



Construction Handbook 2013: Undergraduate

BACHELOR OF CONSTRUCTION (BCONST)

Quantity Surveying

Construction Management

CERTIFICATE OF PROFICIENCY

GRADUATE DIPLOMA IN TECHNOLOGY (CONSTRUCTION)



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WELCOME

CONSTRUCTION PROGRAMMES 2013

To all prospective students,

Congratulations for choosing a career in building and construction. You have made a wise decision to join the elite group of professionals all over the world who are in the fore front of managing the design, planning and construction of new - and renewal of existing - infrastructure that is required for living, recreation, industry and working. The construction industry is one of the backbones of any nation's economy: it contributes significantly to the GDP by creating and maintaining the nation's physical assets, provides jobs, stimulates growth of allied industries and improves the standard of living.

Irrespective of the state of the economy – boom or burst – graduates of the construction disciplines are always sought-after worldwide. This is because, during economic recession, governments all over the world aim to stimulate construction activities by budgeting heavily for the development and upgrading of infrastructure; during periods of economic boom, construction activities will be at the peak – each trough or peak period in the economic cycle sets in motion a parallel cycle of demands for skills that seems unstoppable thereby creating jobs and high demands for construction graduates.

With the ever increasing complexity of the needs and the expectations of the construction clients, and the rapid changes in the business landscape, managing the development of major projects is becoming increasingly complex, requiring advanced and wide ranging skills and knowledge. Our undergraduate and postgraduate programmes in construction are designed to equip graduates with a wide range of cutting edge skills and knowledge to be globally competitive and to enable them add superior values to organizations. You will be exposed to the appropriate mix of pure and applied science, engineering, business, finance, human resources, legal, communication, time-management and lifelong learning skills to be in tune with the needs of employers in the workplace and to be innovative enough to be an agent of change. As a result, the programmes have an enviable record for the rapid uptake of graduates by employers, and progression of those graduates to well paid senior positions. Many positions offer an exciting variety of time spent on the building site, in client meetings and not just at the office.




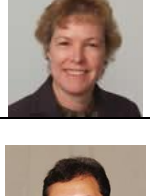



I am pleased to welcome you to Massey University and to urge you to avail yourself of the numerous opportunities that we offer. This handbook details the papers offered in the undergraduate and postgraduate programmes in construction. I hope that you will find your studies very exciting and rewarding.



Dr Jasper Mbachu
Senior Lecturer and Coordinator, Construction Programmes
School of Engineering & Advanced Technology
College of Sciences
Massey University



PROGRAMME LEADERS

Staff	Position/ Role
<p>Professor Don Cleland</p> <p>D.Cleland@massey.ac.nz</p>	 <p>Head of School and Professor of Process Engineering</p>
<p>Professor Ian Maddox</p> <p>I.S.Maddox@massey.ac.nz</p>	 <p>Regional Director (College of Sciences, Albany), Associate Head of School (School of Engineering & Advanced Technology, Albany)</p>
<p>Associate Professor Robyn Phipps</p> <p>R.A.Phipps@massey.ac.nz</p>	 <p>Associate Professor and Director, Built Environment</p>
<p>Dr Claire Flemmer</p> <p>C.L.Flemmer@massey.ac.nz</p>	 <p>Senior Lecturer Building Technology.</p>
<p>Naseem Ameer Ali</p> <p>N.A.N.AmeerAli@massey.ac.nz</p>	 <p>Senior Lecturer in Quantity Surveying</p>
<p>Dr Niluka Domingo</p> <p>N.D.Domingo@massey.ac.nz</p>	 <p>Lecturer in Quantity Surveying</p>
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<p>Roy Speed</p> <p>R.Speed@massey.ac.nz</p>	<p>Senior Lecturer in Illumination Engineering.</p>
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Senior Lecturer.



UNDERGRADUATE PROGRAMMES IN CONSTRUCTION

BACHELOR OF CONSTRUCTION

Introduction

The Bachelor of Construction programme develops graduates who contribute in all sectors of the construction industry. Graduates add value to the sustainable development of the built environment and its use by integrating sound technical and theoretical knowledge with industry experience, management and interpersonal skills. The design and delivery of the programme place strong emphasis on broad range of cutting edge skills, hands-on industry experience and lifelong learning. These are achieved through forging strong links with the industry and active participation of industry advisors in fashioning the strategic direction of the programme. Students complete 600 hours of construction industry work experience in the first and second parts of the programme. They complete the third part by distance learning while working full time in the industry as trainees. In their final year, students are already handling sophisticated projects that require them to develop and exercise their judgement across a wide range of building types. The programme is accredited by the Pacific Association of Quantity Surveyors (PAQS) and the New Zealand Institute of Quantity Surveyors (NZIQS); it is strongly supported by the New Zealand Institute of Building (NZIOB).

Career Opportunities

There are numerous employment opportunities for graduates of the programme in all sectors of the built environment involving construction, building maintenance, building restoration and asset management. Graduates may become part of a design or development team, be self-employed or act as consultants to the construction industry. Graduates may choose varying and challenging careers across a range of industries and sectors including:

1. Professional quantity surveying consultancies
2. Construction project management consultancies
3. Construction and specialist trade companies
4. Design and build companies
5. Buildings renovation and restoration companies
6. Property developers and consortia
7. Local authorities and regulatory bodies
8. Property management companies
9. Facilities management
10. Industrial and commercial building services

Entry Requirements

There are no admission requirements specific to this qualification other than those for admission to a university. However, students who are weak in Mathematics are encouraged to get a head start by enrolling in the foundation mathematics or physics. A candidate who has qualified for the New Zealand National Diploma in quantity surveying or equivalent qualification may be granted credits in the Parts 1 and 2 papers up to a limit of 165 credits; application for the cross-credits are considered by the Programme Director on a case-by-case basis.



Course Regulations For Bachelor Of Construction

Part I

See [Generic Regulations for College of Sciences Undergraduate Degrees and Certificates](#).

Part II

1. There are no admission requirements specific to this qualification.
2. The Bachelor of Construction consists of three Parts, each containing 120 credits of study.
3. The papers of study are listed in the Schedules following these Regulations.
4. Candidates will complete each Part, and thus progress to the next Part, by passing all papers in that Part. Those candidates who fail to pass a complete Part shall re-enrol in the remaining unpassed papers, but additionally may apply for permission to enrol in papers from a later Part. Such permission will be granted where, in the opinion of Academic Board, both the academic record of the candidate shows proven merit, and the nominated papers from the later Part are from different areas of study to the unpassed papers in the earlier Part.
5. A candidate who has qualified for the National Diploma in Quantity Surveying or an equivalent qualification, may be granted credit, up to a maximum of 165 credits from Parts 1 and 2, such credits being determined by the Academic Board after taking into account the areas of study of the diploma and the standard of pass attained.
6. Students previously enrolled in, but not completed, the Bachelor of Construction (Quantity Surveying) shall be granted credit for those papers in the appropriate Schedule that most closely conform in content and standard to the papers previously completed.
7. The prerequisites for any paper or requirements for any major may be adjusted for a student with alternative experience/background after consultation with the relevant Programme Director.
8. Each candidate shall complete to the satisfaction of Academic Board the following requirements:
 - (a) a minimum of 600 hours of approved industry work experience relating to the chosen major; and
 - (b) two associated reports as follows:
 - i. 218.110 Construction Industry Work Experience I
 - ii. 218.210 Construction Industry Work Experience II.

Note: Full details about the Regulations governing industry/practical work requirements are set out in the guidelines available from the Practical Work Office, College of Sciences.

Recognition of Prior Learning

Cross credits and Transfer of credits are governed by the Massey University Regulations on Recognition of Formal and Informal Prior Learning as provided in the University Calendar (see <http://calendar.massey.ac.nz/massey/about-us/calendar/2009-calendar/statutes-and-regulations/recognition-of-prior-learning.cfm>).

Cross credits

Cross credits are granted on the basis of a completed qualification at Massey University or another approved tertiary institution. Holders of three-year degree can be granted 120 cross credits at 100-level or 200-level, of which a maximum of 45 credits shall normally be at 200-level. No paper at 300-level shall be cross credited to another qualification.

Transfer of credits

Credits may be transferred from an incomplete qualification at Massey University or another approved tertiary institution. Application for transfer of credit is a statement from the candidate that they do not intend to complete the original qualification at a later date. Candidates may be assessed under the Transfer of Credit Regulations, rather than the Cross-credit Regulations, if

(a) they have been awarded a Massey University certificate or diploma, or a Wellington Polytechnic equivalent, and they surrender the certificate or diploma

or

(b) they have completed a diploma or certificate from an overseas tertiary institution or a New Zealand non-university tertiary institution in the same general area as the degree to which they have requested credit, such that the previous qualification will be largely superseded by the Massey University qualification. The maximum credit for such qualifications will be the first 50% of a degree. Ideally, holders of National Diploma in Quantity Surveying, ND(QS), or Construction Management, ND(CM), may be granted up to 165 credits (i.e. in about 9 to 11 papers), depending on their prior learning and subject to prerequisite requirements in Parts 2 and 3.

All Cross credit and Transfer of credit applications are considered by the Programme Director on case-by-case basis.

Programme Structure

The Bachelor of Construction programme has two majors, each consisting of three parts. Each part contains 120 credits of study. The degree is offered in a flexible mode: students complete the first and second parts internally, and then complete the third part extramurally, while doing cadetship in the industry related to their field.

Bachelor of Construction Graduate Profile

Graduates of the programme will be able to:

1. Demonstrate sound knowledge of the materials and methods used in the construction of buildings and infrastructure projects
2. Demonstrate sound knowledge of the principles of building science, building performance, and life cycle performance.
3. Appreciate building design concepts and philosophy.
4. Analyse construction problems and devise appropriate solutions using investigative, analytical and research methodologies.
5. Advise on sustainable construction practices for social and environmental responsibility
6. Analyse and optimise resources and interdependencies in the supply chain.
7. Make useful contributions to the design and development of construction and refurbishment projects.
8. Undertake life-long learning
9. Adapt to new environments and continually add value to their employer's and clients' organizations.
10. Demonstrate relevant ethical, socio-cultural and environmental issues, including the Treaty of Waitangi.



11. Display personal qualities of integrity and responsibility.
12. Use effective communication skills through appropriate media.
13. Work productively both as a self-directed individual and as a team member,
14. Appreciate the contribution and expertise of related disciplines.
15. Display knowledge of political, economic, environmental and industrial relations issues as they apply to the construction industry.

To achieve these attributes the programme includes substantive studies in business, law, technology, and dispute resolution. Papers in construction technology, building economics, measurement, the fundamentals of business law, and mathematics underpin the first and second years of study. Practical work of 300 hours in an approved organization is mandatory after completion of the first and second years.

In Part 3 of the programme, students will continue with papers in advanced technology, project management, and construction law and be encouraged to work in a relevant industry to develop fact-finding and practical skills, an understanding of the nature of organizations, and how multi-disciplinary project team members work together successfully.

Teaching Philosophy and Approach

The Bachelor of Construction curriculum is designed to provide a mix of theoretical knowledge imparted through conventional and active learning processes in the first and second parts, and hands-on-learning experience in the third part at which stage the student is exposed to real life industry practice, while working as an intern and at the same time completing the papers via the distance study mode. This design is based on the premise that effectiveness and industry-relevance of the learning process is improved through exposures to theory and practice in ways that stimulate the development of advanced fact-finding, active-learning, multi-tasking, time management and lifelong learning skills. Papers are taught via lectures, usually 3-4 hours per week, and laboratory sessions, usually 2-3 hours per week. Tutorial sessions of up to 3 hours per week are also offered in some papers. Students are expected to budget about 187.5 hours, i.e. 15 weeks at 12.5 hours per week for study time; this includes time in preparing for all types of assessment, formally- timetabled time, and time scheduled by the student him/herself.

Contact Details

For academic inquiries, contact the programme coordinator:

Dr Jasper Mbachu - +64 9 414 0800 ext 41573; J.I.Mbachu@massey.ac.nz.

For inquiries about the administration of the programme, contact the programme administrator:

Sarah Cowpertwait - +64 9 414 0800 ext 9522; S.A.Cowpertwait@massey.ac.nz

For admission inquiries and enrolment package, phone 0800 Massey (627 739) or visit <http://study.massey.ac.nz> . Details about the programme could be accessed from:

http://www.massey.ac.nz/massey/study/programme-course-and-paper-search/programme.cfm?prog_id=93398 .

Bachelor of Construction (Quantity Surveying)

Introduction

Quantity surveyors (QS) are responsible for the cost and contractual management of construction projects to achieve cost targets. The education and training of quantity surveyors also prepare them to evolve to wider roles such as dispute resolution, expert witness, project management, facilities management and commercial management of construction projects. In addition to the technical skills in estimating, measuring, construction technology, materials technology, construction law, project management, contract administration, economics, finance, accounting and business, the profession requires generic skills such as attention to details, negotiation, communication, computing, multi-tasking and interpersonal skills.

Programme Overview

The Bachelor of Construction (Quantity Surveying) is a three-year degree that provides graduates with the skills and knowledge to practise as quantity surveyors after gaining requisite experience in the fast-developing construction industry. By the final year, students are already carrying out estimations for sophisticated projects that require them to develop and exercise their judgement across a wide range of building types. Additionally, graduates have acquired skills in project management so they can contribute to multidisciplinary teams managing construction projects. The programme meets the academic requirements for membership of the New Zealand Institute of Quantity Surveyors (NZIQS) and the Pacific Association of Quantity Surveyors (PAQS).

Specific Graduate Profile for The Quantity Surveying Major

In addition to possessing the generic Bachelor of Construction graduate profile, graduates of the quantity surveying major will be able to perform the following tasks after gaining requisite industry experience:

1. Prepare cost advice on feasibility of construction projects.
2. Conduct cost planning, design cost management and prepare budgets at the design stages.
3. Offer procurement advice, prepare tender documents including schedules or bills of quantities, carry out tender exercises, evaluate the tenders and prepare contract documents.
4. Provide advice on contract administration throughout the project implementation.
5. Carry out cost and financial management of the construction project, including value management and project cost control.
6. Provide project management services.
7. Provide advisory services on dispute resolution, including arbitration, adjudication, mediation and negotiation. Act as an expert witness in construction disputes.



Papers

Students take a variety of papers that equip them with a wide range of skills and knowledge for the workplace. (See section on Undergraduate Paper Outlines for details).

First Part

- [115.102](#) Accounting
- [218.122](#) Materials Technology and Computer Aided Design
- [160.131](#) Mathematics for Business
- [218.172](#) Construction and Design: Residential
- [115.103](#) Legal and Social Environment of Business
- [115.105](#) Fundamentals of Finance
- [115.106](#) Economics
- [218.100](#) Construction Materials and Engineering Fundamentals

Second Part

- [127.241](#) Real Estate Valuation and Management
- [152.252](#) Project Management
- [218.271](#) Construction and Design: Commercial
- [125.230](#) Business Finance
- [218.274](#) Building Services
- [218.211](#) Construction Estimating
- [218.213](#) Measuring Systems I
- [218.214](#) Measuring Systems II

Third Part (from 2013)

All papers are extramural, unless otherwise indicated

- [153.200](#) Introduction to Dispute Resolution
- [218.414](#) Construction Technology and Operations
- [218.311](#) Feasibility and Construction Financial Administration
- [218.315](#) Professional Practice and Construction Contracts
- [218.421](#) Construction Project
- [217.374](#) Construction and Design: Multi Storey
- [218.422](#) Construction Research Method and Report

Electives: One paper from the following

- [152.386](#) Risk Management
- [155.201](#) Law of Property
- [178.242](#) Land Economics
- [114.254](#) Employment Relations
- [127.341](#) Property Management and Development

Programme Website

Details about the quantity surveying option of the bachelor of construction programme could be accessed from:

http://www.massey.ac.nz/massey/study/programme-course-and-paper-search/programme.cfm?prog_id=93398&major_code=2810&tab=plan



Bachelor of Construction (Construction Management)

Introduction

Construction managers (CM) are responsible for the planning, coordination and control of the project resources and implementation to achieve scope, time, cost and quality targets. In addition to the technical skills in project management, construction technology, materials technology, construction law, contract administration, risk management, occupational health and safety, finance, accounting and business, this profession requires skills such as leadership, problem-solving, time management, communication, multi-tasking and people skills.

Programme Overview

The Bachelor of Construction (Construction Management) is a three-year degree that provides graduates with the skills and knowledge to practise as construction manager in the fast paced construction industry, following requisite industry experience. Before completing the final year, students are already contributing to the management of sophisticated projects that require them to develop and leverage their project management and problem-solving skills across a wide range of building types. Additionally graduates have acquired wide range of skills and knowledge so they can evolve to other roles such as facilities management, property development and commercial management of construction projects. The programme meets the academic requirements for membership of the New Zealand Institute of Building.

Specific Graduate Profile For The Construction Management Major

In addition to possessing the generic Bachelor of Construction graduate profile, graduates of the construction management major will be able to perform the following tasks after gaining requisite industry experience:

1. Contribute to the client needs assessment and offer advice on buildability issues at the design stage.
2. Plan, schedule and manage construction and refurbishment projects.
3. Manage and optimize the project and resources to achieve cost, time and quality targets.
4. Provide advice on sustainable project implementation processes and compliance with the legal and statutory requirements, including the Building Act, Occupational Health and Safety, Resource Management Act, and the Employment relations Act.



Papers

(See section on Undergraduate Paper Outlines for details)

First Part

- [115.102](#) Accounting
- [218.122](#) Materials Technology and Computer Aided Design
- [160.131](#) Mathematics for Business
- [218.172](#) Construction and Design: Residential
- [115.103](#) Legal and Social Environment of Business
- [115.105](#) Fundamentals of Finance
- [115.106](#) Economics
- [218.100](#) Construction Materials and Engineering Fundamentals

Second Part

- [127.241](#) Real Estate Valuation and Management
- [152.252](#) Project Management
- [218.271](#) Construction and Design: Commercial
- [125.230](#) Business Finance
- [218.274](#) Building Services
- [218.211](#) Construction Estimating
- [218.213](#) Measuring Systems I
- [218.214](#) Measuring Systems II

Third Part (from 2013)

All papers are extramural, unless otherwise indicated

- [153.200](#) Introduction to Dispute Resolution
- [218.414](#) Construction Technology and Operations
- [114.271](#) Occupational Safety and Health
- [218.315](#) Professional Practice and Construction Contracts
- [218.421](#) Construction Project
- [217.374](#) Construction and Design: Multi Storey
- [218.422](#) Construction Research Method and Report

Electives: One paper from the following

- [152.386](#) Risk Management
- [127.341](#) Property Management and Development
- [132.221](#) Planning Studies
- [287.341](#) Quality Systems Design
- [152.304](#) Managing Services

Programme Website

Details about the construction management option of the bachelor of construction programme could be accessed from:

http://www.massey.ac.nz/massey/study/programme-course-and-paper-search/programme.cfm?prog_id=93398&major_code=2808&tab=plan .

Introduction

The Certificate of Proficiency is a Massey University programme designed for a candidate who intends to register for tuition without fulfilling the requirements of a full programme of study leading to a Massey University qualification. The candidate may be permitted to enrol for no more than 30 credits per year on a Certificate of Proficiency basis.

Entry requirements

Except as permitted by the Enrolment of School Students regulation, candidates are required to satisfy Regulation 1 of the Matriculation Regulations, which provides that, “Every candidate for an undergraduate degree, diploma or certificate, or for a certificate of proficiency in a paper of any degree shall have matriculated or been admitted with equivalent status”. One of the conditions for academic qualification for matriculation at the University is that the candidate is a New Zealand citizen or permanent resident and has attained the age of 20 years by the final date for acceptance of late enrolment applications for the enrolment period in which study is commenced. For other conditions, see Massey Matriculation Regulations at:

[http://www.massey.ac.nz/massey/about-massey/calendar/2009-calendar/statutes-and-regulations/enrolment-regulations.cfm#Certificate of Proficiency Regulations](http://www.massey.ac.nz/massey/about-massey/calendar/2009-calendar/statutes-and-regulations/enrolment-regulations.cfm#Certificate_of_Proficiency_Regulations).

Certificate of Proficiency Regulations

1. A candidate who intends to register for tuition without fulfilling the requirements of a full programme of study leading to a Massey University qualification may be permitted to enrol for no more than 30 credits per year on a Certificate of Proficiency basis. Except as permitted by the Enrolment of School Students regulation, candidates are required to satisfy Regulation 1 of the Matriculation Regulations.
2. Candidates for a Certificate of Proficiency shall pay fees, complete compulsory requirements and give notice of their intention to enter for examinations, where appropriate, as if they were proceeding to a degree, diploma or certificate. The Registration and Examination Regulations shall apply to such candidates.

Approval of Course

3. The personal course of study of every candidate for a Certificate of Proficiency shall require the approval of the Academic Board. Normally approval is given as part of the enrolment process.

Status of Certificate of Proficiency Pass

4. A candidate who has passed in a paper for a Certificate of Proficiency may at a later date have the paper credited towards a degree or diploma provided that the necessary conditions for the paper as a part of the degree or diploma were fulfilled at the time when the paper was passed for a Certificate of Proficiency.



Certificate of Proficiency in the Bachelor of Construction

The above CP regulations allows a candidate who has not met the requirements for enrolment into the programme or a paper offered at a higher level based on progress by part rule, or does not intend to gain the degree of Bachelor of Construction, to enrol in a maximum of two papers (30 credits) in a year, subject to prerequisite constraints. Papers passed in the Certificate of Proficiency may at a later date be credited towards the BConst degree or Graduate Diploma in Technology (Construction endorsement) provided that the necessary conditions for the paper as a part of the degree or diploma were fulfilled at the time when the paper was passed for a Certificate of Proficiency.

Programme website

The full details of the Certificate of Proficiency Regulations could be accessed from:
http://www.massey.ac.nz/massey/about-massey/calendar/2009-calendar/statutes-and-regulations/enrolment-regulations.cfm#Certificate_of_Proficiency_Regulations.

POSTGRADUATE PROGRAMMES IN CONSTRUCTION



Graduate Diploma in Technology (Construction)

Introduction

Graduate Diploma in Technology (with an endorsement in Construction) is intended mainly for graduates of non-construction related disciplines who are seeking to retrain in any of the optional areas of the Bachelor of Construction programme such as quantity surveying, construction management, facilities management, building surveying or architectural technology, or to update their knowledge and skills in such an area.

Duration

The Graduate Diploma in Technology takes one year, or the equivalent by part-time study.

Entry requirements

To enter the programme you will normally need a university degree or be accepted as having equivalent status to a university graduate. You will also need to have a background adequate for the 200-level (second year of an undergraduate degree) papers you wish to study. Passes in suitable papers from other universities will be accepted instead of the prescribed Massey University papers, and for some subjects prerequisites will be waived for Graduate Diploma in Technology (GradDipTech) students.

For general entry requirements see [Massey University entry requirements](#).

Programme structure

The diploma comprises eight papers (120 credits). All papers (120 credits) must be at 200-level or above, with at least four papers (60 credits) at 300-level or above, drawn from papers listed in the schedules for the Bachelor of Construction degree. A maximum of two papers (30 credits) at 200-level or above can be chosen from any degree programme offered by Massey University. Selection of papers for the programme is subject to prerequisite requirements (i.e. a 200 level paper may require prior completion of the 100 level prerequisite paper).

Papers

Selection of papers to achieve the 120 credits from the BConst schedules may be made to align with interest in any of the options of the programme.

Recommended selections for specialist areas (students are allowed to make alternative choices but must seek approval from programme coordinator):

Quantity surveying

[218.271](#) Construction and Design: Commercial

[218.274](#) Building Services

[217.374](#) Construction and Design: Multi Storey

[218.211](#) Construction Estimating

[218.213](#) Measuring Systems I

[218.214](#) Measuring Systems II
[218.315](#) Professional Practice and Construction Contracts
[218.315](#) Professional Practice and Construction Contracts
[218.414](#) Construction Technology and Operations
[127.241](#) Real Estate Valuation and Management

Construction Management

[114.271](#) Occupational Safety & Health
[218.271](#) Construction and Design: Commercial
[218.274](#) Building Services
[217.374](#) Construction and Design: Multi Storey
[218.211](#) Construction Estimating
[218.414](#) Construction Technology and Operations
[152.252](#) Project Management
[153.200](#) Introduction to Dispute Resolution
[218.421](#) Construction Project
[218.422](#) Construction Research Method and Report
[152.386](#) Risk Management
[127.341](#) Property Management and Development
[287.341](#) Quality Systems Design
[152.304](#) Managing Services.

Programme Website

Details about the generic Graduate Diploma in Technology programme could be accessed from: http://www.massey.ac.nz/massey/study/programme-course-and-paper-search/programme.cfm?prog_id=93280



RESEARCH

Staff teaching into the construction programmes at Massey University are actively involved in research. In this section, main areas of research interest of academic staff and postgraduate students are listed.

Research Interests of Key Academic Staff

Academic staff	Qualifications	Construction subjects taught	Areas of research interest
Assoc Prof Robyn PHIPS	B.B.Sc , BArch (Hons) PhD,	Construction/ Building Technology, Building Services, Indoor air quality,	Healthy and sustainable buildings, indoor air quality, low energy buildings
Dr Stephen MATTHEWS		Construction Materials	
Dr Clair FLEMMER	BSc PhD	Construction/ Building Technology, Building Services	Building automation
Kate HENDERSON	BSc MAppSc (Hon)		Sustainable buildings, Leaky buildings
Dr Jasper Mbachu	BSc (Hons), MSc, MBA, PhD	Construction technology and operations, Construction Research Project	Project Management, Construction Economics, Sustainable Construction,
Roy Speed		Lighting, energy efficient Lighting	Energy efficient lighting
Naseem Ameer Ali	BSc(Hons); MSc, FCIOB, FCI Arb, MRICS, PPISM, FISM	Estimating, contract administration, construction law	Dispute resolution, construction law
Dr Niluka Domingo	BSc, MSc, PhD	Measuring systems, construction project	Cost and financial management of construction; project management
Temitope Egbelakin	BArch, MArch, MSc	Construction technology	Project management, disaster management.

Recent and Current Student Research Projects

Student	Programme	Research topic	Status/ Stage
Mikael BOULIC	PhD	Moisture and Pollutants in New Zealand Homes from Different Heater Types	On-going
Noor Dina MD AMIN	PhD	The Useful Daylight Indicator A tool for increasing daylighting in existing buildings	On-going
Ani Saifuza SHUKOR	PhD (Construction)	Effective Supply Chain Management in Construction Project Delivery: Framework for Performance Evaluation	Proposal
Hamiza LIYANA	PhD (Construction)	Contractual Disputes in the New Zealand Building Industry: Causes, Effects and Remedial Measures	Proposal
Kartina ALAUDIN	PhD (Construction)	Critical Success Factors in Managing Conservation Projects	Proposal
Normila AHMAD	PhD (Construction)	e-Tendering in the Construction Industry: Benefits, Constraints and the Way Forward	Proposal
Yuhainis ABDUL TALIB	PhD (Construction)	Maintenance of Public Health Facilities: Framework for Realistic Budgeting	Proposal
Myzatul KAMARAZALY	MPhil (Construction)	Outsourcing and in-house facilities management: Framework for value added selection	Completed
Wan Norizan WAN ISMAIL	MPhil (Construction)	Ideal Procurement System for the New Zealand Construction Client	Completed
Aaron DALTON	MPhil (Construction)	Modelling and Predicting property cycle in the New Zealand property market	On-going
Rob KILGAR	MPhil	Energy Contracting in Office Buildings	Completed
Andrew DUNCAN	MPhil	Tool for planning energy efficient Subdivisions	Completed
Marcel FREI	Bachelor of Construction (Quantity)	Future of the New Zealand Quantity Surveying: Likely	Completed



	Surveying) (4 yr)	Changes, Opportunities and Threats.	
Elena CRAIG	Bachelor of Construction (Quantity Surveying) (4 yr)	Impact of Compliance with Legislations on Construction Business in New Zealand	Completed
Ryan WOOD	Bachelor of Construction (Quantity Surveying) (4 yr)	Implementing the Workplace Health and Safety Strategy: A case study of the performance of a Wellington based Construction Company	Completed
Oliver WEIR	Bachelor of Construction (Quantity Surveying) (4 yr)	Leaky Building Syndrome in the New Zealand Building Industry: Causes, Effects and Remedial Measures.	Completed
Enoka JESSOP	Bachelor of Construction (Quantity Surveying) (4 yr)	Earned Value Management: Tool for Project Cost Control	Partially completed
Michael BRANNIGAN	Bachelor of Construction (Quantity Surveying) (4 yr)	Application of Last Planner Methodology to Construction Planning and Control.	On-going

Collaborative Research

Research topic	Researchers	Collaborating Institutions	Status/ Stage
Maintenance Management Systems in Tertiary Educational Institutions	Assoc Prof Fanie Bays; Assoc Prof Gerrit Crawford; Dr Jasper Mbachu	Nelson Mandela Metropolitan University, Port Elizabeth, South Africa	Data gathering
Competencies Required of Built Environment Graduates	Lungie MASEKO, Dr Jasper Mbachu	University of the Witwatersrand, Johannesburg, South Africa	On-going
Healthy Homes	Prof Philippa Howden Chapman; Ass Prof Bob Lloyd Dr Malcolm Cunningham; Assoc Prof Robyn Phipps et al	Otago University BRANZ	On-going
Sustainable Cities	Prof Philippa Howden Chapman; Dr Malcolm Cunningham; Associate Prof Robyn Phipps et al	Otago University BRANZ	On-going

APPENDIX: UNDERGRADUATE PAPER DETAILS



BACHELOR OF CONSTRUCTION PAPER OUTLINES

NOTE: Paper details are subject to change; current information should be sought from paper coordinators.

114.240 Organisational Behaviour

Points	15 Credits
Paper Coordinator	Assoc Prof Tim Bentley; T.A.Bentley@massey.ac.nz
Aim/Objective	To equip students with skills and knowledge to function as effective team-players and to prepare them for managerial and leadership roles in the workplace.
Outline	This paper examines the behaviour of people in the work environment. Students develop a basic understanding of individual behaviour and explore issues of motivation, communication, leadership, decision-making, careers, power and organisational change. The paper is based on a foundation of theory but incorporates a strong practical emphasis.
Learning outcomes	
Topics covered	
Offering	Semester 1 (internal & extramural)
Prerequisites	Any 100-level paper
Online component	Web-supported
Assessment	Assignments (%); Test (%); Final Exam (%)
Prescribed Textbook(s)	
Other Lecturer(s)	Professor Claire Massey, C.L.Massey@massey.ac.nz

114.254 Managing Employment Relations

Points	15 Credits
Paper Coordinator	Barry Foster; A.B.Foster @massey.ac.nz
Aim/Objective	To explore the theories of employment relations; industrial conflict; conflict resolution and collective bargaining; employees' and employers' interests and strategies; and New Zealand's employment relations legislation and policy.
Outline	Theories of employment relations; industrial conflict; conflict resolution and collective bargaining; employees' and employers' organisations; New Zealand employment relations legislation and policy.
Learning outcomes	The intention of this paper is to bring together introductory and practice in our New Zealand system. The major objectives the end of it, you will be able to: <ul style="list-style-type: none"> • Identify the key elements of an employment relationship • Identify the key areas of legislation governing the employment • Demonstrate an understanding of how various pieces employment relationship • Understand the opportunities and challenges faced by relationship and the strategies that they may adopt.
Topics covered	<ul style="list-style-type: none"> • theories and perspectives on employment relations and the various relationship • the contract of employment • legislation governing the relationship: Employment Relations Act 2000, Holiday & Leave Act; Health & Safety, etc • the institutions that administer the system of employment relations.
Offering	Semester 2 (internal); Semester 1 (extramural)
Prerequisites	Any 100-level paper
Online component	Web-supported
Assessment	Assignments (40%); Final Exam (60%)
Prescribed Textbook(s)	<p>Prescribed texts: Rudman, R. (2005). <i>New Zealand Employment Law Guide</i> (2008 ed.). Auckland: CCH. Manalo, E., Wong Toi, G. & Trafford, J. (2002). <i>The business of writing</i> (2nd ed.). Auckland: Longman.</p> <p>Recommended reading: Deeks, J. & Rasmussen, E. (2002). <i>Employment relations</i> Auckland: Pearson Education. Rasmussen, E. & Lamm, F. (2002). <i>An Introduction to Zealand</i> (2nd ed.). Auckland: Pearson Education.</p>
Other Lecturer(s)	Andrew Barney, A.R.Barney@massey.ac.nz ; Mary Ashby; M.N.Ashby @massey.ac.nz



114.271 Occupational Safety & Health I

Points	15 Credits
Paper Coordinator	Dr Kirsten OLSEN; k.b.olsen@massey.ac.nz
Aim/Objective	The general aim of the paper is to give you an introduction to the principles of occupational safety and health and its application to workplaces in New Zealand. Topics include – basic framework principles of OHS, the extent of work related injury and occupational disease in New Zealand, the causes of accidents and injuries, health and safety legislation, accident investigation and prevention, managing health and safety in the workplace.
Outline	The application of analytical techniques to the management of real estate resources. Feasibility studies and project appraisal in relation to property development. Equity investment criteria; public policies in regional and urban development; locational decisions
Learning outcomes	<ol style="list-style-type: none"> 1. Describe key principles and explain basic concepts of occupational health and safety. 2. Analyse an organisational health and safety case from a range of OSH disciplinary perspectives (e.g. medical, engineering, and managerial). 3. Conduct theory-based analyses of accident scenarios. 4. Identify hazards and assess risks in a work situation, using a Task Analysis. 5. Understand and apply the key sections of the Health and Safety in Employment Act 1992 and the Amendment Act 2002 to situations in the work place.
Topics covered	<ol style="list-style-type: none"> 1. Historical review of occupational health and safety 2. Concepts of OHS 3. Perspectives in occupational; health and safety 4. Review of OHS Legislation 5. Disease at Work 6. Injury at Work 7. Review of Related Legislation 8. Hazard Management and Prevention 9. Accident/Injury Causation, Investigation 10. Managing OHS 11. Measuring Performance in OHS 12. Health and Safety Auditing
Offering	Double Semester (Extramural)
Prerequisites	Permission HOD & any 100-level paper
Online component	Web-supported
Assessment	Assignments (55%); Test (10%); Final Exam (35%)
Prescribed Textbook(s)	<ul style="list-style-type: none"> • Slappendel, C. (Ed). (1995). <i>Health and Safety in New Zealand Workplaces</i>. Dunmore Press, Palmerston North. • Hay, D. & Campbell, I.B. (2003). <i>Health and safety in Employment Act: An Overview</i>. Workplace Press, Palmerston North. • <i>Health And Safety In Employment Act 1992</i>. Government printer. Wellington.
Other Lecturer(s)	

115.102 Accounting

Points	15 Credits
Paper Coordinator	James Heslop; J.D.Heslop@massey.ac.nz / Dr Natasja Steenkamp; N.Steenkamp@massey.ac.nz
Outline/ Objective	An introduction to the way accounting techniques and accounting information are used in planning, monitoring and evaluating organisational performance and in discharging accountability to interested parties within and outside organisations
Learning Outcomes	<ol style="list-style-type: none"> 1. Explain selected accounting concepts, principles and terms, the role of accounting information in the business environment and the place of professional ethics within the accounting field; 2. Prepare basic general purpose financial reports for different business structures; 3. Demonstrate the impact of common accounting bases and policies on reported financial results; 4. Interpret financial and management reports to evaluate organisational performance and write a simple report; 5. Distinguish between various funding and business structures; and 6. Apply simple management accounting techniques to organisational planning and decision-making.
Topics covered	<ol style="list-style-type: none"> 1. The role of accounting and the financial reporting framework 2. The preparation of financial reports 3. The impact of common accounting models and policies on financial reporting 4. Planning, and decision making 5. Evaluating financial statements and reporting findings.
Offering	S1, S2 (internal); S2, Summer (Extramural)
Prerequisites	None
Online component	Web-enhanced
Assessment	Assignment (20%); Test (20%); Final Exam (60%).
Textbook	Contemporary Accounting (2006) Bazley, M. and Hancock, P. 6th Edition. Published by Thomson, Melbourne, Australia.
Other Lecturers	Assoc Prof Steve Courtenay; S.M.Courtenay@massey.ac.nz ; Siata Tavita, s.f.tavita@massey.ac.nz ;



115.103 Legal and Social Environment of Business

Points	15 Credits
Paper Coordinator	Jerry Hubbard, J.J.Hubbard@massey.ac.nz ; /Dr Nicholas Smith, N.M.Smith@massey.ac.nz
Aim/Objective	The paper provides an introduction to the current business environment. The paper uses a stakeholder model of business relationships to focus on selected legal, social and ethical elements that impact on the operation of business organisations in New Zealand.
Outline/ Prescription	
Learning Outcomes	<ol style="list-style-type: none"> 1. Demonstrate an understanding of selected legal and social factors impacting on New Zealand business organisations using a stakeholder approach; 2. Explain the nature of the relationships between business organisations, Māori and other key stakeholders; 3. Apply the ethical dimension of business decision making; 4. Identify the legal and social significance of the Treaty of Waitangi for business operations in New Zealand; 5. Identify significant legal liabilities which may confront a business operating in New Zealand; and 6. Identify appropriate strategies for neutralising or minimising the risk of legal liability.
Topics covered	<ol style="list-style-type: none"> 1. Understanding the Business Environment; 2. Understanding Ethics; 3. Business ethics and corporate social responsibilities; 4. Understanding Organisational Ethics; 5. Understanding global environments/ethics & globalisation; 6. Managing business ethics; 7. Treaty of Waitangi; 8. The legal framework within which businesses in New Zealand operate including rights, duties, immunities and privileges. 9. Specific sources of obligations and liabilities; 10. Relationships with: Customers, Suppliers, Employees, The State, Revenue authorities, Local authorities, Competitors, Tangata Whenua, Neighbours and the Society.
Offering	S1, S2 (internal); S2, Summer (Extramural)
Prerequisites	None
Online component	Web-enhanced
Assessment	Assignment (40%); Tests (n/a); Final Exam (60%).
Textbook	<i>(Prescribed:)</i> Ghillyer, A. (2008). <i>Business Ethics A real world approach</i> . Boston: McGraw-Hill/Irwin.
Other Lecturer(s)	Dr Bevan Catley, B.E.Catley@massey.ac.nz .

115.105 Fundamentals of Finance

Points	15 Credits
Paper Coordinator	Mark Werman; M.Werman@massey.ac.nz
Aim/Objective	
Outline	An introduction to the management and financing of financial and real assets. Areas of study include the time value of money concept, the relationship between risk and return, financial management, and capital budgeting techniques.
Learning outcomes	At the conclusion of this course students should be able to: <ol style="list-style-type: none"> 1. Calculate time value of money problems 2. Demonstrate an understanding of the relationship between risk and return 3. Demonstrate an understanding of the principles of financial management 4. Apply capital budgeting principles 5. Demonstrate an understanding of the principles of property investment and property management.
Topics covered	Overview of finance; Time value of money; Risk and return; Financial markets; Personal finance; Financial management; Investment in net working capital; Financing the firm; Investment in long-term assets; Evaluation techniques; Property investment; Investment analysis; Investment & property management principles; Property markets; Property rights & ownerships; Resource Management Act.
Offering	Semesters 1, 2 & Summer (internal); Semester 2 & Summer (extramural)
Prerequisites	None
Online component	Web-supported
Assessment	Test (40%); Final Exam (60%)
Textbook(s)	Required Text Parry, J.R., C.G. Black, and J.A. Bennett (2005), <i>Fundamentals of Finance</i> , Second edition, Prentice Hall, an imprint of Pearson Education New Zealand Ltd. Additional Text for Support Material Hawes, M. (2001), <i>Property Investment: A Strategy for Wealth</i> , Shoal Bay Press.
Other Lecturer(s)	Dr Ben Marshall Professor, B.Marshall@massey.ac.nz



115.106 Economics

[Confirm currency of information from the paper coordinator]

Points	15 Credits
Paper Coordinator	Dr Steffen Lippert; S.Lippert@massey.ac.nz
Aim/Objective	<ul style="list-style-type: none"> • provide a grounding in basic Economic principles • provide a broad overview of Economics in the context of the New Zealand economy • increase your ability to understand news and views that appear in the media • allow progression to intermediate level Economic courses • meet the Economics requirement of certain professional bodies.
Outline	An introduction to the economic analysis of markets, with emphasis on the behaviour of individuals, firms and government. The framework developed is used to analyse and evaluate contemporary economic policies in both New Zealand and international contexts.
Learning outcomes	
Topics covered	Comparative Advantage: The Basis for Exchange; Supply and Demand: An Introduction; Macroeconomics: The Bird's-Eye View of the Economy; Measuring Economic Activity: GDP and Unemployment; Measuring the Price Level and Inflation; Economic Growth, Productivity, and Living Standards; Workers, Wages, and Unemployment in the Modern Economy; Saving and Capital Formation; Money, Prices and the Reserve Bank; International Capital Flows; Short-Term Economic Fluctuations; Spending and Output in the Short Run; Stabilizing the Economy: The Role of the Reserve Bank; Inflation, & Aggregate Supply; Inflation, & Aggregate Supply; International Trade and Trade Policy; Exchange Rates and the Open Economy.
Offering	Semesters 1 & 2 (internal); Semester 1(extramural)
Prerequisites	None
Online component	Web-supported
Assessment	Test (40%); Final Exam (60%)
Textbook(s)	<p>Required Text: Frank, R. and Bernanke, B. (2004), <i>Principles of Macroeconomics</i>, Second Edition, McGraw-Hill, New York.</p> <p>Recommended (Not Examinable): Dalziel, P. and Lattimore, R. (2004), <i>The New Zealand Macroeconomy Striving for Sustainable Growth with Equity</i>, Fifth Edition, Oxford University Press.</p>
Other Lecturer(s)	Krishna G Iyer, K.Iyerl@massey.ac.nz ; Kevin Heagney

125.230 Business Finance

Points	15 Credits
Paper Coordinator	Dr Liping Zou; l.zou@massey.ac.nz
Aim/Objective	The objective of business finance is to understand how better financial decisions can be made. With this in mind the overall objective of 125.230 Business Finance is to introduce students to the theories, concepts, techniques, and practices of managerial finance
Outline/ Prescription	The paper provides students with a fundamental knowledge of financial theory and practice. In addition to valuation and capital budgeting, students will study ethics in finance, working capital management, capital structure, the cost of capital, and dividend policy.
Learning Outcomes	<ol style="list-style-type: none"> 1. Describe key finance goals and decisions and the environment in which financial decisions are made. 2. Evaluate the impact of ethics on financial decisions. 3. Demonstrate an understanding of the application of time value of money, valuation and risk and return techniques in evaluating financial decisions. 4. Evaluate project and firm cost of capital and demonstrate its application to financial decisions. 5. Analyse how sound financial management techniques are used to evaluate long and short term investment decisions. 6. Identify and evaluate alternative financing and dividend decisions.
Topics covered	<p><i>Fundamentals of Managerial Finance:</i> Core Concepts & Ethics in Finance; Time Value of Money; Risk & Return; Valuation.</p> <p><i>Long-term Investment Decisions:</i> Cost of Capital; Capital Budgeting & Cash Flow Principles; Capital Budgeting Techniques; Risk & Refinements in Capital Budgeting.</p> <p><i>Long-term Financing Decisions:</i> Dividend policy; Leverage & capital structure.</p> <p><i>Other Financing & Investment Decisions:</i> Accounts Receivable & inventory; Mergers & Acquisitions.</p>
Offering	S1, S2 (internal); S1, S2 (Extramural)
Prerequisites	125.100 or 115.105 or 110.109, or 110.100 (pre 1997)
Online component	Web-enhanced
Assessment	Assignment (n/a); Tests (40%); Final Exam (60%).
Textbook	<p><i>(Prescribed:)</i> Gitman, L., Juchau, R., and Flanagan, J. <i>Principles of Managerial Finance</i>, 5th ed, Sydney: Pearson Education Australia, 2008.</p> <p><i>(Recommended:)</i> Brealey, R.A., Myers, S.C. and Marcus, A.J. <i>Fundamentals of Corporate Finance</i> (5th international edition). Boston: Irwin, 2007. Ross, S.A., Westerfield, R.W., Jordon, B.D., Thompson, S. and Christensen, M. <i>Fundamentals of Corporate Finance</i> (4th edition). Australia: McGraw Hill, 2007.</p>
Other Lecturers	



127.241 Real Estate Valuation & Management

Points	15 Credits
Paper Coordinator	Dr Susan Flint-Hartle; S.L.Flint-Hartle@massey.ac.nz
Aim/Objective	<ul style="list-style-type: none"> To provide students with a broad introduction into the theory and practice of Property Management and Valuation. To begin to integrate the legal, economic, valuation and management aspects of property. To enable students new to the subject area to develop analytical techniques that can be used in the analysis of property related issues.
Outline	An introduction to the theory and practice of property management, facilities management, investment analysis and property valuation. This paper incorporates the use of technology in relation to all aspects of property.
Learning outcomes	
Topics covered	7 main topic areas: Land economics; Valuation; Technology; Real estate finance; Investment analysis; Taxation; and Property management function. Details include: The nature of real estate; Location theory; Real estate cycles; Concepts of value; Income approach; Land use control; Technology/ database; Investment analysis; Real estate finance; Property management and Taxation.
Offering	Semester 1 (internal & extramural)
Prerequisites	Any 100-level paper
Online component	Web-supported
Assessment	Assignments (40%); Test (10%); Final Exam (50%)
Textbook(s)	<p>Recommended Texts</p> <ul style="list-style-type: none"> Christiansen, W.K.S. (1991) <i>Fundamentals of Property Management</i> (3rd Ed). Butterworths, Wellington. Christiansen, W.K.S. (1980) <i>Mahoney's Urban Land Economics</i> (3rd Ed). New Zealand Institute of Valuers, Wellington. IR 260 – www.govt.nz Rowland, P.J. (1997) <i>Property Investments and their Financing</i> (2nd Ed). The Law Book Company Ltd, Australia. Speedy, L. (1980) <i>Property Investment</i> (2nd Ed). Butterworths of New Zealand, Wellington, New Zealand. Whipple, R. T. M. (2006) <i>Property Valuation and Analysis</i> (2nd Ed), Thompson Legal and Regulatory, Australia. Withers, M. (2006) <i>Property tax, A New Zealand Investor's Guide</i> (3rd Ed). Empower Leaders Publishing Ltd, Auckland, New Zealand Many of these books are available in Massey University Library.
Other Lecturer(s)	

127.263 Real Estate Appraisal

Points	15 Credits
Paper Coordinator	Raewyn Fortes; R.M.Fortes@massey.ac.nz
Aim/Objective	
Outline	An examination of the theory and practice of real estate appraisal considering residential, commercial, industrial and rural properties, and businesses as going concerns.
Learning outcomes	On successful completion of this paper students should be able to: <ol style="list-style-type: none"> 1. Collect and analyse data to complete an appraisal of residential land; 2. Describe the factors that influence property markets; 3. Demonstrate an understanding of the application of the sales, cost and income approaches to the valuation of all classes of real estate. 4. Apply replacement methodology to the estimation of the value of structural improvements; 5. Apply industry reporting standards in the appraisal of commercial or industrial properties.
Topics covered	Introduction to valuation; Concepts of value; Real property & its registration; Planning and its influence on value; Property markets; Sources of appraisal data; Inspection procedures; Sales approach and its application to the property market; Replacement cost approach to property valuation; Income approach to valuation; Appraisal of multi-unit residences; Appraisal of commercial and industrial property; Appraisal of agricultural land; Appraisal of fringe holdings and small rural holdings; Report writing.
Offering	Semester 2 (block course)
Prerequisites	Any 100-level paper
Online component	Web-supported
Assessment	Assignments (40%); Test (10%); Final Exam (50%)
Prescribed Textbook(s)	
Other Lecturer(s)	



127.341 Property Management & Development

Points	15 Credits
Paper Coordinator	Alan Pope; A.Pope@massey.ac.nz
Objective	To provide students with a basic introduction to the management of real estate resources, the place of the property industry in the economy of New Zealand and the role of the property manager in the property industry.
Outline	The application of analytical techniques to the management of real estate resources. Feasibility studies and project appraisal in relation to property development. Equity investment criteria; public policies in regional and urban development; locational decisions
Learning outcomes	<ol style="list-style-type: none"> 1. Develop an understanding of key lease documents, their application and some key clauses. 2. Demonstrate an understanding of the role of the property manager. 3. Illustrate risks in the property development process. 4. Explain key principles in relation to project management in a property context. 5. Conduct feasibility studies and project appraisal in relation to property development. 6. Demonstrate an understanding of green buildings and their increasing importance. 7. Demonstrate an understanding of some of the key issues surrounding Maori Land including the meaning of consultation. 8. Demonstrate an understanding of some of the basic background and principles of good urban design. 9. Describe some of the laws contained in legislation such as the Resource Management Act and Building Act of relevance to property people.
Topics covered	<ol style="list-style-type: none"> 1. General introduction, principles and objectives of property management. 2. Leases 3. Facilities Management. 4. Central and local government involvement in property <ul style="list-style-type: none"> * The Building Act * Resource Management Act * Concept of good Urban Design 5. Developers and development overview 6. Subdivision of land 7. Feasibility studies. 8. Building retrofitting. 9. Shopping centres 10. Industrial developments. 11. Housing developments. 12. Retirement villages. 13. Maori land.
Offering	S1(internal); S2 (Extramural)
Prerequisites	127.241 or 127.243 or 127.244
Online component	Web-based
Assessment	Assignments (55%); Test (10%); Final Exam (35%)
Prescribed Textbook(s)	Christiansen, WKS (1996) Fundamentals of Property Management, Ed 2 Butterworths.
Other Lecturer(s)	

132.221 Planning Studies

Points	15 Credits
Paper Coordinator	Marilyn Bramley; M.Bramley@massey.ac.nz
Aim/Objective	<ol style="list-style-type: none"> 1. To introduce students to the context and principles of planning in New Zealand. 2. To provide students with a working knowledge of the Resource Management Act and its administration in New Zealand. 3. To provide an introduction to the process of policy and plan formulation at the National, Regional and District levels, in terms of the Resource Management Act.
Outline	An introduction for non-planners to planning and practice in the New Zealand urban, rural and natural resource environment. Introduction to the principles of the Resource Management Act and its administration. The principles and procedures involved in making consent applications under the Act. Emphasis is placed on planning procedures at local authority level.
Learning outcomes	<p>On completion of this paper, students should have the following skills:</p> <ol style="list-style-type: none"> 1. The ability to understand how the provisions of the Resource Management Act may affect their particular interests. 2. The ability to read and interpret various Plans. 3. An understanding of the role of the applicant and submitters in the resource consent and Plan formulation processes. 4. The ability to recognise when and where the assistance of another professional is required.
Topics covered	Overview of institutional structure, planning and international context; Statutory framework: role of central and local government, national policy statements and plans; Resource consents: Activities, participants and the resource consent process; District and regional plans: Contents and formulation of plans; development of initiated plan changes; effective submissions; Environmental Court enforcement monitoring: Appeals to the Environmental Court, enforcement procedures and monitoring; Development issues: subdivision, developer initiated plan; changes and other matters relating to development.
Offering	Semester 1 (extramural)
Prerequisites	Any 100-level BBS paper
Online component	Web-supported
Assessment	Assignments (40%); Final Exam (60%)
Textbook(s)	<p><u>Prescribed:</u></p> <ul style="list-style-type: none"> • <i>The Resource Management Act 1991</i> with <u>all</u> amendments. The latest reprint of the Act contains all major amendments. • <i>The Resource Management (Forms, Fees, & Procedures) Regulations 2003</i> (These are downloadable from the web). <p><u>Supplementary readings:</u></p> <ul style="list-style-type: none"> • Bush, G. 1996. <i>Local Government and Politics in New Zealand</i>, Second Edition, Auckland University Press. • Nolan D. 2003. <i>Environmental and Resource Management Law</i> (3rd Edition). LexisNexis, Wellington.. • Harris, R (ed) 2003 <i>Handbook of Environmental Law</i>, Royal Forest & Bird Protection Society, Auckland.
Other Lecturer(s)	



287.341 Quality Systems Design

Points	15 Credits
Paper Coordinator	Nicky Campbell; n.m.campbell-allen@massey.ac.nz
Aim/ Objective	<p>To explore the relationships between organizations, management and quality. To develop a working knowledge of the principles and practices of quality systems, quality management technologies, and systematic approaches to quality improvement.</p> <p>The objective includes:</p> <ul style="list-style-type: none"> • To position Quality Management in relation to current management, organizational and systems theory; • To explore current quality management models, by examining Quality Management principles, concepts and methods; • To examine the use of ISO 9000 quality system standards in a comprehensive quality framework; • To introduce frameworks, techniques and tools for improving quality in an organization.
Outline	The principles of Quality Systems including TQM, ISO system standards, Baldrige Awards, organisational culture, the management of change and continuous improvement and workforce empowerment. Tools and principles for quality management such as quality function deployment, statistical process control and process capability analysis.
Learning outcomes	<ul style="list-style-type: none"> • Discuss Quality Management in relation to management and organizational theory and practice; • Describe and distinguish the concepts of Quality Management and a variety of Quality Management philosophies; • Develop working definitions of quality; • Apply ISO 9000 standards as a framework for quality assurance in an organization; • Apply individual and team skills to explore quality issues and quality problems; • Discuss key issues in organizational improvement.
Topics covered	<p>Definitions of Quality; Service Quality: dimensions & models; The “Quality Game”: a simulation; Quality, management and organizations: employer expectations of ‘quality’ employees. Personal Quality and ethics. PDCA cycle. Quality Function Deployment (QFD): concepts, application, interpreting the quality plan/matrix. Change Management. ‘Performance Excellence’ frameworks and awards: assessing organizational quality. ISO 9000 standards for Quality systems: ISO 9000 & systems Quality improvement approaches and techniques. Statistical thinking and Statistical Process Control (SPC): quality eras – stages in quality management ‘maturity’, introduction to statistical thinking and process improvement, statistical thinking, case study. Introduction to control charts: basic principles. Attribute control charts: theory, practice examples. Variable control charts: theory and examples. Process capability: theory. Acceptance sampling plans. Quality improvement approaches and techniques. Group presentations.</p>
Offering	S2(internal); S2 (Extramural)
Prerequisites	None
Online component	Web-supported
Assessment	Assignments (100%); Test (n/a); Final Exam (n/a)
Prescribed Textbook(s)	<p>Rao, A. et al. (1996) Total Quality Management: A Cross-functional Perspective, John Wiley & Sons, New York <i>Chapters 2 & 9</i></p> <p>Beckford, J., (2002), Quality (2nd Edition), Routledge, England – Chapters 1 and 5-12</p> <p>Garvin, D (1988) Managing Quality: the strategic and competitive edge Free Press New York Chapter 4 'The Multiple Dimensions of Quality' pp 49-68</p> <p>Flood, R L (1993) Beyond TQM, John Wiley and Sons, Chichester, Chapter 2</p>
Other Lecturer(s)	Dr Nigel Grigg, N.Grigg@massey.ac.nz ; Dr Jane Goodyer, J.Goodyer@massey.ac.nz ; Greg Frater, G.Frater@massey.ac.nz

152.252 Project Management

Points	15 Credits
Paper Coordinator	Associate Professor John Monin; D.Monin@massey.ac.nz
Aim/Objective	
Outline	An introduction to the theory and methods employed in project management
Learning outcomes	Students who successfully complete this paper should be able to: <ol style="list-style-type: none"> 1. Compare and contrast the management characteristics of projects and critically locate them within the broader management, organisational and practitioner knowledge bases; 2. Analyse approaches for organising project teams and linking them to stakeholder organisations; 3. Evaluate the tools and techniques commonly used in the management of projects; and 4. Assess the frameworks for project justification and success.
Topics covered	The paper content comprises five units: <ul style="list-style-type: none"> • Unit 1: Background: this unit looks at the nature of projects, and how projects and project management fit into the study of management. • Unit 2: Preliminaries: following on from the background of projects, we now look at project concept development, how we go about selecting a project, some pitfalls to avoid, as well as resource issues. • Unit 3: People and Projects: in this unit, the emphasis is on teams, project managers and leadership. • Unit 4: Planning and Control: here, we deal with the nuts and bolts of scheduling, as well as controlling projects, especially cost control. • Unit 5: Evaluation and Termination: the final unit deals with project evaluation, termination and success.
Offering	Semester 1 (internal); Double semester (extramural)
Prerequisites	Any 100-level paper
Online component	Web-supported
Assessment	<i>Extramural</i> : Assignments (100%) <i>Internal</i> : Test (?%); Final Exam (?%)
Textbook(s)	<u>Required</u> <ul style="list-style-type: none"> • Keeling, R. (2000). Project management: an international perspective. London: MacMillan Press. • Emerson, L. (Ed.). (2005). Writing guidelines for business students (3rd ed.). Southbank, Victoria: Thomson Learning. <u>Recommended</u> <ul style="list-style-type: none"> • Meredith, J.R., & Mantel, S.J. (2006). Project management: A managerial approach (6th ed.). New York: John Wiley & Sons. (Older editions will also suffice).
Other Lecturer(s)	Rawiri Tinirau, R.S.Tinirau@massey.ac.nz



152.304 Managing Services

Points	15 Credits
Paper Coordinator	Dr John Walker; J.Walker@massey.ac.nz
Aim/ Objective	
Outline/ Prescription	This paper examines theories and issues relating to the place of services in the economy. Topics include customer service, quality improvement, technological innovation and managing capacity and demand. An integrative management perspective and practical management techniques are features of the paper.
Learning outcomes	On successful completion of this paper, students should be able to: <ol style="list-style-type: none"> 1. Critically discuss major service management concepts and theories. 2. Apply major service management concepts and principles to the operation and performance of service organizations. 3. Analyse service delivery effectiveness and performance.
Topics covered	Introducing services; The service concept; Service strategy; Customer & supplier relationships; Customer expectations and satisfaction; Managing supply relationships; Service processes; Service people; Resource utilization; Networks, technology & information; Performance measurement and management; linking operations decisions to business performance; Driving operational improvement; Service culture;
Offering	Semester 1 (internal & extramural)
Prerequisites	Any 200-level paper
Online component	Web-supported
Assessment	Assignments (50%); Final Exam (50%).
Prescribed Textbook(s)	Johnston, R. & Clark, G. (2008). <i>Service operations management: Improving service delivery</i> (3 rd ed.). Harlow, Essex: Pearson Education Limited.
Other Lecturer(s)	

152.386 Risk Management I

Points	15 Credits
Paper Coordinator	Chris Peace; chris.peace@riskmgmt.co.nz
Aim/ Objective	
Outline/ Prescription	
Learning outcomes	On successful completion of this paper, students should be able to: 1. Demonstrate an understanding of the meaning of corporate governance and its relationship to risk management. 2. Identify critical elements of risk management and how to apply it in the organisational environment. 3. Evaluate major risks to organisations and propose options that illustrate how risk could be translated into positive commercial or organisational outcomes.
Topics covered	Overview of corporate governance; Establishing the context; Risk identification; Risk analysis; Risk evaluation.
Offering	Double Semester (extramural)
Prerequisites	Any 200-level paper
Online component	Web-supported
Assessment	Assignments (100%); Test (n/a)Final Exam (n/a).
Prescribed Textbook(s)	- AS/NZS 4360: 2004 <i>Risk Management</i> Wellington, NZ, Standards New Zealand. - HB 436: 2004 <i>Risk Management Guidelines: a companion to AS/NZS 4360:2004</i> Wellington, NZ, Standards New Zealand.
Other Lecturer(s)	



153.200 Introduction to Dispute Resolution

Points	15 Credits
Paper Coordinator	Myles Stilwell; M.F.Stilwell@massey.ac.nz
Aim/ Objective	
Outline	An introduction to the modes of dispute resolution including negotiation, mediation and arbitration and the relevant law.
Learning outcomes	<ol style="list-style-type: none"> 1. Compare the characteristics of different modes of dispute resolution. 2. Explain and evaluate the fundamentals of negotiation and mediation processes. 3. Explain and evaluate the fundamentals of the processes of arbitration and adjudication. 4. Demonstrate an understanding of how theory informs practice.
Topics covered	<ol style="list-style-type: none"> 1. Dispute management and options <ol style="list-style-type: none"> 1.1 Choosing a dispute resolution process 1.2 Managing a dispute 2 Negotiation <ol style="list-style-type: none"> 2.1 Elements of negotiation 2.2 Problem solving 2.3 Styles <ol style="list-style-type: none"> 2.3.1 Positional 2.3.2 Economic (game theory) 2.3.3 Cooperative 2.3.4 Interest based 2.4 Techniques <ol style="list-style-type: none"> 2.4.1 Agenda setting 2.4.2 Communication problems 2.4.3 Impasses 2.4.4 Documentation 2.5 Ethical issues 2.6 Settlement procedure 2.7 The Art of Negotiation and dealing with difficult people 3 Mediation <p>An overview of the mediation process</p> 4 Arbitration <p>An overview of the arbitration process</p> 5 Adjudication <p>Dealing with contractors' claims</p> 6 The law of persons, including corporate bodies.
Offering	Semester 1 (extramural)
Prerequisites	Any 100-level paper
Online component	Web supported
Assessment	Assignments (20%); Final Examination (60%).
Prescribed Textbook(s)	<ul style="list-style-type: none"> • Fisher, R., Ury, W., and Patton, B., Getting to Yes, (2nd Edition), Arrow, London, 1997 • Arbitration Act 1996 [and amendments] • Spiller, P. (Editor), Dispute Resolution in New Zealand (2nd Edition), Oxford University Press, Auckland, due for publication 2007 • Gerbic, P., and Lawrence, M., Understanding Commercial Law (Revised, 6th Edition), LexisNexis Butterworths, Wellington, 2006.
Other Lecturer(s)	

155.201 Law of Property

Points	15 Credits
Paper Coordinator	Debbie Wilson; D.J.Wilson@massey.ac.nz
Aim/ Objective	
Outline	The law of real property in New Zealand, and the way in which interests in real property are created, transferred and protected.
Learning outcomes	<ol style="list-style-type: none"> 1. Demonstrate an understanding of the development of property law in England and New Zealand from the 11th century onwards. 2. Demonstrate an understanding of the relevance of the Treaty of Waitangi to property law in New Zealand. 3. Describe the key elements of the Torrens System. 4. Demonstrate an understanding of the way in which interests in real property are created, transferred and protected.
Topics covered	<ol style="list-style-type: none"> 1. Concepts of Property Law 2. Land Law in New Zealand 3. Ownership of Land 4. Interests in Land 5. The Land Transfer System, Title to Land 6. Maori Land 7. Licences 8. Easements and Profits à Prendre 9. Concurrent Interests in Land 10. Covenants Affecting Freehold Land 11. Agreements for the Sale and Purchase of Land 12. Mortgages 13. Leasehold Interests 14. Residential Tenancies
Offering	Semester 2 (internal); Double semester (extramural)
Prerequisites	115.103 or 155.100 or 155.101
Online component	Web-enhanced
Assessment	Assignments (40%); Final Exam (60%).
Prescribed Textbook(s)	<ol style="list-style-type: none"> 1. Wilson, <i>Butterworths Q&A Property Law</i> (LexisNexis 2008); 2. <i>155.201 Legislative Extracts</i>
Other Lecturer(s)	



160.131 Mathematics for Business I

Points	15 Credits
Paper Coordinator	Dr Carlo Laing; C.R.Laing@massey.ac.nz
Aim/Objective	
Outline	Development of algebraic skills. An introduction to linear equations and matrices, including graphical linear programming. Graphs. An introduction to calculus. Use of spreadsheets and/or other mathematical software.
Learning outcomes	
Topics covered	
Offering	Semesters 1 & 2 (internal); Semester 2 & Summer (extramural)
Prerequisites	None
Online component	Web-supported
Assessment	Assignments (%); Test (%); Final Exam (%)
Prescribed Textbook(s)	
Other Lecturer(s)	

178.242 Land Economics

Points	15 Credits
Paper Coordinator	Dr Carlo Laing; C.R.Laing@massey.ac.nz
Aim/Objective	
Outline	The treatment of land resource questions in economics, including changing theoretical approaches to land and the income from the land, factors influencing the behaviour of land markets, environmental economics and land use, specific models of land use patterns, the question of the efficient use of land resources, estimating changing land use requirements, taxation in relation to land markets, location decision.
Learning outcomes	
Topics covered	
Offering	Semesters 1 & 2 (extramural)
Prerequisites	Any 178.1XX paper
Online component	Web-supported
Assessment	Assignments (%); Test (%); Final Exam (%)
Prescribed Textbook(s)	
Other Lecturer(s)	Associate Professor John Holland, J.D.Holland@massey.ac.nz



218.122 Materials Technology and Computer Aided Design

Points	15 Credits
Paper Coordinator	Dr Steve Matthews, S.Matthews@massey.ac.nz
Aim/Objective	To equip students with the knowledge of the properties and uses of the basic building materials, components and finishes, and their selections to meet specification or performance standards for particular use situations.
Outline/ Calendar Prescription	Properties, uses and measurement of building and construction materials and components. Materials design and selection data. Manufacturing methods and project work. Introduction to computer aided design (CAD).
Learning outcomes	On successful completion a student will be able to demonstrate understanding of: <ol style="list-style-type: none"> 1. Describe the properties and uses of the basic building materials including cement, concrete, masonry, polymers, bituminous materials and glass. 2. Explain issues of sustainability relating to construction materials. 3. Recognise the introductory principles of the use of CAD in construction.
Topics covered	<i>Materials:</i> Steel; Timber and wood-based products; Concrete and concrete materials & products; Polymers (plastics & rubbers); Cladding; Insulation; Paintings & coatings. <i>CAD:</i> Introductory principles of the use of CAD in construction.
Offering	Semester 2 (internal)
Prerequisites	218..172 or 138.281
Online component	Web-supported
Assessment	Engineering materials tests (LO 1, 2) (50%); Computer based assessment (LO 3) (50%)
Prescribed Textbook(s)	Callister, William D. (2007). <i>Materials Science and Engineering</i> (7th Ed). Wiley.
Other Lecturer(s)	Kate Henderson (K.J.Henderson@massey.ac.nz)

218.172 Construction & Design (Residential)

Points	15 Credits
Paper Coordinator	A/Prof Robyn Phipps (R.A.Phipps@massey.ac.nz)
Aim/Objective	<p><u><i>Building Technology section:</i></u> This course develops an understanding of the essential aspects of domestic building structure, design and construction. No prior knowledge of building technology or technical drawing skill is assumed. Domestic buildings are studied from the building site, supporting ground and foundations through to the roof ridge. Techniques to appraise the building fabric and components for condition and value are examined, and an understanding of fitness for purpose and durability is developed.</p> <p><u><i>Construction Technology section:</i></u> To develop an understanding of light residential building in New Zealand. Site conditions, materials used, structural systems, energy systems and services, and weather exclusion.</p>
Outline/ Calendar prescription	Principles of structural systems for residential buildings, and the non specific design of timber framed buildings for resistance to wind and earthquake. Introduction to the properties of building materials. Electrical and energy systems, plumbing and drainage, heating and ventilation in residential buildings. Basic surveying and site set-out, soils and site investigation. Laboratory work and field visits
Learning outcomes	<p>On successful completion a student will be able to:</p> <p><u><i>Building Technology section:</i></u></p> <ol style="list-style-type: none"> 1. Apply simple building science principles to quantitatively evaluate the performance of building materials and components in the environment. 2. Describe and discuss building structures, materials, detailing and construction methods. 3. Describe how to maintain weathertightness in low rise buildings and identify typical cladding materials and their advantages and disadvantages. 4. Define common terms for building components, materials and construction. 5. Describe the evolution of architectural design and the development of form and function. 6. Assess and report on site conditions including site stability, soil type and drainage. <p><u><i>Construction Technology section:</i></u></p> <ol style="list-style-type: none"> 1. Describe and select suitable structural materials and systems; 2. Describe and select and detail suitable cladding and finishing materials; 3. Design a simple structure to comply with the NZS 3604 Standard: Timber Framed Buildings; 4. Describe the Building Consent process; 5. Explain site establishment procedures 6. Utilise a broad range of investigative methods to survey the conditions of a building; 7. Describe energy systems and their services and integration into the building.
Topics covered	<p><u><i>Building Technology section:</i></u></p> <p>1. Properties of Building Materials: common building materials of timber, concrete, plastics and glass. - basic properties, where and when they should be used or avoided, and common occurrences of failure, e.g. the wetting of timber end grain causing rotting of weather boards and the structure behind. This course does not delve into the chemistry of materials, but covers the more descriptive or physical properties.</p> <p>2. Building Construction: how buildings are supposed to be constructed - method of assembly; the construction of buildings by students visiting and monitoring buildings under construction.</p> <p>3. Components, Claddings and Weathertightness: exterior cladding systems and interior linings of new and old buildings, and how to identify them. How to apply the basic properties of the raw materials, e.g. timber, to the multitude of products used in buildings. Predicting likely performance of new innovative materials. How to avoid the reoccurrence of disasters like “Weatherside” and leaking building syndrome.</p> <p>4. Soils and Site Appraisals: ability of a site to support different types of construction; how to appraise the stability of any particular site, and how to identify damage due to instability.</p> <p>1. Architectural Design: evolution of the New Zealand home design from mid 1800’s to present day including the different housing styles, construction and planning. The principles of architectural design are examined including emotional responses to</p>



	<p>buildings, the relationship between form and function and architectural devices such as scale, rhythm and hierarchy.</p> <p><u>Construction Technology section:</u></p> <ol style="list-style-type: none"> 1. Legislations: The Building Act; Resource Management Act and documents. 2. Building envelope; the building team and documents. 3. Soils and foundations; 4. Light timber construction principles. 5. NZS 3604: wind and earthwork; general; site issues. Framing: sub-floor and flooring; venting. Wall framing, NZS3604: Bracing demand. Wall framing & bracing; calculating member sizes. 6. Setting out, site works, excavation, filling, backfill and water run off. 7. Concrete properties, ground floor slab, DPC, hardfill, formwork, concrete mix calculations. Concrete masonry, concrete filling, reinforcement, construction joints, details. 8. Casting & testing concrete cylinders and beams; 9. Concrete footings, piles, reinforcement to footings; footings/ piles/ low retaining walls formwork. 10. Site surveying: levelling. 11. Cladding and components; E2AS1 weathertightness controls/ cladding detail design. 12. Junctions and openings to windows, walls and roof – detail design theory and exploration; 13. Timber species: strength/moisture absorptions/insect and fungal attack/ treatment/ kiln drying. Testing timber joints. 14. Interior linings, walls and finishes, floors and finishes, ceilings – all areas: bathrooms, toilets, kitchens. 15. Roofs: shapes, roof cladding; roof flashings/ underlays, etc. 16. Properties of a range of wallboard linings and wall claddings in common use. 17. Testing properties of linings: Gypsum wall boards/ woodchip or fibre/ laminates. 18. Windows, exterior doors, door hardware; joinery fittings. 19. Intro to domestic services: electrical, telecommunications, plumbing & drainage.
Offering	Semester 1 (internal)
Prerequisites	None
Online component	Web-supported
Assessment	<i>Bldg Tech</i> : Assignments (45%); Final Exam (55%). <i>Const Tech</i> : Assign 50%; exam 50%
Textbook(s)	<p><u>Building Technology section:</u></p> <ul style="list-style-type: none"> • Tony Condor. BRANZ House Building Guide. Wellington: BRANZ, 2004. • Anna Smith. Maintaining your home. Wellington: BRANZ, 2006. <p><i>Useful Texts</i></p> <ul style="list-style-type: none"> • Pringle, T. (1999) <i>Solutions to 20 common building problems</i>, Building Research Association of New Zealand. • J. Salmond. (1991) <i>Old New Zealand Houses 1840-1940</i>. Reed Books (NZ) Ltd. (728.0993 Sal.) • J. Ashford. (1994) <i>The Bungalow in New Zealand</i>. Penguin Books (NZ) Ltd. (728.3730993 Ash.) • D. Stewart. (1992) <i>The New Zealand Villa: Past and present</i>. Penguin Books (NZ) Ltd. (728.370993 Ste.) • P. Shaw. (1991) <i>New Zealand Architecture: From Polynesian beginnings to 1990</i>. Hodder and • Stoughton Ltd. Hong Kong. (720.993 Sha.) • Cochran, C. (1991) <i>Restoring a New Zealand House</i>. NZ Historic Places Trust. <p><u>Construction Technology section:</u></p> <ul style="list-style-type: none"> • Trevor Pringle: Maintaining your home. Wellington. BRANZ, 1995. • NZS 3604: 1999: Timber Framed Buildings • The New Zealand Building Act and Regulations. • BRANZ House Building Guide. Wellington, BRANZ, 2000 (2nd Edition).
Other Lecturer(s)	Kate Henderson, K.J.Henderson@massey.ac.nz ; Dr Claire Flemmer (C.L.Flemmer@massey.ac.nz)

218.271 Construction & Design (Commercial)

Points	15 Credits
Paper Coordinator(s)	Dr Claire Flemmer (C.L.Flemmer@massey.ac.nz)
Aim/Objective	To understand how multi-storey buildings are constructed and retrofitted and how the Construction Act, and the NZBC fire code are applied to industrial building.
Outline	Principles of the design of the structures of low and highrise commercial and industrial buildings. Application of the techniques and details of site, foundations, structures, envelopes and interiors of industrial and commercial buildings. Topics include commercial cladding systems, office interiors, acoustic, security controls and fire protection services. Laboratory work and field visits
Learning outcomes	On successful completion a student should be able to: <ol style="list-style-type: none"> 1. Prepare outline sketches and specifications for siteworks; 2. Identify and sketch foundation and structural systems; 3. Apply principles of weatherproof construction to the building envelope; 4. Describe, select and detail suitable cladding and finishing materials; 5. Evaluate a building design proposal for compliance with NZBC Building Code; 6. Make use of trade literature for interior finishes and secondary elements.
Topics covered	<i>Construction Technology section:</i> Site, Structures, Envelope, and Interiors. Problem solving assignments focus on alternatives of siteworks construction, foundation types , basement and structural systems to a building design; assembly and integration alternatives for exterior (cladding) to a building design with emphasis on weathertightness and buildability principles. Evaluation assignment focus on a building design proposal for compliance with NZBC Building Code. Preparation of a research and compliance assignment focus on the Assembly and services integration for interior fit-out to a building.
Offering	Semester 1 (internal)
Prerequisites	Year 1 of BConst.
Restrictions	217.271
Online component	Web-supported
Assessment	<i>Const Tech:</i> Assignments (70%), Exam (30%); <i>Bldg Tech:</i> Assign (%), Test (%), Exam (%)
Textbook(s)	
Other Lecturer(s)	Kate Henderson, K.J.Henderson@massey.ac.nz ; Temitope Egbelakin (T.Egbelakin@massey.ac.nz)



218.274 Building Services

Points	15 Credits
Paper Coordinator	Kate Henderson (K.J.Henderson@massey.ac.nz)
Aim/Objective	This paper will develop understanding of the installation and preparation of selected design for services incorporated in housing, industrial and commercial buildings.
Outline	Principles of services in commercial, industrial buildings and facilities. Topics include electrical and energy systems, plumbing and drainage, heating, ventilating, air conditioning, lighting, intelligent buildings and alternative energy systems. Laboratory work and field visits.
Learning outcomes	On successful completion a student should be able to: <ol style="list-style-type: none"> 1. Prepare outline sketches and specifications for siteworks. 2. Identify and sketch foundation and structural systems. 3. Apply principles of weatherproof construction to the building envelope. 4. Describe, select and detail suitable cladding and finishing materials. 5. Evaluate a building design proposal for compliance with NZBC Building Code. 6. Make use of trade literature for interior finishes and secondary elements.
Topics covered	Plumbing & drainage; Heating, ventilation & air conditioning; Electrics; Associated systems (hoists, lifts, fire, waste).
Offering	Semester 2 (internal)
Prerequisites	Part 1 BConst
Restrictions	217.274
Online component	Web-supported
Assessment	
Textbook(s)	
Other Lecturer(s)	

218.374 Construction & Design (Multi Storey)

Points	15 Credits
Paper Coordinator	Temitope Egbelakin (T.Egbelakin@massey.ac.nz)
Aim/Objective	To introduce advanced techniques in construction, detail design and building servicing and to extend the knowledge and understanding of the design, construction and operation of multi-storey buildings and buildings requiring complex or advanced technologies.
Outline	An exploration of design components and construction of multi-storey buildings. Principles and design of structural systems, building materials and specification, alternative construction processes, and the application of the necessary requirements from legislation, building code and New Zealand standards. An appreciation of the environmental impact assessment for multi-storey buildings in the context of sustainable development.
Learning outcomes	On successful completion a student should be able to: <ol style="list-style-type: none"> 1. Identify, analyse and evaluate legislation, codes and standards requirements as they affect buildings. 2. Design the details of the building envelope and interior to meet aesthetic, function and environmental performance criteria. 3. Co-ordinate the integration of mechanical and service elements in buildings. 4. Analyse and evaluate information from academic, government and industry sources to inform design solutions. 5. Evaluate performance criteria, and specify selected components, materials and finishes.
Topics covered	Analysis of multi-storey buildings and complex structures for functional organization. Analysis of multi-storey buildings and complex structures for legislative compliance. Evaluation of technologies, materials, service systems, cladding and structural components for use in buildings. Construction processes and building management for multi-storey buildings and complex structures. Detail design for the fabric, structures and services of buildings. Retrofitting of multi-storey buildings.
Offering	Semester 2 (internal & extramural)
Prerequisites	Year 2 of BConst and 218.271
Restrictions	217.374
Online component	Web-supported
Assessment	Assignment 1 (LO 1,2,3,4,5) (25%); Assignment 2 (LO 1,2,3,4,5) (25%); Final exam (LO 1,2,3,4,5) (50%).
Textbook(s)	<ul style="list-style-type: none"> • Barry's Advanced Construction of Buildings Author: Emmitt, S. & Gorse, C. A. Edition: 2010 second edition Publisher: Chichester, U.K: Wiley-Blackwell. • Construction Technology for Tall Buildings Author: Hew, M. Y. L Edition: 2009 third edition Publisher: New Jersey: World Scientific
Other Lecturer(s)	



218.100 Construction Materials & Engineering Fundamentals

Points	15 Credits
Paper Coordinator	Temitope Egbelakin (T.Egbelakin@massey.ac.nz)
Aim/Objective	To introduce to the students a range of construction materials and finishes used in buildings, as well as standard tests and methods used for determining the properties of engineering materials. A student having completed this paper will have a basic understanding of engineering fundamentals relating to structural mechanics, properties of materials and electrical circuits; key construction materials and the criteria for their selections to suit specific applications; the standard tests for checking quality; and the applicable compliance New Zealand Standards.
Outline	Characteristics and properties of construction materials, performance evaluation and selection of materials and finishes for buildings; introduction to new materials for the construction industry; structural mechanics, electrical circuits, materials design and selection data. The course includes project work, workshop methods and material testing
Learning outcomes	<p>On successful completion a student should be able to:</p> <ol style="list-style-type: none"> 1. Analyse the distribution of forces in simple mechanical components and structures. 2. Determine the resultant stresses and strains in such components and structures and be able to predict their behaviour. 3. Understand the fundamentals of electricity and electrical installation in a building. 4. Understand the key material properties of construction materials and how they are assessed. 5. Understand the production, use and durability of metals in construction. 6. Understand the production, use and durability of wood based materials in construction.
Topics covered	<p><i>Construction materials:</i> Introductions to sustainability & sustainable building materials; Building Code, Compliance Documents and New Zealand Standards relating to building materials properties and performance specifications; importance and principles of material specification writing; cements, gypsum building plasters, limes, aggregates, mortars, internal plastering and external rendering, composites, bricks, blocks and clay products, natural stones, plywood, board and slab materials, engineering wood products, adhesives and mastics, bituminous materials and jointless flooring; basic quality compliance tests on a range of materials.</p> <p><i>Engineering fundamentals:</i> Engineering materials; Structures; Stress analysis; Mechanics; Electrical circuits.</p>
Offering	Semester 1 (internal)
Prerequisites	None
Online component	Web-supported
Assessment	Project (20%); Assignments (20%); Test (20%); Final Exam (40%)
Textbook(s)	
Other Lecturer(s)	Iain Emerson (I.Emerson@massey.ac.nz)

218.211 Construction Estimating

Points	15 Credits
Paper Coordinator	Naseem Ameer Ali (N.A.N.AmeerAli@massey.ac.nz)
Aim/Objective	To develop students' ability to understand the preparation of building estimates and tenders, components of units and cost allowances and the application of these to the construction industry trades.
Outline	Concepts of building estimates and tenders for construction and civil engineering works; techniques of analysing and costing of schedule of quantity items; preparation and analysis of sub-contract tender; laboratory and practical work.
Learning outcomes	<p>On successful completion a student should be able to:</p> <ol style="list-style-type: none"> 1. Demonstrate an understanding of the importance of project briefs. 2. Demonstrate an understanding and explain preliminary estimating methods and prepare preliminary estimates. 3. Describe concepts relating to life-cycle-costing. 4. Demonstrate the implications of design layouts on project costs and explain the basic principles of value engineering. 5. Explain the principles and benefits of different tendering methods. 6. Prepare tender and construction contract documents. 7. Evaluate and prepare tender reports. 8. Demonstrate how tenders are priced including pricing of preliminaries and unit rate build-ups comprising labour, materials, wastages, plant, overheads, and profit elements. 9. Demonstrate fact-finding and communication skills.
Topics covered	<p>Tendering: Types of tenders; tendering process; decision to tender; tender documents. Contractual arrangement options: Price based contracts - Lump sum; remeasurement; Cost based - cost-reimbursement. Building Procurement: Conventional forms: traditional, design and build, management contracting and construction management, design and manage/ project management; novel approaches: NEC, PPP, partnering/ strategic alliance. Intro to FIDIC. Estimating: Methods- preliminary, approximate and cost analysis; build up of labour and plant rates; all-in rates; build up of unit rates for key items of NZS4202 trades: preliminaries, excavations, concretework, reinforcement, carpentry, building services, etc.</p>
Offering	Semester 2 (internal)
Prerequisites	Year 1 BConst
Online component	Web-supported
Assessment	Assignment/ Project (25%); Test (25%); Final exam (50%).
Textbook(s)	<p><i>Prescribed:</i></p> <ul style="list-style-type: none"> - New Zealand Institute of Quantity Surveyors (1992) The Quantity Surveyors Handbook. - New Zealand Institute of Quantity Surveyors (1992) Elemental Analysis of Costs of Building Projects. - Rawlinsons (2005) <i>Rawlinson's New Zealand Construction Handbook</i>. Auckland: Rawlinsons Publishing. <p><i>Recommended:</i></p> <ul style="list-style-type: none"> - Geddes, S. (1996). <i>Estimating for building and civil engineering works</i>. Oxford, Butterworth-Heinemann. - Fyshwick, A.C.T. (2004) <i>The Australian Institute of Building Code of Estimating Practice for Building Work</i>. Melbourne: Australian Institute of Building/Paragon Printers. - Kwakye A A (1994) <i>Understanding tendering and estimating</i>. UK: Gower Press. - Elemental Analysis - Standard Conditions of Contract: NZIA, Master Builders, NZS3901; etc
Other Lecturer(s)	

218.213 Measuring Systems I

Points	15 Credits
Paper Coordinator	Dr Niluka Domingo (N.D.Domingo@massey.ac.nz)
Aim/Objective	To develop students' understanding of the principles and practice of measuring and to apply these to the measurement of building and civil engineering works in line with the provisions of the NZS 4202 and NZS 4224.
Outline	Principles of measuring systems for construction works. Introduction to commercial measuring packages. Techniques are illustrated with case studies and practical work
Learning outcomes	On successful completion a student should be able to: <ol style="list-style-type: none"> 1. Identify, interpret and coordinate relevant documentations. 2. Demonstrate understanding of the principles and practice of measurement of building works. 3. Prepare schedules of quantities for selected trades in line with the provisions of NZS 4202.
Topics covered	<ul style="list-style-type: none"> - Introduction to spreadsheet and commercial measuring packages. - Introductions to NZS 4202, schedules of quantities, specification documents; - Introductions to mensuration and measurements - Measurements of key NZS 4202 trades – Excavations, concreteworks, reinforcing steel, carpentry, roofing, structural steel.
Offering	Semester 1 (internal)
Prerequisites	Year 1 BConst
Online component	Web-supported
Assessment	Assignments (30%); Test (20%); Final Exam (50%)
Textbook(s)	<p><i>Prescribed:</i></p> <ul style="list-style-type: none"> - Standards New Zealand (NZS 4202: 1995) Standard Method of Measurement of Building Works. <p><i>Recommended:</i></p> <ul style="list-style-type: none"> - New Zealand Institute of Quantity Surveyors (1992) The Quantity Surveyors Handbook.
Other Lecturer(s)	

218.214 Measuring Systems II

Points	15 Credits
Paper Coordinator	Dr Niluka Domingo (N.D.Domingo@massey.ac.nz)
Aim/Objective	To further develop students' understanding of the principles and practice of measuring and scheduling of specialist building trades in line with the provisions of the NZS 4202.
Outline	Measurement and scheduling of quantities for specialist trades
Learning outcomes	On successful completion a student should be able to: <ol style="list-style-type: none"> 1. Demonstrate understanding of the principles and practice of measurement of specialist building trades. 2. Prepare schedules of quantities for selected specialist trades in line with the provisions of NZS 4202 Standard Method of Measurement of Building Works. 3. Demonstrate understanding of the use of commercial measuring package in the measuring and scheduling process.
Topics covered	<i>Building works:</i> <ul style="list-style-type: none"> - Introduction to commercial measuring package and BIM. - Measurements of key NZS 4202 trades – Metal doors and windows, glazing, blockwork, brickwork, joinery. - Building services – plumbing & drainage, electrical or mechanical trades
Offering	Semester 2 (internal)
Prerequisites	218.213
Online component	Web-supported
Assessment	Assignments (30%); Test (20%); Final Exam (50%)
Textbook(s)	<i>Prescribed:</i> <ul style="list-style-type: none"> - Standards New Zealand (NZS 4202: 1995) Standard Method of Measurement of Building Works. <i>Recommended:</i> <ul style="list-style-type: none"> - New Zealand Institute of Quantity Surveyors (1992) The Quantity Surveyors Handbook.
Other Lecturer(s)	



218.311 Feasibility and Construction Financial Administration

Points	15 Credits
Paper Coordinator	Naseem Ameer Ali (N.A.N.AmeerAli@massey.ac.nz)
Aim/Objective	To introduce students to estimating and cost planning techniques.
Outline	An introduction to feasibility studies, cost planning, construction procurement methods, contractual arrangement methods, and construction contract administration.
Learning outcomes	On successful completion of the paper a student should be able to: <ol style="list-style-type: none"> 1. Prepare feasibility studies. 2. Demonstrate the principles of cost planning. 3. Demonstrate the key principles of traditional and non-traditional procurement methods. 4. Explain the different contractual arrangement methods such as pure lumps sum contracts, contracts with quantities, re-measurement contracts, and schedule of rates contracts. 5. Administer the financial aspects of construction contracts and subcontracts. 6. Demonstrate fact-finding and communication skills.
Topics covered	<ol style="list-style-type: none"> 1. Feasibility studies 2. Cost planning 3. Construction procurement methods 4. Contractual arrangement methods; 5. Construction contract administration.
Offering	Semester 2 (extramural and block)
Prerequisites	Year 2 BConst(QS) or Part 2 of BConst.
Online component	Web-supported
Assessment	Assignments (50%); Final Exam (50%)
Textbook(s)	<p>Recommended</p> <ul style="list-style-type: none"> • Contract practice for surveyors Author: Jack Ramus ISBN: 0750626615 Edition: 3rd ed Publisher: Oxford ; Boston : Laxton's, 1996 • Cost studies of buildings Author: Allan Ashworth ISBN: 013145322X Edition: 4th ed Publisher: Harlow, England ; New York : Pearson/Prentice Hall, 2004 • Estimating and tendering for construction work Author: Martin Brook ISBN: 0750658649 Edition: 3rd ed Publisher: Boston : Elsevier Butterworth-Heinemann, 2004 • Estimating for builders and surveyors Author: Ross D. Buchan ISBN: 0750642718 Edition: 2nd ed Publisher: Oxford : Butterworth-Heinemann, 2002 • Ferry and Brandon's cost planning of buildings Author: Richard Kirkham ISBN: 1405130709 Edition: 8th ed Publisher: Oxford, UK ; Malden, MA : Blackwell, c2007
Other Lecturer(s)	-

218.315 Professional Practice and Construction Contracts

Points	15 Credits
Paper Coordinator	Naseem Ameer Ali (N.A.N.AmeerAli@massey.ac.nz)
Aim/Objective	To introduce to students the basics of construction law and contract administration in the construction industry.
Outline	The basics of construction law affecting construction professionals including professional negligence, formation and administration of construction contracts and construction dispute resolution
Learning outcomes	On successful completion of the paper a student should be able to: <ol style="list-style-type: none"> 1. Demonstrate an understanding of the conditions of engagement of construction professionals including the codes and ethical requirements. 2. Demonstrate an understanding of and explain construction professional standards and professional liability. 3. Demonstrate an understanding of and explain basic principles of construction law and construction contracts. 4. Compare, contrast and administer different types of construction contracts and subcontracts. 5. Compare different construction dispute resolution methods including mediation, adjudication and arbitration and explain their key features and benefits. 6. Present, critique and defend issues relating to all the above topics.
Topics covered	<ol style="list-style-type: none"> 1. Study of requirements for a Professional practice. 2. Ethics. 3. Contract selection advice. 4. Construction Contracts 2002 and amendments and other law affecting the construction industry. 5. Disputes and preparation of evidence. Adjudication under the Construction Contracts Act.
Offering	Semester 1 (extramural and block)
Prerequisites	Part 2 of the Bachelor of Construction or Year 2 of the BC(QS)
Online component	Web-supported
Assessment	Assignment 1 (20%); Assignment 2 (30%); Final Exam (50%)
Textbook(s)	<p>Recommended</p> <ul style="list-style-type: none"> • A guide to the Construction Contracts Act Author: Geoff Bayley and Tómas Kennedy-Grant ISBN: 0473088142 Edition: 2nd Ed, 2009 Publisher: Auckland, N.Z. : Rawlinsons Media, • Construction Contracts: Law and Management Author: John Murdoch, Will Hughes Edition: 4th Ed, 2008 Publisher: Taylor and Francis, New York • Kennedy-Grant on Construction Law Author: Tómas Kennedy-Grant ISBN: 9780408717861 Edition: 2nd ed; Publisher: Wellington [N.Z.] : LexisNexis NZ, 2012 • Management for the New Zealand construction industry Author: Suzanne Wilkinson, Rosemary Scofield ISBN: 1877258563 Edition: 2003; Publisher: Auckland, N.Z. : Prentice Hall • New Zealand Standard Conditions of Contract for Building and Civil Engineering Construction. NZS 3910 Author: New Zealand Standards Edition: 2003; Publisher: New Zealand Standards
Other Lecturer(s)	



218.414 Construction Technology & Operations

Points	15 Credits
Paper Coordinator	Dr Jasper Mbachu (J.I.Mbachu@massey.ac.nz)
Aim/Objective	The paper aims to provide students with fundamental skills and knowledge in construction contract administration and project management so they can evolve to successfully take on responsibilities as contract managers, project managers and wider roles as they gain heights in their career trajectory. It also seeks to give learners the opportunity to develop generic skills such as time management, multi-tasking, problem-solving, communication, analytical and fact-finding skills through self-directed learning. Students are expected to integrate and apply knowledge gained in the paper, related modules, extant literature and industry practice to solving real-world problems in the construction industry.
Outline	This paper continues the study of construction and project engineering through a series of topics relating to the organisation of construction and engineering sites. Including the analysis of resource requirements, selection and optimisation, hazard analysis and health and safety plans, method statements, planning, quality control, constructability techniques, alternative solutions and innovation
Learning outcomes	On successful completion a student should be able to: <ol style="list-style-type: none"> 1. Demonstrate knowledge of, and skills in, project planning, scheduling and control; 2. Demonstrate knowledge of, and skills in, budgeting, cash flow analysis and forecasting for a project. 3. Demonstrate knowledge of, and skills in, contract and financial administration for a construction project. 4. Demonstrate knowledge of, and skills in project risk analysis using the Performance Review and Evaluation Technique (PERT) and the Monte Carlo simulation in support of a more reliable decision-making process. 5. Demonstrate advanced fact-finding and communication skills, including the ability to investigate and report on topical construction industry problems.
Topics covered	<ol style="list-style-type: none"> 1. Project planning, scheduling and programming (including resource scheduling); 2. Project budgeting including cash flow forecasting and analysis 3. Project acceleration (including crash costing, cost slope and optimum duration analysis). 4. Performance Evaluation & Review Techniques (PERT). 5. Project uncertainty and risk management (including probabilistic/ stochastic analysis using traditional and simulation approaches (focusing on Monte Carlos simulation as decision-support system and risk analysis). 6. Contract and financial administration of construction projects, including progress claims and progress payment processes based on the Construction Contract Acts 2002. Valuation of variation work based on the NZS 3910: 2003 7. Computer applications including Microsoft Project and spreadsheet applications.
Offering	Semester 2 (extramural and block)
Prerequisites	Part 2 of the Bachelor of Construction
Online component	Web-supported
Assessment	Assignments (40%); Final Exam (60%)
Textbook(s)	Recommended: <ul style="list-style-type: none"> • Wilkinson, S. and Scofield, R. (2010) Management for the New Zealand construction industry, 2nd Edition • Cormican, D. (1985) Construction Management: Planning & Finance • Mantel, S. and Meredith, J. (2001) Project Management in Practice • Knutson, K. Schexnayder, C.F and Mayo, R. (2004) Construction Management Fundamentals, 2nd Edition • Cooke, B. and Williams, P. (2009) Construction Planning, Programming & Control, 3rd Edition
Other Lecturer(s)	-

218.421 Construction Project

Points	15 Credits
Paper Coordinator	Dr Niluka Domingo (N.D.Domingo@massey.ac.nz)
Aim/Objective	The paper aims to develop problem-solving, analytical and fact-finding skills in students through self-directed learning. Students are expected to integrate and apply knowledge gained in previous papers to solving real life problems in the construction industry. It will provide students with unique problem- or inquiry-based learning experience
Outline	A supervised project, including an Information Technology component, requiring the synthesis of knowledge gained in previous papers to solve a construction industry problem.
Learning outcomes	On successful completion of the paper the student should be able to: <ol style="list-style-type: none"> 1. Demonstrate skills and knowledge gained in previous studies in giving procurement advice, undertaking feasibility studies, cost estimation and cash flow forecasts, and/ or producing schedules of quantities. 2. Demonstrate skills and knowledge in project planning, scheduling and control, and/or contract administration of construction project. 3. Demonstrate advanced fact-finding skills including the ability to investigate and report on topical construction industry problems.
Topics covered	Topics covered in previous papers, i.e. measuring systems, estimating, contract administration, project engineering and construction technology and operations, will all form part of the Construction Project. In addition, the paper provides opportunity for students to research into and be acquainted with current thinking on a range of topical issues in the construction industry, such as sustainable construction, laws and regulations affecting construction business in New Zealand and the compliant costs including Construction Contracts Act; Licensed Building Practitioner Scheme; RMA, etc.
Offering	Semester 2 (extramural and block)
Prerequisites	Year 3 BC (QS) or Part 2 of BConst
Online component	Web-supported
Assessment	Assignments/ Projects (100%)
Textbook(s)	There are no prescribed readings for this paper; students should refer to relevant reading lists in core construction papers, namely: building services, construction technology, estimating, measuring systems, construction technology & operations, feasibility & cost planning, and project management. In addition, students may find the following books useful: <ul style="list-style-type: none"> - Turner, C.W.O. Contracts and contract administration. - Merwood, B.H. Building contracting in New Zealand. - Bayley, Geoff A guide to the Construction Contracts Act. - Degerholm, P. Managing Contractors' Cashflow: Making the Construction Contracts Act Work For You
Other Lecturer(s)	N/A



218.422 Construction Research Method and Report

Points	15 Credits
Paper Coordinator	Dr Jasper Mbachu, J.I.Mbachu@massey.ac.nz
Aim/Objective	The principal aim of the paper is to generate interest and establish some proficiency in self-motivated problem identification and problem-solving amongst students, drawing on the skills and knowledge of research method, as well as knowledge gained from the industrial experience and extant literature.
Outline	A paper on research methodology in addition to a supervised research project and report on an approved research topic of interest to the construction industry
Learning outcomes	Students who successfully complete this paper will be able to demonstrate: <ol style="list-style-type: none"> 1. How to identify a problem that justifies examination, i.e. how to identify a problem that, in the opinion of the student, has not been resolved wholly or satisfactorily by somebody else. 2. How to draw up a proposal which fully describes a programme for investigating the selected problem. 3. How to undertake an investigation aimed at resolving the problem after establishing the current state of knowledge relevant to the problem from the published literature and/or established practice. 4. How to report the results of such an investigation after recording, analysing and interpreting the findings and drawing valid conclusions; and if need be. 5. How to disseminate the findings via scholarly publications and conferences.
Topics covered	Through the application of the skills and knowledge gained in the research methodology paper, students will develop sound research design, produce comprehensive research proposal, gather and analyse relevant data following sound research methodology, test propositions, interpret findings, draw conclusions and compile coherent and well-argued report that meets quality standards for dissemination in scholarly publications. Approved topics will focus on topical issue in the construction industry, which can add value to industry stakeholders, and so be able to motivate them to participate in the research or grant access to needed data.
Offering	Double semester (distance)
Prerequisites	Year 3 BC (QS) or Part 2 of BConst
Online component	Web-supported
Assessment	Research Proposal (10%); Poster Presentation (10%); Research Report (50%); Oral defence (30%).
Textbook(s)	<p>Recommended</p> <ul style="list-style-type: none"> • How to Write Effective Reports Author: Sussams, J.E; Publisher: Gower • Successful Dissertations and Theses Author: Madsen, D ; Edition: 1983; Publisher: Cullen QCK REF LAB2369MAD • The Modern Researcher Author: Barzun, J. and Graff, H.F.; Publisher: Cullen PN 187BAR • The New Oxford Guide to Writing Author: Kane, T.S. Publisher: Cullen, PN 147KAN • Writers' Research Handbook Author: Cottam, K.M. and Pelton, R.W. Publisher: Cullen PN 146 COT
Other Lecturer(s)	Dr Niluka Domingo (N.D.Domingo@massey.ac.nz); Temitope Egbelakin (T.Egbelakin@massey.ac.nz) .