WESTERN SYDNEY
UNIVERSITY

POSTGRADUATE STUDY

Engineering

TOP 2%
OF UNIVERSITIES WORLDWIDE[Δ]

AUD$88,116
AVERAGE ENGINEER SALARY IN AUSTRALIA*

AUD$127,473
MEDIAN ENGINEER SALARY IN NSW**

ABOVE OR WELL ABOVE WORLD STANDARD
EXCELLENCE IN RESEARCH FOR AUSTRALIAN (ERA) NATIONAL REPORT.

★★★★★
MATERIALS ENGINEERING

★★★★★
CIVIL ENGINEERING, ELECTRICAL AND ELECTRONIC ENGINEERING

TOP 100
CIVIL ENGINEERING[#]

TOP 300
ELECTRICAL AND ELECTRONIC ENGINEERING[#]

TOP 400
ENVIRONMENTAL SCIENCE AND ENGINEERING[#]

TOP 400 IN THE WORLD
ENGINEERING - ELECTRICAL AND ELECTRONIC[§]

STUDY AT PARRAMATTA CITY CAMPUS

The Master of Engineering is offered at our new, world-class, 14-storey Parramatta City campus.

The campus features:

- → creative collaborative learning studios
- → well-equipped, quiet and collaborative
- → learning spaces
- → fast, Wi-Fi, everywhere
- → rooms for physical and online meetings, anytime
- → one-stop student support
- → access to business, industry, food and shopping districts
- → close proximity to public transport.

westernsydney.edu.au/parramattacity

INDUSTRY PLACEMENT

Master of Engineering students will undertake a 12 week industry placement to obtain relevant workplace experience in Engineering companies under the supervision of professional engineers in one company or more which will give the student a solid grounding in the key program of engineering which they have chosen to pursue.

INDUSTRY ACCREDITATION

Graduates of the Master of Engineering are eligible to apply for full membership of Engineers Australia.**

SOURCE:
*indeed.com.au 27 April 2018, ^Association of Professional Engineers, Scientists and Managers, Australia (APESMA) - Professional Engineers Employment and Remuneration Report 2017, #ARWU Subject Rankings, §QS World University Subject Rankings, ΔTimes Higher Education (THE) World University Rankings 2017, **Excludes Biomedical specialisation

ENGINEERING

DEVELOP INNOVATIVE ENGINEERING APPROACHES FOR THE FUTURE

The Engineering programs at Western Sydney University enable professionals and recent graduates to adapt to a dynamically developing and changing technological environment through the upgrading of their skills and knowledge. Engineering courses provide you the opportunity to pursue a specialisation in civil, environmental, electrical, mechanical, telecommunications, mechatronics and biomedical engineering.

MASTER OF ENGINEERING

The Master of Engineering has been designed to meet Engineers Australia professional accreditation requirements. It enables professionals in Engineering and recent graduates to adapt to a dynamically developing and changing technological environment through the upgrading of their skills and knowledge. The course provides students with training opportunities to foster a culture of life-long learning. Graduates of the course will have a firm foundation to further build their skills as their specialised professional field evolves.

The Master of Engineering opens up careers in diverse areas such as water, roads and buildings; robotics and mechatronics; telecommunications; manufacturing and utilities; commercial, medical and industrial product design; project management and consultancy; industrial or residential development; database design; system analysis, design and integration; and computer network design and management.

Entry Requirements

Applicants must have successfully completed a recognised 4-year undergraduate degree, or higher, in engineering in one of the specialisations, e.g. Civil, Environmental, Mechatronic, Mechanical, Electrical, Telecommunication and Biomedical.

Study Sequence

Qualification for this award requires the successful completion of 160 credit points. Students must complete 8 core units, 5 specialised alternates from chosen area of specialisation and 3 x 10 credit point electives.

Students must also complete (as a condition for EA accreditation) a 12-week industrial experience training program.

Engineering

COURSE NAME	COURSE CODE/ CRICOS CODE	DURATION	TOTAL CREDIT POINTS	CAMPUS	INTAKE
Master of Engineering	3693/042034J	2 years	160	Parramatta City	March, July

List of Core Units

Specialised Software Applications
This unit offers several streams of practical applications in engineering and industrial design software. You get to choose a software application stream depending on their key program. Lectures and assignments are delivered online and are enhanced by face to face contact with stream coordinators. Emphasis is placed on teaching students practical software applications skills relevant to industry needs.

Master Project 1
This unit is a problem based project unit. You are expected to conduct self-studies under supervision by academic staff. Students will identify research topics in consultation with supervisors, carry out literature survey in the fields of engineering and building construction, define research objectives and scope, establish research methodology and prepare a research plan.

Master Project 2
This unit is a continuation of the unit Master Project 1 and is a problem based project unit. You are expected to conduct self-studies under supervision by an academic staff and deliver the final outcomes of the research topics that are proposed in Master Project 1. You will employ the identified methodologies to carry out the research plans and fulfill the research objectives with the defined scope. You are required to produce an oral presentation and a final written report in the fields of engineering and building construction. You will acquire problem solving skills in this unit.

Sustainable Systems
This unit seeks to teach the essential tools available to achieve environmental sustainability in various engineering, construction, industrial design professional settings. The unit will particularly focus on the application of the tools and exploration of Australian regulatory and sustainable development practices.

Research Preparation in Postgraduate Studies
Life is research! This unit introduces you to the nature of research and why it is essential to our today's way of living. What are the current and big questions in research? How to prepare for conducting a research in various areas? What are differences between study, investigation and research? In this unit, the main emphasis will be on different types of modern research and their methods/ methodologies. It will also encompass various advanced tools that support research, its writing styles, publication channels and research ethics. Key elements of good research design are also introduced as well as the concepts of intellectual property and commercialisation.

Professional Practice and Communication
This unit introduces some of the concepts, standards and techniques associated with the current professional practice for engineering and information technology students.

These include the various elements of engineering and IT practice, basic knowledge of law of contracts and legal responsibility, competence in verbal communication and presentations and in reading and writing reports, and an understanding of ethical considerations.

Advanced Engineering Project 1
This unit develops your expertise in engineering project management including professional ethics and legal obligations and their research and presentation skills. It will be achieved through employment of appropriate research skills on a capstone project which demonstrates your professional expert level of identifying and planning an engineering project.

Advanced Engineering Project 2
In this unit, the focus will be to work on an engineering problem in a capstone project and complete the project via enhancement of research and presentation skills. It will be achieved through employment of appropriate research skills on a capstone project, which demonstrates your professional expertise of completing an engineering project.

Specialisations

CIVIL

You can choose 5 specialised alternates from the units listed below for Civil specialisation:

Advanced Numerical Methods in Engineering
The finite element method is an essential tool for the analysis and design of machine parts and civil engineering structures. The objective of this unit is to introduce the principles of finite element method and the applications of one, two and three dimensional elements in solving various engineering problems.

Advanced Structural Analysis
This unit introduces students to the aspects of structural analysis of beams, trusses, frames and plates. It covers several displacement based methods for the analysis of trusses, beams and frames, i.e. slope deflection method and matrix method. The basic concepts of plate bending analysis will be discussed. This unit aims to teach students to master necessary skills in structural analysis as well as skills in using computer software to analyse complex structures.

Advanced Water Engineering
This unit exposes students to the concepts of drainage analysis. It focuses on the surface water components of a hydrologic cycle. The hydrologic theories will be integrated with the hydraulic principles to enable holistic analysis of a catchment.

Advanced Geotechnical Engineering
This unit will provide an overview of soil mechanics concepts required for the solution of practical geotechnical engineering problems. Students will be taught soil and foundation analysis including design techniques. The topics will cover shallow foundations, pile foundations, the stability of earth retaining structures, excavations, soft soils, groundwater flow and stability of slopes. Practical engineering cases will be emphasised.

Sustainability and Risk Engineering (PG)
Analysis of sustainability with engineering perspective is increasingly becoming important in the modern world. Also, in the future sustainability will include risk engineering. Hence, engineers with in-depth understanding of different tools that can be used for both sustainability and risk analysis will have significant competitive edge in their future career. The main objective of this unit is to introduce different tools available for sustainability and risk analysis in various engineering applications. The content includes renewable/alternative energy systems, energy/resource efficiency, sustainable/ green buildings, sustainable transport and infrastructure, sustainable water management, environmental management systems, sustainability reporting, life cycle analysis, probability/reliability theory, risk assessment models, overall system analysis.

Advanced Composite Structures
This unit enables students to gain an in-depth knowledge into composite structures based on Australian Standards and International Standards. Recent advances in the design of composite beams, slabs, columns and connections will be introduced.

Advanced Timber Structures
This unit enables students to gain an in-depth knowledge into timber structures based on Australian Standards. Design of timber beams, floors, columns and connections will be introduced with a focus on the use of plywood, round timbers, glue-laminated timber and structural laminated veneer lumber.

Advanced Applied Mechanics
Applied mechanics deals with the mechanical responses of structural components under various loading and support conditions. This unit will introduce the theory of elasticity and study the bending, buckling and vibration behaviours of beams, plates and shells and their associated applications in engineering practices.

Advanced Highway Infrastructures
This unit teaches bridge superstructure design and ground engineering design prior to construction of the highway. The aim is to provide students with advanced knowledge in bridge construction, loading and structural design, ground improvement techniques

to deal with soft and weak grounds, and construction of highway embankments. These aspects will be taught in relation to Australian design codes.

Water Resources System Analysis
Water resources projects are large infrastructure projects requiring huge capital expenditure. In addition, multiple options are usually available to meet the project goals but at different costs and under varying constraints. This unit presents the application of optimisation techniques to select the best project from a list of competing projects. Applications of these techniques to optimally allocate available water resources are discussed. These are presented within the context of maximising the return of investment.

Advanced Statistical Hydrology
This unit covers at-site flood frequency analysis, regional flood frequency analysis, trend analysis of hydrological data, linear regression analysis and multivariate statistical techniques to solve advanced hydrological problems.

Advanced Waste Management
This unit covers sources identification and characterisation of solid and hazardous waste generated from the community. Sustainable management of waste incorporating minimisation, recycle, recovery and disposable options is discussed. Also, atmospheric pollutants and their control, greenhouse gases and their impact on climate change are examined.

Advanced Hydrogeology
This unit covers occurrence of groundwater, groundwater movement, groundwater hydraulics, water wells, quality of groundwater, groundwater modelling and groundwater management. The objectives of this unit are to enable students to learn the associated concept of groundwater and apply the learnt concepts in solving groundwater problems in advanced engineering practice.

Deep Foundations
This unit covers advanced analysis and design criteria for deep foundations. Both statically and dynamically loaded deep foundations are covered including the site investigation methods and field testing methods adopted in practice for determining integrity and load carrying capacity. Appropriate computer software will be introduced to carry out the deep foundation design according to the Australian Standards.

Advanced Water and Waste Water Treatment
The unit focuses on design of conventional and emerging water and wastewater treatment unit processes using fundamental science and hydraulic engineering principles. The focus is on practical design. The student will be exposed to emerging water and wastewater treatment processes and its applications through research.

ENVIRONMENTAL

Choose 5 specialised alternates from list below for Environmental specialisation:

Advanced Waste Management
This unit covers sources identification and characterisation of solid and hazardous waste generated from the community. Sustainable management of waste incorporating minimisation, recycle, recovery and disposable options is discussed. Also, atmospheric pollutants and their control, greenhouse gases and their impact on climate change are examined.

Advanced Water and Waste Water Treatment
The unit focuses on design of conventional and emerging water and wastewater treatment unit processes using fundamental science and hydraulic engineering principles. The focus is on practical design. The student will be exposed to emerging water and wastewater treatment processes and its applications through research.

Sustainability and Risk Engineering (PG)
Analysis of sustainability with engineering perspective is increasingly becoming important in the modern world. Also, in the future sustainability will include risk engineering. Hence, engineers with in-depth understanding of different tools that can be used for both sustainability and risk analysis will have significant competitive edge in their future career. The main objective of this unit is to introduce different tools available for sustainability and risk analysis in various engineering applications. The content includes renewable/alternative energy systems, energy/resource efficiency, sustainable/green buildings, sustainable transport and infrastructure, sustainable water management, environmental management systems, sustainability reporting, life cycle analysis, probability/reliability theory, risk assessment models, overall system analysis.

Planning and Environmental Regulation
This unit provides students with an understanding of the planning process from both a State government and Local Government perspective. The unit will cover concepts related to the planning process, focusing on development control and regulation issues, planning instruments and development applications. It will also address the areas of planning and environment law, with specific reference to the legal from work that regulates planning and development in NSW.

Safety and Risk Management
This unit provides a critical insight into the theory and practice of managing safety and health at the workplace with a dual focus on risk management and safety management. Students have the opportunity to develop a safety systems approach concentrating on hazard identification, risk assessment and devising control measures incorporating safety management principles. Safety culture and its influence on OHS practice is also detailed. In addition, the unit addresses the legal underpinning of OHS requirements at the workplace. Labour market change and the role of government, unions and employer organisations are also examined. Global perspectives on OHS from various jurisdictions ranging from the USA, Hong Kong and China are also scrutinised.

Building in Bushfire Prone Areas
This unit describes the basis for the design and construction of buildings to withstand bushfire attack, the measures that can be incorporated into building design to achieve this and the legislative building requirements affecting bushfire environments. The unit examines the mechanisms of bushfire attack on structures, the role of landscaping on building survival and how materials perform in the presence of a bushfire event. The unit describes the role of the Building Code of Australia (BCA) and Australian Standards in the construction of various building types and the legislative and regulatory environment in which this operates.

MECHATRONIC

Choose 5 specialised alternates from list below for Mechatronic specialisation:

Mechanical System Design
This unit advances students' understanding on product design and development of machine components and assemblies using systems engineering approaches. The unit covers the design of main components of machinery to ensure their functionality, strength and durability. Components designed include drive components – gears, shafts, belt drives, and bearings, and structural components – welds and treaded fasteners. The machine assembly design is delivered based on systems engineering. Academic skills on research and communication are ensured to be achieved through conducting mechanical design projects.

Advanced Robotics
This unit is designed to introduce the engineering concepts involved in Robotics. The kinematics, dynamics, control and sensing aspects in robotics will be introduced. In addition, the concepts of artificial intelligence and their applications in robotics will also be discussed and assessed.

Advanced Dynamical Systems
This unit looks at how non-rigid components deform and oscillate. It looks at un-damped and damped systems undergoing free vibration, steady state forced vibration and transient forced vibration. The principles of virtual work are used to investigate the equilibrium and dynamics of mechanisms.

Mechatronic System Design
This unit will advance the skills of mechanics, mechanical systems and automation in the practice of engineering design as applied to mechatronic devices and systems. The ability to perform detailed design analysis of machine elements as well as control systems as applicable to manufacturing and process machinery is the intended outcome of undertaking this unit and project-based tasks will form part of the learning process and team work experience.

Advanced Mobile Robotics
This unit is designed to develop an understanding of the concepts involved in Mobile Robotics. The areas of mobile robot mechanics, localisation, map building and path planning will be introduced. Various sensors and their applications in mobile robotics are also to be introduced.

Advanced Electrical Machines and Drives
The subject covers various types of electrical motors and drive systems, their applications and control. The unit aims to introduce an advanced study of electrical machines and drives. It also covers application considerations and modern developments in high performance drive systems. This course covers various types of the speed control, the starting, the braking and the dynamics of different electrical machines and drives.

Advanced Control Systems
This unit covers continuous and discrete control systems. It reviews and builds on the fundamental concepts of the theory of feedback in continuous and discrete time to examine the analysis and design of advanced continuous and discrete time linear control systems. Transfer function and state variable methods are employed. Instruction makes use of extensive experimental tasks. There is also considerable use of Matlab simulations.

ELECTRICAL

Choose 5 specialised alternates from list below for Electrical specialisation:

Personal Communication Systems
This unit covers the design fundamentals of cellular systems, including frequency reuse, channel assignments, radio wave propagation in mobile environments, modulation techniques, coding techniques, spread spectrum and multiple access. It includes topics from emerging wireless technologies, and third-generation mobile communication systems and standards.

Power Systems Planning & Economics
This unit covers planning techniques for energy and electrical power systems. It also covers the economics of various options and reliability of electrical power systems.

Advanced Power Quality
This unit is to introduce students to power quality phenomena such as voltage sag/swell, distortions, unbalance, and flicker that occur in power systems. The unit also introduces terms and definitions associated with power quality, following which each phenomenon, that is, voltage sag/swell, transient overvoltage, and harmonics. In addition, flicker is presented and discussed in detail for students to understand the sources and impact of these occurrences on power system as well as typical mitigation techniques. Finally, students are introduced to power quality benchmarking, monitoring, assessment. In addition Advanced knowledge on network frequency responses is presented.

Advanced Smart Grids and Distributed Generation
This unit is designed to model, analyse and control of newly developing areas of distributed generation and smart grids. The unit will cover modelling, control, simulation and protection of such systems. The unit will also cover the impacts of renewable sources and power electronics on the operation of smart grids and micro-grids. The unit will also cover environmental and economic impacts of such systems.

Instrumentation & Measurement (PG)
This unit covers all topics associated with the measurement and presentation of physical parameters. A wide range of transducers are presented in detail, while instrumentation includes a detailed analysis of a multitude of analog and digital circuits used to amplify, transmit and display electrical signals. The application of these modules in modern measurement equipment is discussed.

Advanced Electrical Machines and Drives
The subject covers various types of electrical motors and drive systems, their applications and control. The unit aims to introduce an advanced study of electrical machines and drives. It also covers application considerations and modern developments in high performance drive systems. This course covers various types of the speed control, the starting, the braking and the dynamics of different electrical machines and drives.

Advanced Signal Processing
This unit covers the principles and techniques in signal processing. Topics include sampling and quantisation of analogue signals, analysis of digital signals in the time domain and frequency domain, digital filter design, multi-rate signal processing, signal processing hardware and finite word-length effects in hardware implementation. Students develop skills of analysing and designing digital signal processing systems.

Advanced Control Systems
This unit covers continuous and discrete control systems. It reviews and builds on the fundamental concepts of the theory of feedback in continuous and discrete time to examine the analysis and design of advanced continuous and discrete time linear control systems. Transfer function and state variable methods are employed. Instruction makes use of extensive experimental tasks. There is also considerable use of Matlab simulations.

MECHANICAL

Choose 5 specialised alternates from list below for Mechanical specialisation:

Mechanical System Design
This unit advances students' understanding on product design and development of machine components and assemblies using systems engineering approaches. The unit covers the design of main components of machinery to ensure their functionality, strength and durability. Components designed include drive components – gears, shafts, belt drives, and bearings, and structural components – welds and treaded fasteners. The machine assembly design is delivered based on systems engineering. Academic skills on research and communication are ensured to be achieved through conducting mechanical design projects.

Advanced Robotics
This unit is designed to introduce the engineering concepts involved in Robotics. The kinematics, dynamics, control and sensing aspects in robotics will be introduced. In addition, the concepts of artificial intelligence and their applications in robotics will also be discussed and assessed.

Advanced Dynamic Systems
This unit looks at how non-rigid components deform and oscillate. It looks at un-damped and damped systems undergoing free vibration, steady state forced vibration and transient forced vibration. The principles of virtual work are used to investigate the equilibrium and dynamics of mechanisms.

Mechatronic System Design
This unit will advance the skills of mechanics, mechanical systems and automation in the practice of engineering design as applied to mechatronic devices and systems. The ability to perform detailed design analysis of machine elements as well as control systems as applicable to manufacturing and process machinery is the intended outcome of undertaking this unit and project-based tasks will form part of the learning process and team work experience.

Advanced Thermal and Fluid Engineering
This unit covers fundamental principles in the thermal and fluid engineering. While the main focus will remain on incompressible fluids, effects of compressible fluids will also be discussed. The contents of this unit include fluid mechanics, thermodynamics and heat transfer. Students will learn the engineering applications of thermal and fluid principles.

Advanced Computer Aided Engineering
This unit focuses on advanced topics in computer aided engineering and their applications in mechanical engineering in analysing a wide range of engineering problems. The objective of this unit is to advance students' knowledge and skill level on the finite element method (FEM)-based computer aided engineering (CAE) and its advanced applications in the fields of solid mechanics, fluid mechanics, thermodynamics and heat transfer and product design and development as well. Academic skills on research and communication are ensured to be achieved through conducting FEM-based CAE projects.

Advanced Computational Fluid Dynamics
This unit introduces students to commonly used numerical methods used in computational fluid dynamics (CFD). The unit covers the theory and the application of CFD for solving engineering problems. The numerical methods for solving the in viscid flow and the viscous flow problems will be introduced. The students learn the application of the engineering software in the engineering problems.

Advanced Numerical Methods in Engineering
The finite element method is an essential tool for the analysis and design of machine parts and civil engineering structures. The objective of this unit is to introduce the principles of finite element method and the applications of one, two and three dimensional elements in solving various engineering problems.

TELECOMMUNICATION

Choose 5 specialised alternates from list below for Telecommunication specialisation:

Personal Communication Systems
This unit covers the design fundamentals of cellular systems, including frequency reuse, channel assignments, radio wave propagation in mobile environments, modulation techniques, coding techniques, spread spectrum and multiple access. It includes topics from emerging wireless technologies, and third-generation mobile communication systems and standards.

Network Management
The performance of any modern organization is heavily dependent on their networked systems and how these systems are managed. The increasing demand for ICT services and the huge growth of the Internet have resulted in large heterogeneous networks. This unit addresses the issues relevant to management of such networks and the services that run on them. It covers the principles and current practices pertinent to integrated management of networks, systems, and services. The unit helps the students to understand relevant protocols, standards, and standards organizations. It also introduces them to trends and key research areas in management of networked systems.

Multimedia Communication Systems
This unit covers advanced concepts and technologies used in emerging multimedia communication systems. Theory, practice and standards for IT professionals endeavouring to build data compression systems for multimedia applications are emphasised.

Wireless Networking
Wireless technologies are amongst the most exciting and rapidly growing areas in computing and information technology. They implement applications that profoundly impact our personal way of communication, as well as how business in a variety of industries and organisations are conducted. This unit goes into details of such issues. It discusses wireless networking technologies and their related applications. The main features of wireless and mobile communication systems and the networked services that are based on these systems are also presented. The unit provides students with an in-depth understanding of relevant protocols, the emerging standards and standard organisations. The students are also introduced to some of the relevant current key research issues of the field.

Instrumentation & Measurement (PG)
This unit covers all topics associated with the measurement and presentation of physical parameters. A wide range of transducers are presented in detail, while instrumentation includes a detailed analysis of a multitude of analog and digital circuits used to amplify, transmit and display electrical signals. The application of these modules in modern measurement equipment is discussed.

Advanced Signal Processing
This unit covers the principles and techniques in signal processing. Topics include sampling and quantisation of analogue signals, analysis of digital signals in the time domain and frequency domain, digital filter design, multi-rate signal processing, signal processing hardware and finite word-length effects in hardware implementation. Students develop skills of analysing and designing digital signal processing systems.

Advanced Data Networks
This unit covers all major network technologies: asynchronous transfer mode (ATM), Internet, and telephony. Essential networking topics such as protocol layering, multiple access, switching, scheduling, routing, congestion control, error and flow control, and network security are covered in detail. An engineering approach is taken to provide insight into network design.

BIOMEDICAL

Choose five specialised alternates from the list below.

Advanced Signal Processing
This unit covers the principles and techniques in signal processing. The subject matter includes advanced topics in discrete-time signals and systems, the z-transform and its applications in signal processing, advanced topics in the sampling of continuous-time signals, FIR and IIR filter design, filter structures, and the discrete Fourier transform and its computation. Students develop skills of analysing and designing digital signal processing systems.

Instrumentation and Measurement (PG)
This unit covers topics associated with the measurement and presentation of physical parameters. A wide range of transducers are presented in detail, while instrumentation includes a detailed analysis of a multitude of analogue and digital circuits used to amplify, transmit, and display electrical signals. The application of these modules in modern measurement equipment is presented in details.

Advanced Biomedical Electronics
This unit will cover advanced design of biomedical electronic devices including, implanted devices, human-computer-interface, bioinstrumentation and neuromorphic engineering. Topics covered span from the bioelectromagnetism and related applications to regulatory aspects (IEC standards and TGA/FDA approval processes) and electrical safety of instrumentation. This unit will have a strong practical design focus with laboratories and tutorials focused on the design of real instrumentation (including manufacturing) dealing with real biomedical signals.

Human Physiology and Biomedical Technologies
This unit aims to introduce a wide range of biomedical technologies and how they are used in medical practice. Topics will span from data acquisition technologies such as ECG, EEG, body plethysmography, to large imaging diagnostics such as CT scanner, PET scanner and bio-mechanical assisting devices often used for rehabilitation and support. The first part of this unit will include a module on human physiology and bio-mechanics. This module gives a basic understanding of the human body and introduces the scientific and medical terminology used for anatomy, physiology and biochemistry and bio-mechanics.

Advanced Biomedical Data and Images
This unit will cover advanced biomedical signal and data analysis including electrocardiography, electroencephalography, human-computer-interface, electromyography, machine learning and biomedical images. This unit will have a strong practical design focus with laboratories and tutorials focused on the design of usable software packages dealing with real biomedical signals.

Introduction to Biostatistics
Most professions in the health sciences need to read and interpret statistics relating to individual health status, interpret health risks in communities, and engage in the evaluation of interventions, or impact of health policies or programs. Many public health practitioners are actively involved in surveillance, quantitative research and/or evaluation. This unit provides students with the fundamental skills they need to analyse and interpret results from quantitative data collections. Content includes descriptive statistics, undertaking comparisons between groups, quantifying associations between variables, and statistical power. The unit is highly applied with the main focus being on interpretation and appraisal of statistical results and conducting analyses using statistical software.

CENTRE FOR INFRASTRUCTURE ENGINEERING FIRST OF ITS KIND IN AUSTRALIA

A rapidly developing world needs safe, reliable infrastructure systems such as bridges, buildings, dams, roads and pipe networks. Engineers are tapping into today's advanced technology to constantly improve the performance of existing and new infrastructure.

The Centre is expanding the field of engineering research beyond civil and electronic engineering to consider all aspects of the analysis, assessment, design, maintenance and repair of infrastructure, including materials and systems.

Based at the Kingswood campus, the Centre also promotes 'Smart Engineering' through research into smart structures and smart materials. The Centre's Structural Research and Testing Laboratory has facilities for both static and dynamic testing of materials, structural components and assemblies. To address future infrastructure challenges, the Institute is facilitating wider collaborations with other disciplines, including computing, mathematics, industrial design, construction, science, business and medicine.

To learn more about the Centre, and scholarship opportunities, visit **westernsydney.edu.au/cie**

For more information on Excellence in Research Australia, visit **westernsydney.edu.au/research/ors/era**

Advanced Robotics
This unit is designed to introduce the engineering concepts involved in Robotics. The kinematics, dynamics, control and sensing aspects in robotics will be introduced. In addition, the concepts of artificial intelligence and their applications in robotics will also be discussed and assessed.

Students must also complete (as a condition for EA accreditation) a 12-week industrial experience training program: **Industrial Experience (PG)**.

Students will undertake 12 weeks full time (37.5 hours per week) employment (or part time equivalent) to obtain relevant workplace experience in Engineering companies under the supervision of professional engineers in one company or more which will give the student a solid grounding in the Key Program of engineering which they have chosen to pursue.

WHY POSTGRADUATE STUDY AT WESTERN SYDNEY?

You've come a long way. Go further.

Located in the heart of one of Australia's fastest growing economic regions, Western Sydney University offers unlimited potential to students with the drive, ambition and will to succeed.

Ranked amongst the top two per cent of universities on the globe, Western Sydney is a world-class university with a growing international reach and reputation for academic excellence and impact-driven research.

To take your career to the next level, you need more than classrooms, more than theory. That's why we offer a combination of on campus learning environments, with real-life, on-the-ground, hands-on opportunities for skill development in professional and community settings. We value academic excellence, integrity and the pursuit of knowledge.

We equip our students with the means to do more than just advance their careers. We are unlocking the potential of the next generation of global citizens, leaders and change-makers.

TOP 2%
OF UNIVERSITIES WORLDWIDE*

#1 UNI
IN SYDNEY FOR EMPLOYER SATISFACTION**

5 STARS
FOR FACILITIES, INCLUSIVENESS, INNOVATION AND TEACHING*

PROGRESS. UNLIMITED.

HOW TO APPLY

International students apply direct to Western Sydney University.
westernsydney.edu.au/international/apply

Applicants must meet minimum academic entry and English proficiency requirements.
westernsydney.edu.au/international/entryrequirements

International students are also required to have genuine access to sufficient funds while studying in Australia. Funds should be sufficient to contribute to the cost of travel, tuition, school costs for any dependants, and living costs.
westernsydney.edu.au/international/fees

FURTHER INFORMATION

For further details about courses, including course structure, unit descriptions, work placement requirements (if applicable), visit **handbook.westernsydney.edu.au**

For information about studying at Western Sydney University, including assessment methods, course progression and attendance requirements, accommodation options, working and living in Australia, visit **westernsydney.edu.au/studyandlife**

CRICOS provider code: 00917K

*Times Higher Education Rankings 2018
**Employer Satisfaction Survey 2018 (85.6% satisfaction rating)
^QS Top Universities: QS Stars University Ratings 2018

INTL3390 November 2018

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