Postgraduate

Civil Engineering, Port and Harbour and Construction Management

swinburne.edu.au/postgrad

SWINBURNE UNIVERSITY OF TECHNOLOGY

Postgraduate programs in civil engineering, port and harbour and construction management

Swinburne's postgraduate programs in civil engineering, port and harbour engineering and construction management have been designed to enhance your technical and management knowledge – giving you a competitive advantage that can help to accelerate your career in the construction industry.

Our civil engineering programs prepare you for the design, construction, operation and maintenance of civil infrastructure and assets. They focus on advanced design and analysis techniques in the fields of water, structures, geotechnical, sustainability and maritime engineering, as well as asset and engineering management.

Our port and harbour engineering program covers a broad range of specialist subjects to equip graduates to lead and apply advanced technical and engineering skills to the projects in port environments. This is the only course of its kind in Australia. Developed in conjunction with Ports Australia, the program provides the necessary skills to enhance your engineering career in an industry that continues to grow.

Our construction management programs maximise career opportunities by preparing you for management roles in the project-based construction industry. They focus on sophisticated project management, site management, infrastructure asset management, procurement, cost planning and resources management, international construction and location-based management.

Our industry-based programs produce leaders and professionals with advanced skills and knowledge who excel in operational, tactical and strategic management roles.

Programs at a glance

Civil Engineering	
Award	Graduate Certificate of Engineering (Civil) Master of Technology (Civil) Master of Engineering (Civil) Master of Engineering Science (Civil)
Focus	To deliver advanced theoretical and practical knowledge of the design, procurement and asset management of civil infrastructure projects.
Suitable for	Recent civil engineering graduates and professional civil engineers in industry.
Average duration	Graduate Certificate of Engineering (Civil) – six months full-time or one year part-time Master of Technology (Civil) – one year full-time or two years part-time Master of Engineering (Civil) – one-and-a-half years full-time or three years part-time Master of Engineering Science (Civil) – two years full-time or four years part-time
Location	Hawthorn campus
Entry requirements	A Bachelor of Engineering (Civil) or equivalent, or relevant industry experience*.
Work experience	Preferred
Structure	Graduate Certificate of Engineering (Civil) – four units Master of Technology (Civil) – eight units Master of Engineering (Civil) – 12 units Master of Engineering Science (Civil) – 12 units and Major Research Project
2012 fees	$2350 per unit (FEE-HELP is available for eligible students)
Intake	February and August

*Applicants who do not have appropriate qualifications but who have relevant work experience are encouraged to apply. They may be granted entry into the graduate certificate and on successful completion can continue into the master.

Port and Harbour Engineering	
Award	Graduate Certificate of Engineering (Port and Harbour)
Focus	To deliver advanced theoretical and practical knowledge of the technical and engineering problems in port environments.
Suitable for	Recent engineering graduates and professional engineers working in the port and harbour industry.
Average duration	One to two years; each unit is delivered over a week-long intensive lecturing period, followed by assignments conducted by distance.
Location	Hawthorn campus and by distance
Entry requirements	Completion of a diploma or bachelor degree in engineering, or relevant industry experience.
Work experience	Preferred
Structure	Four units
2012 fees	$2350 per unit (FEE-HELP is available for eligible students)
Study dates	13–17 February; 20–24 February; 17–21 September

Programs at a glance (continued)

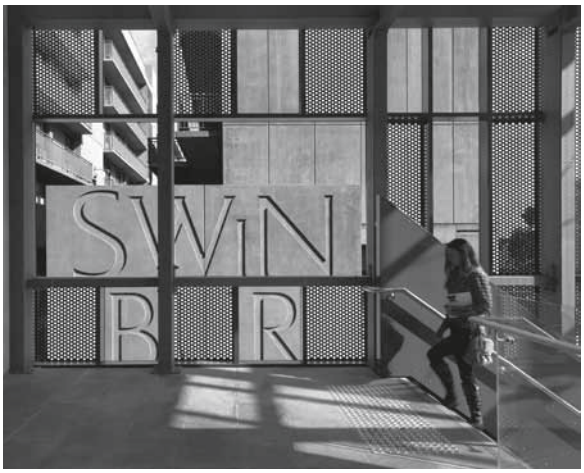
Construction Management	
Award	Graduate Certificate in Construction Management Graduate Diploma of Construction Management Master of Construction Management
Focus	To deliver advanced theoretical and practical knowledge of managing design, construction and maintenance of buildings and civil infrastructure as well as built environment and constructed facilities and assets.
Suitable for	Civil engineering, building, architecture, building services, building surveying or quantity surveying graduates and project management or construction management professionals with industry experience.
Average duration	Graduate Certificate – six months full-time or one year part-time Graduate Diploma – one year full-time or two years part-time Master – one-and-a-half years full-time or three years part-time
Location	Hawthorn campus and by distance
Entry requirements	A bachelor degree in engineering or a four-year degree in one of building, architecture, surveying or building services, or relevant industry experience*.
Work experience	Preferred
Structure	Graduate Certificate of Construction Management – four units Graduate Diploma of Construction Management – eight units Master of Construction Management – 12 units
2012 fees	$2350 per unit (FEE-HELP is available for eligible students)
Intake	February and August

*Applicants who do not have appropriate qualifications but do have relevant work experience are encouraged to apply. They may be granted entry into the graduate certificate or graduate diploma and on successful completion can continue into the master.

Accelerate your career with two master degrees in two years

- **Master of Technology (Civil)**
- **Master of Construction Management**

You can undertake the Master of Technology (Civil) and Master of Construction Management in a total duration of two years. Successfully complete the Master of Technology (Civil) and you will receive a six-month (50 credit point) exemption when you enrol in the Master of Construction Management, enabling you to complete two master degrees in two years.



Civil engineering

Graduate Certificate of Engineering (Civil)

Master of Technology (Civil)

Master of Engineering (Civil)

Master of Engineering Science (Civil)

Swinburne's suite of postgraduate civil engineering programs are designed to prepare you for the design, procurement, construction and management of civil infrastructure projects and assets. This is achieved though the study of advanced design and analysis techniques in the fields of water, structures, geotechnical, sustainability and maritime engineering, as well as asset and engineering management.

These programs are designed to provide you with an advanced understanding of:

- the design and analysis skills associated with civil infrastructure
- Australian civil engineering practice
- the codes of practice associated with civil infrastructure design
- the issues and challenges associated with the procurement and asset management of infrastructure projects in the 21st century
- sustainability issues and effects on the environment
- financial, legal, project management and risk considerations associated with project procurement and the business of engineering
- report writing, communication and presentation skills
- research and investigation skills.

Career opportunities

Graduates may find employment as a civil engineer, design engineer, construction manager, project engineer or manager, geotechnical engineer, water engineer or asset management engineer in a range of industries, including consulting engineering, construction, research or government.

Admission requirements

Entry into the Graduate Certificate of Engineering (Civil) program requires either:

- Bachelor of Engineering (Civil), or equivalent
- qualifications and experience that are of an equivalent standard to the program.

Entry into the Master of Technology and Master of Engineering programs requires one of the following:

- Bachelor of Engineering (Civil), or equivalent, and successful completion of the graduate certificate units
- Bachelor of Engineering (Civil), or equivalent, with either honours or at least two years' relevant industry experience
- qualifications and experience that are of an equivalent standard (decided by program coordinator); the pathway for such students would be through satisfactory completion of the graduate certificate units before moving into the master program.

Advanced standing

Applications for advanced standing will be considered on their individual merit and must be submitted and resolved prior to enrolment. University policies and restrictions apply.

Location

These programs are offered on campus at Hawthorn. Some elective and core units are offered through distance education.

Program length

Graduate Certificate: One semester full-time or one year part-time

Master of Technology: One year full-time or two years part-time

Master of Engineering: One-and-a-half years full-time or three years part-time

Master of Engineering Science: Two years full-time or four years part-time

You may commence studies in either first or second semester. If you are employed we encourage you to study part-time. You may vary your study load to accommodate changing employment and personal commitments.

Note: International applicants wishing to study on campus should be aware that due to visa requirements a full-time study load (four units) must be maintained.

Program structure

Swinburne's civil engineering programs form a nested suite, offering you the opportunity to exit at the graduate certificate or master stage. The programs offer great flexibility with a wide choice of discipline-specific units and electives.

All units of study are valued at 12.5 credit points except for Major Research Project (HES7601), which is valued at 50 credit points.

Graduate Certificate of Engineering (Civil)

This program requires you to satisfactorily complete four units of study to the value of 50 credit points. At least two must be discipline-specific units.

Master of Technology (Civil)

This program requires you to satisfactorily complete eight units of study to the value of 100 credit points. At least five must be discipline-specific units.

Master of Engineering (Civil)

This program requires you to complete 12 units of study to the value of 150 credit points.

Master of Engineering Science (Civil)

This program requires you to complete 12 units of study to the value of 150 credit points, plus Major Research Project, which is valued at 50 credit points.

Civil engineering (continued)

Units of study

Discipline-specific units	
HES6175	Project Costing
HES6175D	Project Costing*
HES6178	Sustainable Buildings
HES6179	Transport Planning, Modelling and Economics
HES6180	Advanced Concrete Design
HES6181	Strengthening and Monitoring of Structures
HES6192	Infrastructure Deterioration Modelling
HES6194	Geotechnical Design
HES6195	Building Design
HES6196	Integrated Water Design
HES6197	Principles of Sustainability
HES6CME	Coastal and Maritime Engineering
HES6DRE	Dredging Engineering
HES6PAN	Port Access and Navigation
HES6PHE	Port and Harbour Engineering
HES6PSD	Port Structural Design

Recommended elective units	
HBN500	New Venture Development
HES6174	Resource Planning and Management
HES6176	Environmental Sustainability in Construction
HES6176D	Environmental Sustainability in Construction*
HES6177D	International Construction*
HES6I99	Energy for the Future
HES6690	Engineering Project Control
HES6690D	Engineering Project Control*
HES6720	Risk Perception and Analysis*
HES6791	Project Management
HES6793	Construction Law
HES6793D	Construction Law*
HES6795	Construction Site Operations
HES6797	Location-based Management for Construction
HES6798	Procurement and Risk Management in Projects
HIR506	Technology Management
Research units	
HES6198	Research Paper
HES7601	Major Research Project
HES7605	Research Design and Methodology*
HIT9010	Research Methods

*Delivered via distance education only.

Visit **www.swinburne.edu.au/courses** for outlines of each unit of study.

Port and harbour engineering

Graduate Certificate in Engineering (Port and Harbour)

As the only course of its kind in Australia, Swinburne's Graduate Certificate in Engineering (Port and Harbour) provides the necessary skills to enhance your engineering career in an industry that continues to grow. Developed in conjunction with Ports Australia, this postgraduate qualification is designed to:

- equip you with knowledge of engineering applications at ports and harbours
- develop the ability to analyse relevant topics pertaining to port and harbour engineering
- provide theoretical and practical models you will be able to utilise in port and harbour engineering applications.

Career opportunities

As a graduate of the Graduate Certificate in Engineering (Port and Harbour) you will gain theoretical and practical knowledge to enhance job performance and provide opportunities for career advancement in the maritime and port and harbour industry.

Admission requirements

A Bachelor of Engineering degree, or equivalent, or qualifications and experience, which in the opinion of the selection officer, are of an equivalent standard for the nominated program.

Advanced standing

Applications for advanced standing will be considered on their individual merit and must be submitted and resolved prior to first enrolment.

Location

Hawthorn campus, with assignments conducted by distance.

Program length

Students undertake up to two units per semester, allowing for completion of the program in one to two years.

Time commitment

All units are run in an intensive mode: full-time classes (9.30am – 5.30pm, with breaks) over one week for each unit, followed by assignments conducted by correspondence during the semester. Each unit is also available to be completed as a single unit during the regular semester period.

Program structure

In order to gain the Graduate Certificate in Engineering (Port and Harbour) students must complete four units of study to the value of 50 credit points.

Units of study

All units of study are valued at 12.5 credit points. Students complete three discipline-specific units plus one further discipline-specific unit or one elective unit.

Discipline-specific units	
Semester 1	
HES6DRE	Dredging Engineering*
HES6PHE	Port and Harbour Engineering
Semester 2	
HES6PAN	Port Access and Navigation
HES6PSD	Port Structural Design

*This unit is sponsored by Royal Boskalis Westminster.

Recommended elective units	
HES6CME	Coastal and Maritime Engineering
HES6174	Resource Planning and Management
HES6175	Project Costing
HES6176	Environmental Sustainability in Construction
HES6179	Transport Planning, Modelling and Economics
HES6180	Advanced Concrete Design
HES6181	Strengthening and Monitoring of Structures
HES6192	Infrastructure Deterioration Modelling
HES6194	Geotechnical Design
HES6690	Engineering Project Control
HES6727	Introduction to Risk and Due Diligence
HES6791	Project Management
HES6793	Construction Law
HES6795	Construction Site Operations
HES6797	Location-based Management for Construction
HES6798	Procurement and Risk Management in Projects

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Construction management

Graduate Certificate in Construction Management

Graduate Diploma of Construction Management

Master of Construction Management

Swinburne's construction management programs aim to prepare students for roles in managing people, equipment, materials, technological processes and funds in the construction, maintenance and asset management of buildings and civil infrastructure.

This is achieved though the study of advanced management and engineering techniques in design, construction and maintenance operations, with the opportunity to specialise.

These programs are designed to develop:

- an ability to plan, monitor and control design, construction and maintenance operations, and to manage project-based risks
- specific skills for managing people, such as leadership and organisation, as well as planning and managing material and equipment resources
- knowledge of the key issues and concepts of procurement and project delivery
- knowledge of modern building, construction and maintenance technologies
- knowledge of local and international construction
- an understanding of the financial considerations and the risks involved in project funding
- an appreciation of contractual obligations, risks and legal requirements
- an understanding of the requirements of managing quality and value
- an awareness of sustainability principles and effects on the environment of construction projects
- an ability to communicate effectively in project settings.

Career opportunities

Graduates will be able to apply the knowledge and skills acquired from these programs to gain or accelerate a career in management roles in areas such as:

- architectural management
- building management
- construction management
- design management
- project management
- civil engineering management
- infrastructure facilities and asset management
- other related engineering and management roles, including consulting and research in the private sector, and local, state and federal governments.

Admission requirements

Applications are encouraged from university graduates and those currently employed in management roles in the construction industry. The level at which you will be admitted (graduate certificate, graduate diploma or master) will depend on your work experience, knowledge and previous study. We encourage you to apply whether you are located in Australia or overseas.

To apply you must have one of the following:

- a bachelor degree in engineering or equivalent qualifications
- a four-year degree in one of building, architecture, building services, building surveying or quantity surveying
- qualifications and experience which, in the opinion of the selection officer, are of satisfactory standard for the nominated program.

You must also have satisfied the university that your standard of English (oral and written) is adequate for the program.

Location

These programs are offered on campus at Hawthorn and by distance education.

Program length

Graduate certificate: Six months full-time or one year part-time

Graduate diploma: One year full-time or two years part-time

Master: One-and-a-half years full-time or three years part-time

You may commence studies in either first or second semester. If you are employed, part-time study may be a more suitable option for you. The flexibility of the program enables you to vary your study load to accommodate changing employment and personal commitments.

Note: International applicants wishing to study on campus should be aware that due to visa requirements a full-time study load (four units) must be maintained, with the exception of the final semester.

Program structure

Swinburne's construction management programs form a nested suite, offering you the opportunity to exit at the graduate certificate, graduate diploma or master stage. The programs offer great flexibility through a wide choice of discipline-specific units and elective units. The range of study options include on-campus, online or distance education, and intensive or block mode units of studies.

All units of study are valued at 12.5 credit points except for Research Project (HES7609), which is valued at 25 credit points.

Graduate Certificate of Construction Management

This program requires you to satisfactorily complete four units of study to the value of 50 credit points. At least two must be discipline-specific units.

Graduate Diploma of Construction Management

This program requires you to satisfactorily complete eight units of study to the value of 100 credit points. At least five must be discipline-specific units.

Master of Construction Management

This program requires you to complete 12 units of study to the value of 150 credit points. At least seven must be discipline-specific units.

Alternatively, if you wish to take the research track in the final semester, you must take six discipline-specific units and of the remaining units for degree completion, the following research units should be included:

- Research Design and Methodology (HES7605)
- Research Project (HES7609).

Units of study

Discipline-specific units	
HES6174	Resource Planning and Management
HES6175	Project Costing
HES6175D	Project Costing*
HES6176	Environmental Sustainability in Construction
HES6176D	Environmental Sustainability in Construction*
HES6177D	International Construction*#
HES6178	Sustainable Buildings
HES6192	Infrastructure Deterioration Modelling
HES6690	Engineering Project Control
HES6690D	Engineering Project Control*
HES6720	Risk Perception and Analysis*
HES6791	Project Management
HES6793	Construction Law
HES6793D	Construction Law*
HES6795	Construction Site Operations
HES6797	Location-based Management in Construction
HES6798	Procurement and Risk Management in Projects
HES6DRE	Dredging Engineering
HES6PHE	Port and Harbour Engineering

Recommended elective units	
HES6179	Transport Planning, Modelling and Economics
HES6193	Infrastructure Asset Management
HES6194	Geotechnical Design
HES6195	Building Design
HES6196	Integrated Water Design
HES6197	Principles of Sustainability
HES6630	Airport Planning and Design 1
HES6631	Airport Planning and Design 2
HES6721	Risk Management Principles*
HES6723	Financial Risk Management*
HES6727	Introduction to Risk and Due Diligence
HES6740	Quantitative Risk Modelling*
HES6CME	Coastal and Maritime Engineering
HES6PAN	Port Access and Navigation
Research units	
HES7605	Research Design and Methodology*
HES7609	Research Project
HIT9010	Research Methods

* Delivered via distance education only.
# This unit is delivered by specialists from the Academy of Project Management.

Visit **www.swinburne.edu.au/courses** for outlines of each unit of study.

Key staff

Dr Kamiran Abdouka, BSc (Civil Eng), MSc (Structural Eng), PhD,

Kamiran is a senior lecturer in the Faculty of Engineering and Industrial Sciences at Swinburne and is a registered building practitioner in the field of civil engineering in Victoria. He has more than 10 years' design experience in steel, masonry, timber and concrete (both reinforced and post-tensioned) structures. He holds a Bachelor of Science in Civil Engineering and a Master of Sciences in Structural Engineering from the University of Baghdad in Iraq and a PhD in Civil Engineering (Structures) from the University of Melbourne. His research interests include the performance of concrete buildings under earthquake loading, and the monitoring and assessment of infrastructure deterioration such as buildings and bridges.

Professor Riadh Al-Mahaidi, BE, MSc, PhD, FIEAust, CPEng

Riadh joined Swinburne and the Centre for Sustainable Infrastructure in January 2010 as professor of structural engineering. Prior to this appointment he was head of structures at Monash University for 10 years. He currently holds adjunct professor status at Monash University.

Riadh is an internationally recognised researcher in strength assessment and the rehabilitation of civil infrastructure, and the non-destructive testing and non-linear finite element modelling of concrete and steel structures. He has extensive experience in large-scale structural testing and is currently involved in applied research projects with VicRoads. He holds a Bachelor of Science in Engineering from the University of Baghdad, and a master degree in Structural Engineering and PhD in Structural Engineering (major), Theoretical and Applied Mechanics (minor), Structural Mechanics (minor) from Cornell University in the United States. In 2005 he was awarded the Engineers Australia RW Chapman Medal for best paper published in the *Australian Journal of Structural Engineering*.

Riadh's current research focuses on the use of innovative and smart materials in rehabilitating structures, enhancing the fatigue life of metallic structures retrofitted with FRP composites, and structural health monitoring and hybrid testing of structures.

Associate Professor A Arulrajah (Arul), BSc, MEngSc, PhD, FIEAust, CPEng

Arul is an associate professor (civil engineering) at Swinburne, a fellow of the Institution of Engineers Australia and a chartered professional engineer. He holds a Bachelor of Science from Purdue University in the United States, a Master of Engineering Science from the University of Malaya and a PhD from Curtin University in Western Australia. His current research interests include geotechnical engineering, ground improvement, dredging, land reclamation and sustainable materials. He has gained extensive experience in the project management, design and site implementation of civil engineering infrastructure projects in the Australasian region having worked with various consultants in Australia, Singapore and Malaysia over the last 15 years.

Professor Alexander V Babanin, BSc (Physics), MSc, PhD

Alex is the program coordinator of the port and harbour engineering program. He is a graduate of the MV Lomonosov Moscow State University, and offers extensive research and academic experience in coastal, ocean and port engineering and physical oceanography. His research interests include ocean waves, air-sea interactions, upper-ocean dynamics, turbulence, extreme weather and oceanic conditions, climate, fluid mechanics, data analysis, coastal and ocean engineering application, environmental measurements and instrumentation, and ocean remote sensing. He is a Fellow of The Institution of Engineers Australia and is a member of the Australian Meteorological and Oceanographic Society, American Meteorological Society, American Geophysical Union and Australaisian Fluid Mechanics Society. Alex leads a number of national and international governmental and industry-funded research project and has published more than 100 research papers.

Mr Keith Caporn, BSc (Civil Eng), NSWA
Keith graduated from Swinburne University of Technology with a Bachelor of Engineering (Civil Engineering) in 1976 and has more than 28 years' experience as a professional engineer, general manager and consultant in Australia and overseas. His wide-ranging experience covers general management, sales and marketing, and technical and commercial expertise in engineering and manufacturing. His senior management experience includes contract, licensee and licensor negotiations and project management, and he possesses strong industry knowledge and experience in engineering-related infrastructure projects relating to water, roads, bridges and building. He is currently the national president of the Stormwater Industry Association.

Mr Barry G Cargill, DipCivEng, BCom, MEngSc, MIE Aust CPEng, Assoc AIPM
Barry has more than 30 years' experience in the design and construction management of projects both within Australia and overseas. These projects have been undertaken in the area of infrastructure development (including roads, motorways, railways, power stations and schools) and in multi-discipline industrial development projects (including process, chemical plants, food and beverages). Barry has also been involved in the development of quality management systems for engineering companies and contractors. He is currently the managing director of a specialist multi-discipline engineering design and construction management company in Melbourne.

Dr Palaneeswaran Ekambaram, BEng, MEng (Hons), PhD, MASCE, MIEEE, MIAEng, MPMI, CEng(I), MISTE
Palaneeswaran is a senior lecturer and the program coordinator for construction management programs. He is a chartered civil engineer who graduated with a Bachelor of Engineering (Civil Engineering) and specialised with a Master of Engineering (Honours) in Construction Technology and Management from Madurai Kamaraj University and the Thapar Institute of Engineering and Technology, India. He earned his PhD in construction management from the University of Hong Kong. Palaneeswaran has extensive experience in academia and industry. He has taught at the City University of Hong Kong and the University of Hong Kong, as well as in India. His expertise and research interests are in construction management, design management, engineering management, knowledge management and artificial intelligence applications, procurement and supply chain management, project management, public–private partnership, risk management, sustainable infrastructure development and asset management.

Mr Robert Evans, BEng (Hons), MEng, MBA, MIEAust, CPEng
Robert is a lecturer of civil and geotechnical engineering. He holds a Bachelor of Engineering, a Graduate Diploma in Management and a Master of Engineering all from Swinburne, as well as a Master of Business Administration in Management from Deakin University. Before entering the academic environment he worked for VicRoads and a local geotechnical consultant, Piper and Associates. He has research interests and expertise in the behaviour of expansive soils, road roughness, vertical moisture barriers, wavelength analysis of road roughness and modelling the deterioration of pavements.

Professor Emad Gad, BEng (Hons), PhD, FIEAust, CPEng
Emad is a professor in civil engineering. He holds a Bachelor of Engineering from Monash University and a PhD from the University of Melbourne. He has more than 10 years' experience in teaching and research, including positions at the University of Melbourne and CSIRO. His research interests include structural dynamics, modelling and steel structures. In addition to teaching and research he has also been involved in specialist consulting. He is a fellow of the Institution of Engineers Australia and past chairman of the Structural Branch, Victoria Division. Emad is also a member of several industry professional bodies and committees, including Standards Australia Committee on Structural Steel, Australian Steel Institute (ASI) Construction Committee (Victoria) and National Association of Steel-Framed Housing (NASH).

Dr Shirley Gato-Trinidad BSAE, MEng, PhD
Shirley is a lecturer in civil engineering. Her research interests and experiences are in urban water demand modelling, including modelling of end uses of water, water supply and sewerage systems investigation and design, water resources modelling, drip irrigation system design and integrated area development. Prior to joining Swinburne, Shirley worked in various government and consulting organisations, as well as academic institutions in Australia, Thailand and Philippines. In Australia she has worked with Melbourne Water Corporation, RMIT University, Australian Water Technologies, the Department of Natural Resources and Environment, and HydroTechnology and its predecessors, where most of her research interests and experiences were developed extensively. She has also been involved in developing catchment management and salinity plans for the Melbourne water supply system's environmental management program.

Key staff
(continued)

Dr Rayya Hassan, BSc (Civil Eng), MEng, PhD

Rayya is a senior lecturer in the Faculty of Engineering and Industrial Sciences. She holds a PhD in Civil Engineering and a Master of Engineering in construction management from Swinburne University of Technology. She obtained her Bachelor of Science (Civil Engineering) from the University of Baghdad in Iraq. Her main research areas include pavement performance assessment and modelling with particular emphasis on the interaction between road surface roughness and heavy articulated vehicles and its effect on ride and driver comfort. Other research areas include using life cycle costing analysis in assessing the economic impact of high productivity vehicles on road pavements and cost implications of incremental loads for pricing applications. Rayya's other research interests include investigating the effect of dynamic wheel loading on road profile characteristics and studying the effects of whole body vibrations on driver perception of ride and fatigue.

Dr Monzur Imteaz, BEng, MEng, PhD, FIEAust, CPEng

Monzur is a senior lecturer and the program coordinator for postgraduate civil engineering programs . He holds a Bachelor of Engineering (Civil Engineering) from Bangladesh University of Engineering and Technology, a Master of Engineering (Water Engineering) from the Asian Institute of Technology in Thailand and a PhD in Environmental Engineering from Saitama University in Japan.

Monzur has more than 19 years of research, teaching and professional experience in the field of hydrologic and hydraulic modelling, water quality modelling, urban drainage and pollution transport, wastewater treatment modelling and ecological modelling. Monzur completed his post-doctoral research at the University of Queensland. He has worked on several projects in collaboration with the Danish Hydraulic Institute (DHI) in Denmark, gaining extensive expertise in DHI-developed software on water and environment. Before joining Swinburne Monzur was involved with local and state government in Queensland, New South Wales and Victoria.

Dr Julia M Lamborn, GradDipChemEng, BE, MEng, PhD, FIEAust, CPEng

Julia is a senior lecturer and industry liaison director in the Faculty of Engineering and Industrial Sciences, and is the program coordinator for the undergraduate civil engineering program. She has taught at Swinburne for 17 years and prior to that was a design engineer at the SECV for eight years. She holds a Bachelor of Civil Engineering, a Graduate Diploma of Chemical Engineering and a Master of Engineering, all from Swinburne. She has research interests and expertise in landfills, waste management, environmental impact assessment, environmental engineering, cooling towers and engineering heritage. Julia is a fellow of the Institution of Engineers Australia and has been active in the organisation for more than 25 years, currently holding four national board positions and three state positions. She also has held various positions on state government authorities and committees for more than 23 years, including the Heritage Council and Planning Panels Victoria.

Mr Laurence Pole, CPEng, MIEAust

Laurence is a sessional lecturer in cost engineering and project costing. He has 30 years' experience in project engineering and costing in a wide variety of large-scale construction, mining infrastructure, manufacturing and materials handling projects in Australia and South-East Asia. He is a member of the Australian Cost Engineering Society (ACES) and a past member of the Association for Advancement of Cost Engineering (AACE). His background includes development, design, manufacture and on-site construction work entailing engineering disciplines in civil, mechanical, electrical, instrumentation and controls. His areas of responsibility in major infrastructure projects have included the roles of senior project engineer, contract engineer and project manager.

Mr Charles Reichman, BJuris, LLB
Charles is a Melbourne-based barrister, solicitor and mediator specialising in commercial law and construction law. He is admitted to practice in New South Wales (1979), Australian Capital Territory (1980) and Victoria (1980). During a varied career, Charles has served with several federal government departments, lectured in law at university level, and researched and conducted many cases. His roles have ranged from export promotion to bankruptcy, taxation and various aspects of commercial law. He has acted for major multinational companies and developed and conducted in-house training and advised on statutory compliance for public and private sector clients. Charles has extensive litigation experience and has served as a member of the Veterans Review Board. He has also taught commercial law and professional ethics at various Australian universities, including La Trobe, RMIT, Swinburne and Victoria University. Charles was a founding member of the Victorian chapter of the Australian Institute of Administrative Law and is active in the legal community.

Professor Jay Sanjayan, BscEng (Hons), PhD
Jay worked as an academic contributing to research and teaching in concrete structures and materials technology for 22 years at Monash University before moving to Swinburne in 2010. He has supervised 14 PhD and 12 master candidates to successful completion of their degrees. His research expertise is in the areas of concrete materials technology, environmentally friendly alternatives to Portland cement concretes (geopolymer concrete and alkali activated slag concrete), fire resistance of concretes and oil-well cements for geosequestration of CO_2. Jay has been a consultant for a number of construction projects in these areas and his research is funded by competitive and industry grants. He was formerly president of the Concrete Institute of Australia in Victoria and currently is national councillor and chairman of the editorial committee of the Concrete in Australia journal.

Dr Alessandro Toffoli, BEng, MEng, PhD
Alessandro joined Swinburne and the Centre for Sustainable Infrastructure in 2009. He holds a master degree in Civil Engineering from Politecnico di Torino, Italy and a PhD from Katholieke Universiteit Leuven, Belgium. He has extensive experience in numerical modelling of non-linear waves and physical modelling in large hydrodynamics laboratory infrastructures. Alessandro is an internationally recognised researcher in physical oceanography and ocean engineering and has published more than 30 research articles. His research interests include ocean waves, freak waves, upper-ocean dynamics, wave-current interaction and wave-structure interaction. He leads a number of international projects to investigate the probability of occurrence of freak waves involving both academia and industry.

Mr Ian Francis Xavier Stoney, DipBusStuds, Assoc Aust Soc CPA, FAIM, MITE, MLGEA, FCIT, MREAAA, GIA (Life Member)
Initially qualified in accountancy and business management, Ian has had extensive involvement in managing large engineering-based organisations, including as general manager of the Grain Elevators Board, managing director and chairman of the Road Construction Authority and the Road Traffic Authority, architect for the establishment of VicRoads and ultimately its first chief executive officer, chairman of the Australia Road Research Board and chief executive officer of the Public Transport Corporation. Ian has had considerable experience in consultancies in the water industry developing supply and water management contracts, developing training courses including those for project management, human resource management, managing consultants and preparing for project tendering.

Dr Xiaoming Wang, PhD
Xiaoming is a principal scientist of Urban Systems Program with CSIRO Sustainable Ecosystems. He is an expert in civil engineering, with strong multidisciplinary knowledge and skills ranging from complex systems to material science. He is one of Australia's leading researchers in building, structural and infrastructural engineering, specialising in structural health monitoring, reliability/vulnerability assessment, risk analysis and management, and urban sustainability. He has extended his research into climate change and has contributed to the Garnaut Climate Change Review on consideration of human settlement and infrastructure. Xiaoming has also been involved in consultancy to state and federal government, and has provided research advice to the Australian Building Codes Board (ABCB) on the risks of Australian construction and design industries in China in relation to the Australia–China Free Trade Agreement. He is now leading research into urban and coastal infrastructure under the impacts of climate change in Sustainable Cities and Coasts Theme. In addition, he is an expert in spatial analysis and GIS-based assessment, with strong expertise in modelling and simulation.

Key staff
(continued)

Professor John Wilson, BE, MSc, PhD, FIEAust, CPEng

John is a professor of civil engineering. Prior to this appointment he was a senior academic at the University of Melbourne for 14 years and a consulting engineer for more than 10 years with the SECV and Arups in their London and Melbourne offices. He holds a Bachelor of Engineering from Monash University, a Master of Science from the University of California (Berkeley) and a PhD from the University of Melbourne. He has a research interest and expertise in structural systems, earthquake engineering, structural dynamics and sustainable structures, and has consulted widely in these fields. John was the Victorian chairman of Engineers Australia in 2002, representing the professional interests of 14,000 engineers, a member of the steering committee for the 2005 Victorian Infrastructure Report Card and the chairman of Standards Committee BD6/11 responsible for updating the earthquake loading standard.

Professor Russell Kenley, BBldg (Hons), PhD, AAIQS

Russell is an expert in the emerging field of location-based management for construction. He is active in developing new management systems based on 5D virtual construction models. His work has application in commercial construction and civil construction (road, rail and tunneling). He is also the founder of the Corporate Real Estate and Asset Management (CREAM) research team. CREAM is exploring the relationship between corporate real estate and firm competitiveness, as well as looking at the asset management practices of public-sector housing.

Russell is Director of the Australian Graduate School of Entrepreneurship (AGSE) and is responsible for the development of postgraduate programs in the faculty and building relationships between industry and the AGSE. He is also building alumni relationships around the AGSE's goals of whole-of-life experience.

General information

Facilities

As a Swinburne student you will automatically gain access to a range of facilities to assist your studies. These include a well-resourced library, computer laboratories, fitness and health facilities, personal and career counselling, housing, employment and financial advice. Many of our construction management students who are located outside Melbourne will benefit from online library resources, inter-library loans, online communication tools and a Swinburne email address. Students studying on campus at Hawthorn will benefit from Swinburne's recent infrastructure development. This includes the construction of the $140 million Advanced Technology Centre, which incorporates student study areas, teaching spaces and world-class laboratories.

Fees

In 2012 tuition fees for Australian citizens and permanent residents are based on $2350 per 12.5-credit-point unit of study. In the event that a unit of study is derived from another program, the applicable fee will be that of the other program. All fees are reviewed each year and may increase without notice.

FEE-HELP

FEE-HELP is a government-funded loan that helps eligible fee-paying students to pay their tuition fees.

FEE-HELP is not available to New Zealand citizens and most holders of Australian permanent visas; however, it is available to Australian citizens and most holders of a permanent humanitarian visa. For further information visit **www.goingtouni.gov.au**

Application procedure

Australian citizens, holders of Australian permanent residency visas and international applicants wishing to study the program outside Australia via distance education should complete the 'Postgraduate Application Form for On-Campus, Distance Education and Online Programs'.

Application forms can be downloaded from **www.swinburne.edu.au/postgrad/apply**

Please include the following with your completed application:

- certified* proof of identification and citizenship
- certified* transcript(s) of results.

Overseas applicants or those living in remote locations wishing to study the program by distance education should allow additional time for postage of application and enrolment papers.

* Accepted identification is a certified copy of your passport, birth certificate or Australian citizenship certificate. A certified copy is a photocopy certified as a true and correct copy of the original by the issuing body or by a person qualified to accept statutory declaration or witness a document.

Application closing dates

Semester 1 – Round one (timely) applications close early November. Round two (late) applications close mid-January. Classes begin in late February.

Semester 2 – Applications close late June, with classes beginning in late July. Round two (late) applications are subject to the availability of places.

For closing dates visit **www.swinburne.edu.au/postgrad**

International students

If you want to study on campus at Swinburne but are not an Australian resident, telephone Swinburne International on +61 3 8676 7002 (worldwide) or 1800 897 973 (within Australia) or visit **www.swinburne.edu.au/international**

Recognition of Prior Learning

Recognition of Prior Learning (RPL) allows students to be granted credit or partial credit towards a qualification in recognition of skills and knowledge gained through work experience, life experience and/or formal training.

Further information

Telephone: 1300 275 794
Email: postgrad@swinburne.edu.au
Website: www.swinburne.edu.au/postgrad

Information Sessions

Information sessions are held regularly throughout the year. They are a great opportunity to meet and talk to staff about your postgraduate study options.

The sessions help you understand what your chosen postgraduate program entails – what you can learn, what your study options are and where your qualification may take you.

For session dates visit **www.swinburne.edu.au/postgrad**

ANY QUESTIONS?

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CAMPUSES

Hawthorn campus
John Street, Hawthorn

Prahran campus
144 High Street, Prahran

Lilydale campus
Melba Avenue, Lilydale

Croydon campus
12–50 Norton Road, Croydon

Wantirna campus
369 Stud Road, Wantirna

Sarawak campus
Kuching, Sarawak, Malaysia

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