Podiatry III	<b>NSN108</b>	Primary Health Care Nursing I
<b>PND432</b>	Podiatry IV	<b>NSN109</b>	Primary Health Care Nursing II
<b>PND731</b>	Podiatry V	<b>NSN110</b>	Primary Health Care Nursing III
<b>PND732</b>	Podiatry VI	<b>NSP171</b>	Principles of Education
<b>MNN811</b>	Policy Analysis	<b>ISB113</b>	Principles of Information Mgmt
<b>NSD769</b>	Policy Making & Planning	<b>ISP113</b>	Principles of Information Mgmt
<b>ISB216</b>	Polit & Social Aspects of Info Tech	<b>PHB178</b>	Principles of Medical Radiations
<b>MNB281</b>	Political Behaviour	<b>NSD739</b>	Principles of Nursing
<b>BTB414</b>	Population & Urban Studies	<b>NSB201</b>	Principles of Patient Care
<b>LPP558</b>	Population & Urban Studies	<b>CEB359</b>	Principles of Structure I
<b>BEB444</b>	Population Analysis	<b>CEB559</b>	Principles of Structure III
<b>BEB357</b>	Population & Systems Ecology	<b>CEB659</b>	Principles of Structure IV
<b>BEA405</b>	Population Biology	<b>ARB297</b>	Principles of Structures I

<b>ARB298</b>	Principles of Structures II	<b>PHB672</b>	Project
<b>CEB459</b>	Principles of Structures II	<b>PHN520</b>	Project
<b>ARB397</b>	Principles of Structures III	<b>PHN540</b>	Project
<b>ARB398</b>	Principles of Structures IV	<b>MSP125</b>	Project
<b>PHB484</b>	Principles of Treatment I	<b>ISB305</b>	Project
<b>PHB584</b>	Principles of Treatment II	<b>BEP700</b>	Project
<b>PHN154</b>	Principles of Ultrasound Imaging	<b>CHP700</b>	Project
<b>LPP405</b>	Procedural Planning Theory	<b>IFB880</b>	Project
<b>LPP331</b>	Procedural Planning Theory	<b>CEP999</b>	Project
<b>EEP123</b>	Process Control & Robotics	<b>SVB683</b>	Project
<b>MET350</b>	Process Engineering	<b>EEB789</b>	Project
<b>CHA644</b>	Process Measurement & Monitoring I	<b>ESP700</b>	Project
<b>CHA744</b>	Process Measurement & Monitoring II	<b>CET797</b>	Project I
<b>CEP200</b>	Process Modelling	<b>PNB610</b>	Project & Professional Management
<b>CET777</b>	Process Operation & Control I	<b>MNN830</b>	Project & Seminar A
<b>CET877</b>	Process Operation & Control II	<b>MNN831</b>	Project & Seminar B
<b>MEB950</b>	Process Plant Design	<b>SVB685</b>	Project (Cartography)
<b>PHB275</b>	Processing Technology	<b>CEB491</b>	Project (Civil)
<b>MET572</b>	Production Planning & Control	<b>CET495</b>	Project A
<b>EEB821</b>	Production Technology & Quality	<b>MEB408</b>	Project A (Mechanical)
<b>CMB622</b>	Prof Communication Practice	<b>MEB409</b>	Project B (Mechanical)
<b>ARP504</b>	Prof Prac & Mgt for Int Designers I	<b>BGB569</b>	Project Cost Management I
<b>ARP505</b>	Prof Prac & Mgt for Int Designers II	<b>BGP426</b>	Project Development
<b>NSB130</b>	Professional Aspects of Nursing I	<b>BGB405</b>	Project Equipment & Safety
<b>NSB230</b>	Professional Aspects of Nursing II	<b>PNP151</b>	Project I
<b>CMB104</b>	Professional Communication	<b>PNP251</b>	Project II
<b>LPP556</b>	Professional Communication	<b>CET598</b>	Project II
<b>CMB106</b>	Professional Communication	<b>PNP301</b>	Project III
<b>LWB409</b>	Professional Conduct	<b>CEB505</b>	Project Management & Administration
<b>NSN104</b>	Professional Issues in Nursing	<b>BGP431</b>	Project Management I
<b>MNB625</b>	Professional Marketing Practice	<b>BGP432</b>	Project Management II
<b>ARP653</b>	Professional Practice	<b>BGP433</b>	Project Management Law
<b>SVB680</b>	Professional Practice	<b>SVT623</b>	Project Mapping
<b>CEB403</b>	Professional Practice	<b>SVB203</b>	Project Survey
<b>SVB688</b>	Professional Practice A	<b>ESB563</b>	Project V
<b>MSN720</b>	Professional Practice I	<b>ESB663</b>	Project VI
<b>MSN820</b>	Professional Practice II	<b>CSB960</b>	Project Work
<b>LPP406</b>	Professional Procedures & Ethics	<b>MAB960</b>	Project Work
<b>CMB422</b>	Professional Speechwriting	<b>INB300</b>	Project Work
<b>ARB495</b>	Professional Studies I	<b>CSP960</b>	Project Work
<b>ARB595</b>	Professional Studies II	<b>INB301</b>	Project Work
<b>ARB695</b>	Professional Studies III	<b>CSP970</b>	Project Work A
<b>LPP361</b>	Professnl Proccds & Ethics	<b>INB310</b>	Project Work I
<b>CSB482</b>	Program Language & Structures	<b>INB320</b>	Project Work II
<b>MNB627</b>	Program Evaluation	<b>BEB560</b>	Projects I
<b>ISP303</b>	Programming	<b>BEB660</b>	Projects II
<b>CSP214</b>	Programming Languages & Structures	<b>MNP506</b>	Promot Policies & Meths
<b>CSB110</b>	Programming Principles	<b>MNB624</b>	Promotional Strategy
<b>CSB280</b>	Programming Principles	<b>BGP412</b>	Property Maintenance
<b>BGB663</b>	Prog Development Process I	<b>BGB561</b>	Property Maintenance I
<b>BGB664</b>	Prog Development Process II	<b>BGB562</b>	Property Maintenance II
<b>CHB600</b>	Project	<b>BGP439</b>	Property Management
<b>IFP222</b>	Project	<b>BGB665</b>	Property Management I
<b>MSN900</b>	Project	<b>BGB666</b>	Property Management II
<b>MSP145</b>	Project	<b>BGB362</b>	Property Marketing
<b>OPB750</b>	Project	<b>MND129</b>	Psych for Health Professionals A
<b>PND770</b>	Project	<b>NSN113</b>	Psychiatric/Mental Health Nurs III
<b>PHB616</b>	Project	<b>NSN111</b>	Psychiatric/Mental Health Nursing I

**NSN112** Psychiatric/Mental Health Nursing II  
**MND501** Psychology  
**MND415** Psychology  
**MNB267** Psychology  
**MNB067** Psychology  
**MNB154** Psychology  
**MNB002** Psychology for Engineers  
**MND011** Psychology I  
**MND033** Psychology II  
**MND055** Psychology III  
**MND066** Psychology IV  
**NSB250** Psychosocial Adaptation  
**ACB381** Public Administrative Law  
**CMB671** Public Affairs Reporting  
**MNB485** Public Enterprise  
**CEB470** Public Health Engineer II  
**CET775** Public Health Engineering  
**CEB370** Public Health Engineering I  
**CEB570** Public Health Engineering III  
**CEP174** Public Health Engineering Practice  
**LWB406** Public International Law  
**MNB484** Public Personnel Management  
**MNB509** Public Policy & Business  
**MNB588** Public Policy Process I  
**MNB687** Public Policy Process II  
**BTB648** Public Services  
**CMB553** Publicity & Promotion - Electronic  
**CMB552** Publicity & Promotion - Print  
**ACN110** PY Module - Accounts  
**ACN120** PY Module - Audit & EDP  
**ACN170** PY Module - Taxation

## Q

**CHA219** Qualitative Analysis  
**PHB574** Quality Assurance in Medical Imaging  
**ACP213** Quality Cost Analysis  
**ISP380** Quality Information Systems  
**MEP273** Quality Measurement & Testing  
**MEP173** Quality Planning  
**MAP221** Quality Problem Solving Techniques  
**MNP112** Quality System Management  
**MEP473** Quality Systems & Assessment  
**MAB173** Quantitative Methods  
**MAB195** Quantitative Methods I  
**MAB172** Quantitative Methods IB  
**MAB196** Quantitative Methods II  
**MAB150** Quantitative Techniques  
**MAB151** Quantitative Techniques  
**BTB442** Quantities & Costs  
**LPP509** Quantities & Costs

## R

**PHB671** Radiation Biology  
**PHB272** Radiation Physics I  
**PHN103** Radiation Physics I  
**PHB471** Radiation Physics II  
**PHN104** Radiation Physics II  
**CMB571** Radio/Television Journalism I  
**CMB672** Radio/Television Journalism II  
**PHD471** Radiobiology & Protection  
**PHB374** Radiographic Equipment I  
**PHB474** Radiographic Equipment II  
**PHD574** Radiographic Equipment III  
**PHB313** Radiographic Image Interpretation  
**PHD573** Radiographic Technique III  
**PHN402** Radiotherapy  
**PHB382** Radiotherapy Physics I  
**PHB482** Radiotherapy Physics II  
**PHD586** Radiotherapy Practice V  
**PHB287** Radiotherapy Technique I  
**MSP123** Readings in Biotechnology I  
**MSP124** Readings in Biotechnology II  
**BGB367** Real Estate - Accounting I  
**BGB368** Real Estate - Accounting II  
**BGP438** Real Estate Investment & Economics  
**BGB567** Real Estate Practice I  
**BGB568** Real Estate Practice II  
**EEP104** Realtime Operating Systems  
**MNB362** Recruitment & Selection  
**MET352** Refrigeration & Air Conditioning  
**PND755** Regional & Surgical Anatomy  
**PNB325** Regional & Sectional Anatomy  
**PHB402** Relativity & Radiation Physics  
**MEP371** Reliability & Maintainability  
**SVB645** Remote Sensing  
**SVT945** Remote Sensing  
**BTB562** Report Preparation  
**LPP518** Report Preparation  
**CMB360** Reporting Principles  
**ISB102** Representation of Information  
**ISB182** Representation of Information  
**ISB107** Representation of Information  
**SVT813** Reprographic Processing A  
**LWB412** Research & Writing Project  
**MNN807** Research Design & Data Analysis  
**BGP440** Research Methodology  
**INN200** Research Methodology  
**LPP339** Research Methods & Individ Project  
**LPP415** Research Methods & Individ Project  
**NSN103** Research Methods in Nursing  
**EEP300** Research Project  
**MSP121** Research Strategies I  
**MSP122** Research Strategies II  
**LPP202** Residential Landscape Design  
**LPP414** Resource Management  
**LPP343** Resource Management  
**LWN014** Resources Development Law  
**PNA650** Respiratory Physiol & Anatomy  
**CMB441** Retail Advertising  
**MNB491** Retailing Management I  
**MNB524** Retailing Management II  
**CEP127** Road & Traffic Engineering  
**CET565** Road & Drainage Engineering  
**CET815** Road Location & Design  
**EEB601** Realtime Operating Systems

**LPP401** Rural Land Use & Planning  
**LPP333** Rural Land Use & Planning

## ■ S

**CET709** Safety & Industrial Relations  
**MEP201** Safety Technology & Practice I  
**MEP301** Safety Technology & Practice II  
**MNB426** Sales Management  
**MAP211** Sampling Procedures  
**CSP213** Scientific Applications  
**CSB213** Scientific Applications  
**CSB283** Scientific Applications  
**ESB593** Sedimentary Petrology  
**ESB497** Sedimentology  
**BEB500** Selected Topics I  
**BEB600** Selected Topics II  
**MEB401** Seminar  
**SVT626** Seminar  
**SVB282** Seminar I  
**SVB682** Seminar II  
**CMN830** Seminar in Communication  
**CMN723** Seminar in Communication Research  
**CHB440** Separation Methods  
**EEB372** Sequential Logic  
**MNB492** Services Marketing  
**EEB602** Signal Processing  
**EEB361** Signals & Systems  
**BTB340** Site Measurement  
**LPP507** Site Planning  
**LPP553** Site Planning Data & Techniques  
**LPP554** Site Planning Practice  
**BTB441** Site Planning Techniques  
**LPP502** Site Planning Techniques  
**BTB341** Site Planning Theory  
**CMD114** Soc & Cultural Anthropology  
**LPP408** Social & Political Structures  
**LPP318** Social & Political Structures  
**LPP402** Social Planning  
**LPP344** Social Planning  
**MNB323** Social Psychology  
**CMD100** Sociology  
**CMB111** Sociology  
**CMD411** Sociology  
**CMB300** Sociology for Health Professionals  
**CMB119** Sociology for Professionals  
**CMB400** Sociology of Health & Illness  
**CMD200** Sociology of Health & Illness  
**CSB490** Software Engineering  
**CSB302** Software Engineering  
**CSP112** Software Principles  
**CEB240** Soil Mechanics I  
**CET645** Soil Mechanics I  
**CEB241** Soil Mechanics II  
**LWB405** Solicitors' Trust Accounts  
**PHB601** Solid State Physics  
**CHB671** Solids & Surfaces  
**CMB999** Spec Topic - Communication  
**PHB476** Special Procedures

**PND461** Special Procedures Clinic  
**CSB320** Special Studies  
**CMN899** Special Topic  
**CSN370** Special Topic  
**ISB998** Special Topic - Bus Computing  
**ISB999** Special Topic - Bus Computing  
**ACN997** Special Topic - Commercial Law  
**ACN998** Special Topic - Mngl Acctg & Finance  
**ACN999** Special Topic - Public Accounting  
**ACB999** Special Topic Accountancy  
**MNP999** Special Topic Bus Admin  
**ACA999** Special Topic Business  
**ISP998** Special Topic Commercial Computing  
**MNB997** Special Topic Health Admin  
**MEB500** Special Topic I  
**MEB601** Special Topic II  
**MEB701** Special Topic III  
**ISP999** Special Topic in Commercial Comput  
**MNB517** Special Topic in Ind Relations  
**MNB611** Special Topic in Tourism  
**MEB800** Special Topic IV  
**MNB999** Special Topic Management  
**MNN899** Special Topic or Elective  
**MNB998** Special Topic Public Admin  
**ISP417** Special Topic/Gen Elect  
**ISB317** Special Topic/Information Mgmt  
**ISP427** Special Topic/Library Science  
**PHB687** Specialised Radiotherapy Technique  
**BGB520** Specifications  
**CET708** Specifications & Estimates  
**CHB340** Spectroscopy  
**CMB220** Speech & Drama  
**CMB012** Speech Communication  
**PND761** Sports Medicine  
**PNB602** Sports Medicine  
**EEB600** Starting a Tech Based Business  
**MNB282** State Government  
**CEB282** Statics  
**EEB761** Statistical Communications  
**MAB929** Statistical Forecasting  
**MNN307** Statistical Methods  
**MAP111** Statistical Methods in Quality  
**MAP121** Statistical Process Control  
**MAB252** Statistics  
**MAP256** Statistics  
**MAN255** Statistics  
**MAB156** Statistics  
**MAB227** Statistics  
**BGP441** Statistics  
**MAA251** Statistics & Data Processing  
**CEB201** Steel Structures  
**ISB318** Strategic Information Management  
**MNB691** Strategic Marketing  
**NSN401** Strategies for Nursing Research  
**ESB597** Stratigraphy  
**CEB281** Strength of Materials  
**MEB511** Stress Analysis  
**CEB406** Structural Applications



**CET888** Structural Drawing & Design  
**CET787** Structural Engineering Drawing  
**CEB253** Structural Engineering I  
**CEB354** Structural Engineering II  
**CEB355** Structural Engineering III  
**ESB357** Structural Geology  
**ESB647** Structural Geology & Geotechnics  
**ESB643** Structural Geology VI  
**CET255** Structural Mechanics  
**BGB143** Structures I  
**BGB144** Structures II  
**BGB257** Structures III  
**BGB258** Structures IV  
**PND760** Studies in Applied Physiology  
**ASP703** Studies in Global Systems A  
**ASB101** Study Support Skills  
**CMB371** Sub-Editing & Layout  
**EET840** Substations & Protection Systems  
**LWB309** Succession  
**MET901** Sugar Mill Technology I  
**MET902** Sugar Mill Technology II  
**PND471** Surgery  
**SVT222** Survey Drafting  
**MAB199** Survey Mathematics I  
**MAB795** Survey Mathematics III  
**SVT225** Surveying  
**SVB001** Surveying & Mapping  
**SVB101** Surveying & Measuring  
**SVB306** Surveying I  
**MAB495** Surveying Mathematics II  
**SVP101** Surveying Practice  
**PNB220** Systematic Anatomy  
**MSB320** Systematic Pathology  
**ISP200** Systems Analysis & Design  
**CSB211** Systems Arch & Op Systems  
**CSP211** Systems Architecture & Op Systems  
**CSB326** Systems Programming  
**EEB591** Systems Programming Languages

## ■ T

**ACB344** Taxation & Professional Practice  
**ACN178** Taxation & Professional Practice  
**ACB441** Taxation Honours  
**LWB403** Taxation Law  
**ACB340** Taxation Law & Practice  
**ACB343** Taxation of Business Entities  
**ACN177** Taxation Policy Honours  
**BEA004** Taxonomy  
**NSD735** Teaching Practice I  
**NSD736** Teaching Practice II  
**CMB136** Technical Writing  
**MNP309** Technological Innovation  
**ARB195** Technology I  
**ARB196** Technology II  
**EET460** Telecommunications  
**EET753** Testing & Commissioning Techniques  
**ISP100** The Computer System  
**LWN015** The Criminal Justice System

**BTB101** The Human Environment I  
**ARB191** The Human Environment I  
**BTB201** The Human Environment II  
**ARB192** The Human Environment II  
**BTB301** The Human Environment III  
**ARB291** The Human Environment III  
**BTB401** The Human Environment IV  
**ARB292** The Human Environment IV  
**ISB214** The Information Resource  
**MNB503** The Tourism Industry in Aust  
**BTN202** The Urban Environment & Behaviour I  
**BTN203** The Urban Environment & Behaviour II  
**BTN302** The Urban Landscape  
**NSB210** Theories of Nursing I  
**NSB211** Theories of Nursing II  
**NSD762** Theory & Practice of Nursing  
**CSN100** Theory of Computing I  
**CSN300** Theory of Computing II  
**MEB411** Theory of Machines  
**LPP501** Theory of Site Planning  
**LPP555** Theory of Site Planning  
**PNP120** Therapeutic Dietetics  
**PND452** Therapeutics II  
**PHB401** Thermal & Vacuum Physics  
**MET250** Thermodynamics  
**MEB250** Thermodynamics I  
**MEB251** Thermodynamics II  
**MEB650** Thermodynamics III  
**MET560** Thermofluids  
**LWN100** Thesis  
**CMN950** Thesis/Project  
**BGB565** Time Management  
**BGP434** Time Management I  
**BGP414** Time Management II  
**MAB906** Topics in Analysis  
**MSP127** Topics in Biotechnology I  
**MSP128** Topics in Biotechnology II  
**SVB634** Topics in Engineering Surveying  
**PHB620** Topics in Physics  
**LWB103** Torts  
**BTN305** Tourism & Recreation in Urban Design  
**LWN005** Trade Practices & Consumer Protection  
**LWB410** Trade Practices Law  
**MET171** Trade Training IA  
**MET271** Trade Training IIA  
**CHA844** Trade Waste Control  
**CEB313** Traffic Engineering  
**MSA436** Transfusion Techniques IV  
**EEB562** Transmission & Propagation  
**EET737** Transmission & Propagation  
**MNB612** Transnational Management  
**BTN303** Transport & Movement Syst in Ur Des  
**MNB527** Transport Economics  
**CEB512** Transport Engineering I  
**CEB511** Transport Engineering II  
**BTB563** Transport Planning  
**LPP557** Transport Planning  
**CEP218** Transportation Engineering

**PHB286** Treatment Planning I  
**PHB386** Treatment Planning II  
**MEB463** Tribology  
**LWN016** Tribunals & Enquiries

## ■ U

**PHN155** U/Sonic Exam in Obstetrics/Gynaecol  
**PHN352** U/Sonic Exam in Cardiology  
**PHN354** Ultrasonic Examination of Head, Neck & Peripheral Organs  
**PHN353** U/Sound in Medical Diagnosis  
**PHN156** Ultrasonic Exam of The Abdomen  
**PHN153** Ultrasound Equipment I  
**PHN351** Ultrasound Equipment II  
**NSD768** Unit Management  
**EEP102** Unix & C for Engineering  
**BTN404** Urb Des Feasibilities & Management  
**BTN403** Urb Des Guidelines & Develop Control  
**BTN501** Urb Des Research Dissertation Elect  
**BTB654** Urban & Regional Planning Electives  
**BTN304** Urban Climate & Services  
**LPP325** Urban Design  
**BTN101** Urban Design Analysis Studio  
**BTN401** Urban Design Computer Applications  
**BTN103** Urban Design Conjecture Studio  
**BTN102** Urban Design Context Studio  
**BTN105** Urban Design Field Studies Studio  
**BTN104** Urban Design Guidelines Studio  
**BTN201** Urban Design History of Urb Systems  
**BTN701** Urban Design Research Electives I  
**BTN702** Urban Design Research Electives 2  
**BTN204** Urban Design Theory & Criticism  
**BGB166** Urban Economics  
**LPP341** Urban Governance  
**LPP323** Urban Land Development  
**LPP565** Urban Land Development  
**LPP203** Urban Landscape Design  
**BTB663** Urban Planning I  
**LPB441** Urban Planning II  
**LPB444** Urban Planning III  
**LPP416** Urban Policy Implementation  
**LPP407** Urban Policy Processes  
**LPP322** Urban Structure  
**CEP310** Urban Transport Planning  
**PNA850** Urological Physiology & Anatomy  
**LPP506** User & Character Design Studies

## ■ V

**CEB192** Vacation Practice I  
**EEB206** Vacation Practice I  
**MEB200** Vacation Practice I  
**EEB901** Vacation Practice I  
**CEB292** Vacation Practice II  
**EEB406** Vacation Practice II  
**MEB300** Vacation Practice II  
**EEB902** Vacation Practice II  
**CEB392** Vacation Practice III

**EEB606** Vacation Practice III  
**MEB402** Vacation Practice III  
**EEB903** Vacation Practice III  
**BGB442** Valuations & Dilapidations  
**BGB563** Valuations - Advanced I  
**BGB564** Valuations - Advanced II  
**BGB263** Valuations I  
**BGB268** Valuations II  
**BGB363** Valuations III  
**BGB364** Valuations IV  
**BGB464** Valuations V - Rural  
**BEB429** Vegetation Studies  
**MNP310** Venture Management & Development  
**CMB464** Video Production Techniques  
**MSB408** Virology IV  
**MSB512** Virology V  
**LPP516** Visual Communication - Graphics  
**BTB306** Visual Communication I  
**BTB406** Visual Communication II  
**BTB506** Visual Communication III  
**BTB653** Visual Communication IV  
**OPB312** Visual Science III  
**OPB412** Visual Science IV

## ■ W

**CEP277** Waste Management  
**CEP274** Water & Wastewater Treatment II  
**CEP172** Water Quality Engineering  
**PHB310** Wave Theory & AC Circuits  
**ARP503** Workplace Design  
**MET475** Workshop (Mech) IIIA  
**MET175** Workshop Training Mech IA  
**CMB014** Writing & Communication Theory  
**CMB116** Writing for Designers I  
**ARB189** Writing for Designers I  
**CMB117** Writing for Designers II  
**ARB190** Writing for Designers II