

A project by University of Queensland graduate Dr Adrian Oehmen has been recognised as one of the best environmental science and engineering PhD studies in the world.

Adrian's discovery of operational factors that can improve phosphorus removal in wastewater treatment systems has provided the wastewater industry with strategies that could potentially improve the performance and reduce the costs of full-scale wastewater treatment plants.

Adrian, from Canada, received the 2004 CH2M-Hill PhD Thesis Award from the Association of Environmental Engineering and Science Professors at a ceremony in Washington DC.

It was the first time in the award's 17-year history that a student from a non-US university had won the award.

Adrian's thesis centred on understanding the metabolisms of the microorganisms responsible for removing phosphorus from wastewater in treatment plants and their competition with other organisms.

"My work revealed potential ways to eliminate the unwanted bacteria, leading to improvements in the performance and reliability of phosphorus removal treatment systems," he said.

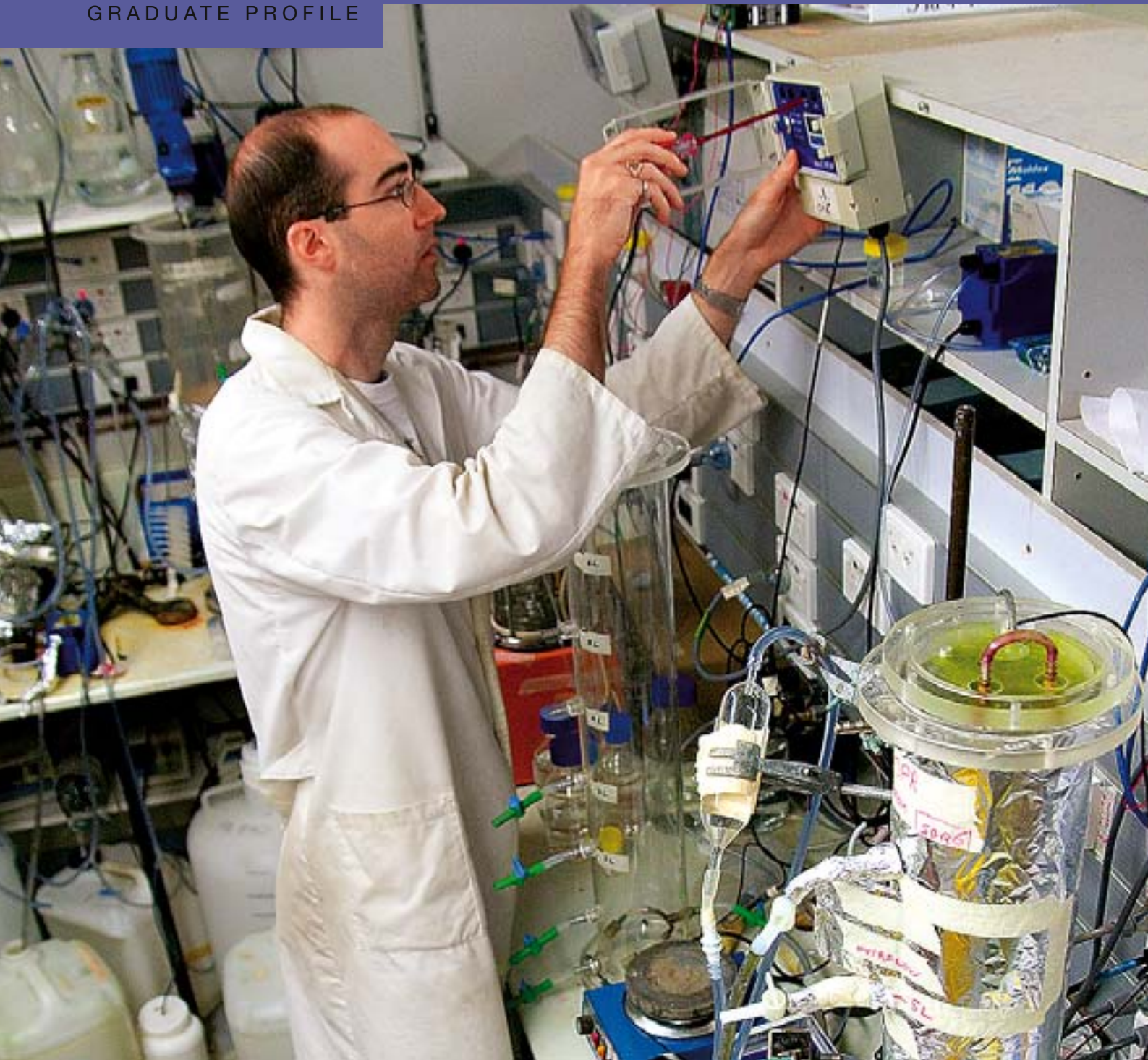
Adrian, who graduated from UQ in 2005, received an International Postgraduate

Research Scholarship and a UQ International Postgraduate Research Scholarship.

He is currently working on a project at the New University of Lisbon in Portugal, examining ways of removing mercury from drinking water systems.

"Due to the highly toxic and harmful nature of mercury to people and the environment, there is an increasing need to remove mercury to extremely low levels worldwide," Adrian said.

GRADUATE PROFILE



ENGINEERING, ARCHITECTURE & PLANNING

Programs in this discipline

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Why choose UQ for studies in Engineering, Architecture & Planning?

Academic staff in the areas of Engineering, Architecture and Planning are professionals in their fields and are involved in leading research. As a result, teaching material is current, supported by world-class research and relevant to the needs of industry.

UQ is unique in Australia in combining the disciplines of geography and Geographic Information Science (GIS) with urban and regional planning, environmental management, real estate and development and project management.

It is also one of Australia's leading institutions for architectural education and research, with a program designed to meet the changing demands of the profession.

UQ's facilities and special features include:

- > the Centre for Hypersonics, the world's largest university-based hypersonics group
- > student access to 13 branches of the UQ Library, including the dedicated Dorothy Hill Physical Sciences and Engineering Library
- > an experimental mine located close to UQ St Lucia
- > architecture facilities including flexible exhibition space, impressive computer teaching laboratories and studio facilities
- > field and survey equipment including Global Positioning Systems (GPS)
- > extensive GIS software, and
- > formal industry programs involving work experience and employment opportunities to complement university studies.

Career opportunities in this discipline

Graduates in the disciplines of Engineering, Architecture and Planning contribute to all areas of industry and society, and employment prospects are excellent. Careers are available in a range of private companies and government organisations in areas such as:

- > architecture
- > biomedical and pharmaceutical development
- > commercial development
- > computing and telecommunications
- > construction and housing
- > consulting
- > environment reserves and tourist centres development and management
- > environmental protection and management
- > manufacturing
- > minerals processing
- > mining
- > natural resource utilisation
- > power generation and transmission
- > product design and development
- > public utilities
- > research
- > satellite and spacecraft technology
- > software development
- > statutory bodies
- > town planning and regional development
- > transport

Eligibility for visa

Unless otherwise specified, international students must undertake programs on campus at UQ on a full-time basis to be eligible to apply for an Australian student visa. See page 115 for more information.

MASTER OF Architecture

Location St Lucia

Commencement semester 1

Application closing date Refer to page 116

Students may also undertake a research higher degree in this discipline.

Additional program information is provided in the tables on pages 105–110

For English language proficiency requirements, please refer to pages 113–114

Coursework Master

Duration 4 semesters full-time

Admission requirements Bachelor of Architectural Design (BArchDes) or Bachelor of Design Studies (BDesSt) from UQ or equivalent with portfolio submission and interview and at least 10 months relevant work experience

Program outline

The Master of Architecture (MArch) is the second stage of obtaining a professional qualification in Architecture. It builds on the core skills developed in the BArchDes. Architecture is a dynamic and demanding profession, making a positive contribution to the shaping of our built environment and our culture. The essential skill of an architect is the ability to design buildings and spaces with an inherent concern for human living and working environments.

Placement courses

Students must have completed 10 months professional experience before entering the MArch. Work experience may have been undertaken overseas.

Career opportunities

Before they can legally practice as architects in Queensland, graduates must have two years practical experience, of which one year may be gained prior to completion of the Bachelor of Architecture or Bachelor of Design Studies. They must also sit the Architectural Practice Examination of the Board of Architects of Queensland.

Architects work in a range of areas, including commercial development companies; government departments; local authorities; private offices; research organisations; self-owned practices or partnerships; and statutory bodies.

Professional memberships

Graduates of this degree may be eligible for membership with the Royal Australian Institute of Architects.

Additional cost

Drawing board and equipment approx. AUD\$600–700; consumables, paper, pens etc approx. AUD\$100–200; and books, technical notes etc approx. AUD\$150+.

Contact details

International Recruitment Manager

www.uq.edu.au/international/enquiry

Phone (outside Australia) + 61 3 8676 7004

(within Australia – free call) 1800 671 980

GRADUATE CERTIFICATE IN GRADUATE DIPLOMA IN MASTER OF Engineering

Location St Lucia

Commencement semester 1, 2

Application closing date Refer to page 116

Students may also undertake a research higher degree in this discipline.

Additional program information is provided in the tables on pages 105–110

For English language proficiency requirements, please refer to pages 113–114

Graduate Certificate

Duration 1 semester full-time

Admission requirements Bachelor degree in engineering or related field. Applications on the basis of post-secondary study and 2 years work experience in a related field will be individually assessed

Graduate Diploma

Duration 2 semesters full-time

Admission requirements Bachelor degree in engineering or related field OR Graduate Certificate in Engineering. Applications on the basis of post-secondary study and 2 years work experience in a related field will be individually assessed

Coursework Master

Duration 3 semesters full-time. A 2 semester program is available to students who have a 4-year degree in the same field. Note that the Engineering Science specialisation is a 2 semester program

Admission requirements Bachelor degree in Engineering or related field OR Graduate Diploma in Engineering

Program outline

The 21st Century is an era of great global and local challenges, climate change and the greenhouse effect, clean energy, reliable water supplies, infrastructure for booming populations, sustainable resource development, efficient and effective communications, to name but a few.

These challenges create tremendous opportunities for a new generation of engineers. This is the dawn of a new engineering age where engineers are part of the solution at all scales from molecular to global.

The Master of Engineering program is a 2 or 3-semester (full-time enrolment at #8 per semester) program offered by the Schools of Engineering, and Information Technology and Electrical Engineering. Depending on previous study, students may be eligible to enter the 2-semester program. 5 specialisations are available. Students in this program are taught by staff who are internationally recognised as leading experts in their fields, using state-of-the-art facilities.

Supplementary information

Some courses may incur additional costs (eg, field trips). Studies are usually on a semester basis. In some cases courses may be presented in a modular short-course format, or through flexible delivery.

Students who successfully complete the Masters program may progress to research higher degrees, eg, Master of Philosophy (MPhil) or Doctor of Philosophy (PhD).

Fields of study**Electrical Engineering**

Specialisations available are Biomedical; Telecommunications; and Power Systems.

Courses cover traditional electrical areas such as power systems, electronics and signal processing, as well as more specialised areas, including biomedical, computer systems, radio frequency and microwave, software, and telecommunications. Projects generally follow the research interests of staff. Current interests include power electronics; problems of power delivery in a deregulated environment; modelling of semiconductor devices; development of sensors for the mining industry; and the automated analysis of pathology slides. This broadly-based program extends graduate career opportunities in telecommunications, electronics, computer hardware, control systems or power systems. Graduates are also employed by companies varying from the large and long-established to small, new start-up companies.

Electricity Market

The power industry is being deregulated worldwide and power engineers need knowledge of both power engineering and market issues to provide a linkage between engineers and economists or accountants. Graduates possess these skills, and are equipped for careers in Australia and around the world. Employment opportunities exist with traditional power companies, in addition to consulting firms and government agencies providing services for the broader energy market. This is currently the only such program offered in the Asia-Pacific region. Students explore the most up-to-date knowledge through carefully designed and selected courses, and gain theoretical knowledge and hands on practical experience.

Engineering Science (Master #16 only)

Specialisations available are Civil Engineering; Materials Engineering; Mechanical Engineering; and Mechatronic Engineering.

The Engineering Science specialisation provides graduates with advanced skills in engineering analysis and problem solving. It is suitable for those interested in solving advanced technical challenges, managing projects and overseeing teams. Students of this plan develop greater understanding of complex engineering challenges and gain practical experience and knowledge of advanced engineering tools and processes by working through case studies and on individual projects relevant to their field. Students will acquire mathematical and experimental skills and advanced materials knowledge to address and solve complex engineering problems. This specialisation builds on knowledge taught in undergraduate engineering programs and has been designed to produce engineers that will lead their companies and industries into the future.

Software Engineering

This program complements the field of computer systems engineering and allows undergraduate electrical engineering graduates to concentrate on advanced software applications rather than hardware. This program consists of an extensive menu of intermediate and advanced level courses. Job opportunities are widespread, as society comes to rely more and more on computer technology. Graduates find work in large multinational companies; government departments; and in many small, specialised and emerging companies.

Systems Engineering

The systems on which the world depends are becoming increasingly complex as the world becomes more interconnected. Systems engineering is the discipline of building highly sophisticated systems that work successfully. It is about the key creative processes that transform concepts into system designs; and the key technological and management processes, enabling system development to proceed in an orderly, interdisciplinary fashion, maximising opportunities to meet customer needs while minimising risk. The program is modelled on the Boeing masters program conducted in the USA and includes a wide choice of electives. Many courses are offered in flexible delivery modes aimed at professionals interested in upgrading or updating their qualifications. A range of specialist electives is available.

Career opportunities

Master of Engineering graduates have acquired experience that enables them to cross disciplinary boundaries, and are equipped to take on advanced engineering work. Graduates will have a combination of business, problem solving and interpersonal skills; as well as technical engineering experience that will enable them to understand markets and develop relationships of trust with customers, suppliers, business partners and to work within teams.

Professional memberships

Graduates of this program may be eligible for membership with Engineers Australia and the Australian Computer Society (ME (Software)).

Additional cost

Students who undertake fieldwork will be required to fund their own travel and living expenses.

Contact details

International Recruitment Manager
www.uq.edu.au/international/enquiry
Phone (outside Australia) + 61 3 8676 7004
(within Australia – free call) 1800 671 980

GRADUATE CERTIFICATE IN GRADUATE DIPLOMA IN MASTER OF Magnetic Resonance Technology

Location St Lucia

Commencement semester 1, 2

Application closing date Refer to page 116

Students may also undertake a research higher degree in this discipline.

Additional program information is provided in the tables on pages 105–110

For English language proficiency requirements, please refer to pages 113–114

Graduate Certificate

Duration 1 semester full-time

Mode Also available externally

Admission requirements Bachelor degree in radiology or related field. Applications on the basis of post-secondary study and 2 years work experience in a related field will be individually assessed

Graduate Diploma

Duration 2 semesters full-time

Mode Also available externally

Admission requirements Bachelor degree in

radiology or related field OR Graduate Certificate in Magnetic Resonance Technology. Applications on the basis of post-secondary study and 2 years work experience in a related field will be individually assessed

Coursework Master

Duration 3 semesters full-time

Mode Also available externally

Admission requirements Bachelor degree in radiology or related field OR Graduate Diploma/Certificate in Magnetic Resonance Technology

Program outline

This program allows radiographers with some experience in magnetic resonance to acquire advanced knowledge. Students are trained in new techniques which are not yet part of standard clinical practice. Students will be in a position to embark on projects that make innovative use of magnetic resonance; to assess the impact of such innovation on the clinical utility of the modality; and to assess the needs of a radiography practice, and the ability of equipment from various manufacturers to meet these needs. The program consists of core courses, electives and a clinical component.

Supplementary information

Courses are offered in flexible delivery mode and distance learning modes via the Internet. Students need access to magnetic resonance imaging (MRI) data to complete this program.

Career opportunities

There is currently a demand for MRI physicists, image processors, engineers, and biomedical engineers within Australia and internationally. Graduates have found employment in leadership positions in hospitals, private practice and research facilities. For a sample of the job opportunities in magnetic resonance, visit the International Society for Magnetic Resonance in Medicine (www.ismrm.org).

Professional memberships

Graduates of this degree may be eligible for membership with the Australian Institute of Radiographers (AIR). Students pursuing MRI accreditation from AIR are offered assistance with practical scanning access, allowing accumulation of patient numbers. The programs attract Continuing Professional Development points from the AIR and also count towards Level 2 Accreditation in MRI.

Additional cost

Students must have hardware/software required for access to the Internet.

Contact details

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GRADUATE CERTIFICATE IN GRADUATE DIPLOMA IN MASTER OF Mineral Resources

Location St Lucia

Commencement semester 1, 2

Application closing date Refer to page 116

Students may also undertake a research higher degree in this discipline.

Additional program information is provided in the

tables on pages 105–110

For English language proficiency requirements, please refer to pages 113–114

Graduate Certificate

Duration 1 semester full-time. External students may undertake the program on a part-time basis

Mode Also available externally

Admission requirements Bachelor degree

in engineering, science or related field.

Applications on the basis of post-secondary study and 2 years work experience in a related field will be individually assessed

Graduate Diploma

Duration 2 semesters full-time. External students may undertake the program on a part-time basis

Mode Also available externally

Admission requirements Bachelor degree

in engineering, science or related field OR

Graduate Certificate in Mineral Resources.

Applications on the basis of post-secondary study and 2 years work experience in a related field will be individually assessed

Coursework Master

Duration 3 semesters full-time. External students may undertake the program on a part-time basis

Mode Also available externally

Admission requirements Bachelor degree

in engineering, science or related field OR

Graduate Diploma/Certificate in Mineral

Resources

Program outline

This program enables graduates to obtain an advanced knowledge in specialist plans related to the minerals industry. Students gain analytical skills that enable critical assessment of alternative solutions to complex industry problems. Graduates are equipped with an understanding of particular sections of the industry, and focus on investigating and resolving design and operational problems in a safe and efficient manner. The Master of Mineral Resources provides professional postgraduate education in areas that impact directly upon the efficient technical, scientific and commercial management of the minerals industry.

Supplementary information

Courses are offered by short intensive modules, application exercises, and projects. Some courses may incur additional costs (eg, field trips). In certain plans, courses are offered in a Web-based delivery mode, enabling international students to take the courses in their home countries.

Students may need hardware/software required for access to the Internet.

Some courses are offered only once each year, or in some years not at all. Students should enquire about the availability of courses early in the application process, and well before committing to travel to Brisbane.

Fields of study

Exploration

This field is concerned with exploration geology and geophysics. Admission normally requires a Bachelor of Science in Earth Sciences, although graduates with bachelor degrees in other physical sciences (physics and mathematics) and work experience in geology are welcome to apply. Many courses are conducted through directed reading and personal tuition rather than formal classes. This enhances the flexibility of choice of component courses.

Minerals Industry Risk Management

This program serves specific training needs in the mining industry, and is conducted by the Minerals Industry Safety and Health Centre (MISHC), part of UQ's Sustainable Minerals Institute. Personnel associated with the global minerals industry gain advanced knowledge in the area of safety, health, environment, risk management and risk analysis. The program is technically comprehensive and equips students with an understanding of the concepts and issues connected to minerals industry risk management, and the skills to implement good practice in their operations. Courses use flexible learning techniques, and are offered at least once each year, externally in intensive delivery mode, though these do not always correspond to standard semesters. Please visit the MISHC website for more information (www.mishc.uq.edu.au).

Minerals Processing

Minerals process engineering is the transformation of low value or raw materials into commercially valuable products such as mineral concentrates, inorganic chemicals and metals. All stages of minerals processing, including process design; flow sheet development; control; and management, rely on the engineer's skills. This program develops necessary skills in engineering sciences; process engineering; process control and modelling; mineral processing; high temperature and aqueous solution processing; economics; and design. The Australian minerals industry is the world leader in the application of new technology to minerals processing.

Mining and Equipment

This program supplies specialist training to mining engineers, with an undergraduate engineering degree and experience in the mining industry. Most courses are offered in intensive delivery mode, which do not always correspond to standard semesters.

Career opportunities

These programs encompass the range of mineral and petroleum exploration activities. Industry recognises the need for resource exploration and development professionals to keep up with modern developments in the science. Each area is coordinated by a principal supervisor with an applied research background, and also involves industry associates. Candidates can follow either a broad stream entirely within the scheduled subjects or follow specialist streams of geophysics or geochemistry to enhance employment opportunities.

Professional memberships

Graduates of this degree may be eligible for membership with: the Australian Society of Exploration Geophysicists; Geological Society of Australia, Australian Institute of Geoscientists; and Society of Exploration Geophysicists.

Additional cost

Students who undertake fieldwork will be required to fund their own travel and living expenses.

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GRADUATE CERTIFICATE IN GRADUATE DIPLOMA IN MASTER OF Regional Development

Location St Lucia

Commencement semester 1, 2

Application closing date Refer to page 116

Students may also undertake a research higher degree in this discipline.

Additional program information is provided in the tables on pages 105–110

For English language proficiency requirements, please refer to pages 113–114

Graduate Certificate

Duration 1 semester full-time

Admission requirements Bachelor degree in any field. Applications on the basis of post-secondary study and 2 years work experience in a related field will be individually assessed

Graduate Diploma

Duration 2 semesters full-time

Admission requirements Bachelor degree in any field OR Graduate Certificate in Regional Development. Applications on the basis of post-secondary study and 2 years work experience in a related field will be individually assessed

Coursework Master

Duration 3 semesters full-time

Admission requirements Bachelor degree in any field OR Graduate Diploma/Certificate in Regional Development

Program outline

Regional development is the study of regions and processes of regional change. The postgraduate programs in regional development encourage the creation of tools, methods and theories of regional analysis, from concepts and techniques of component disciplines such as economics; geography; government; sociology; engineering; agriculture; regional and town planning; and environmental science. Graduates possess a theoretical and applied knowledge of regional, political and planning issues, allowing work in central government, regional organisations, private consultancies, or as a prelude to higher degree studies.

Supplementary information

The majority of courses are offered late afternoon/early evening.

Career opportunities

Graduates of this program find employment in government and regional development organisations in both the public and private sectors.

Additional cost

Some courses may incur additional costs (eg, field trips).

Contact details

International Recruitment Manager
www.uq.edu.au/international/enquiry
 Phone (outside Australia) + 61 3 8676 7004
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GRADUATE CERTIFICATE IN GRADUATE DIPLOMA IN MASTER OF Urban and Regional Planning

Location St Lucia

Commencement semester 1

Application closing date Refer to page 116

Students may also undertake a research higher degree in this discipline.

Additional program information is provided in the tables on pages 105–110

For English language proficiency requirements, please refer to pages 113–114

Graduate Certificate

Duration 1 semester full-time

Admission requirements Bachelor degree in anthropology, geography, sociology, architecture, engineering, law or related field. Applications on the basis of post-secondary study and 2 years work experience in a related field will be individually assessed

Graduate Diploma

Duration 2 semesters full-time

Admission requirements Bachelor degree in anthropology, geography, sociology, architecture, engineering, law or related field OR Graduate Certificate in Urban and Regional Planning. Applications on the basis of post-secondary study and 2 years work experience in a related field will be individually assessed

Coursework Master

Duration 3 semesters full-time

Admission requirements Bachelor degree in anthropology, geography, sociology, architecture, engineering, law or related field OR Graduate Diploma/Certificate in Urban and Regional Planning

Program outline

Urban and regional planning is about improving the quality of cities and regions. Professional planners assist communities, companies and governments to integrate the environmental, economic and social aspects of development from small sites up to whole regions. Planning deals with strategic work (long-range planning) as well as structural and statutory components in relation to built and natural environments and the legislative framework controlling land use. Accordingly, planning is closely allied with commerce, government, sociology, communities and the ecology disciplines.

The Master of Urban and Regional Planning was the first masters level program in Queensland to be recognised by the Planning Institute of Australia. It produces professionally competent graduates, familiar with the concepts, ideas and techniques of planning. Courses typically emphasise the acquisition of skills through small scale exercises or practical project work but fits these within a wider intellectual framework of design and public policy. Opportunities are available for a research investigation through an advanced research project; and there is an elective which enables some specialisation.

Supplementary information

The majority of courses are offered late afternoon/early evening.

Career opportunities

Graduates of this program find employment in governments or private consulting companies.

Professional memberships

Graduates of this degree may be eligible for membership with the Planning Institute of Australia.

Additional cost

Some courses may incur additional fees (eg, field trips).

Contact details

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 Phone (outside Australia) + 61 3 8676 7004
 (within Australia – free call) 1800 671 980