

# Faculty of Engineering

## Member Units

School of Civil, Mining and Environmental Engineering  
School of Engineering Physics  
School of Mechanical, Materials and Mechatronic Engineering

## Degrees Offered

### Research

Doctor of Philosophy  
Master of Engineering - Research  
Master of Science (Physics) - Research

### Coursework

Master of Engineering

- Civil Engineering
- Environmental Engineering
- Maintenance Management
- Materials Engineering
- Mechanical Engineering
- Mining Engineering

Master of Engineering Practice

- Bulk Solids and Particulate Technologies
- Civil Engineering
- Engineering Management
- Environmental Engineering
- Maintenance Management
- Materials Engineering
- Materials Welding and Joining
- Mechanical Engineering
- Mechatronics
- Steel Processing and Products

Master of Science (Medical Radiation Physics)

Graduate Diploma in Engineering

- Civil Engineering
- Environmental Engineering
- Materials Engineering
- Mechanical Engineering
- Mining Engineering

Graduate Diploma in Materials Welding and Joining

Graduate Diploma in Science (Physics)

Graduate Certificate in Engineering

Graduate Certificate in Maintenance Management

## Doctor of Philosophy

Testamur Title of Degree:	Doctor of Philosophy
Abbreviation:	PhD
Home Faculty:	Faculty of Engineering
Duration:	3yrs full-time or part-time equivalent
Total Credit Points:	48 credit points per year
Entry Requirements:	Bachelor degree in a relevant discipline with Honours Class II, Division 2 or higher.
Delivery Mode:	Research
Starting Session(s):	Autumn/Spring
Standard Course Fee:	HECS exempt (local); \$8750 AUD per session (international)
Location:	Wollongong
UOW Course Code:	201
CRICOS Code:	001245D

### Overview

Doctor of Philosophy (PhD) candidates undertake in-depth research in order to make an original contribution to the body of knowledge in their area of interest. This qualification can lead to, or enhance, an academic career and is also highly regarded by public and private sector employers. A thesis containing the candidate's research will be presented for examination at the end of the study.

### Current research areas are listed below:

#### *Civil Engineering*

- Steel and concrete structures
- Bridge engineering
- Solid and rock mechanics
- Foundation engineering, including railways
- Slope stability and reliability analysis
- Soft ground improvement technology
- Reinforced earth
- Dam and embankment engineering
- Finite element and other numerical methods
- Structural dynamics
- Cementitious materials for construction
- Flood studies, hydraulics and hydrology
- Water quality engineering
- Geo-environmental studies

#### *Environmental Engineering*

- Water quality engineering
- Environmental hydraulics and unit processes
- Pollution control engineering
- Water quality and quantity modelling of catchments, rivers and lakes
- Soil erosion and sediment transport
- Environmental pollution modelling
- Recycling and waste management
- Environmental geotechnology
- Solid-liquid separation processes
- Transport and the environment

#### *Materials Engineering*

##### **Steel Processing and Products:**

- Polymer coating adhesion
- Mechanical properties of polymer coatings
- Surface properties of polymers
- Peritectic phase transformation: mechanism and kinetics
- Development of in-situ observation techniques
- Kinetics of phase transformations in zincalume alloy systems
- Property/microstructure relationships
- Process optimisation in direct reduction of iron

Thermo-mechanical processing, including HSLA steels  
 Corrosion of steelmaking refractories  
 Slag properties and behaviour

**Superconducting and Electronic Materials:**

Theory and mechanism of superconductors  
 Phase relation, phase evolution and chemistry of superconductors  
 Single crystal growth and study of intrinsic properties  
 Fabrication of bulk, wires and tapes superconductors  
 Critical current density, transport mechanism and flux pinning  
 Studies on structure, microstructure and stability  
 Colossal magnetoresistance materials  
 Spintronic materials  
 High energy batteries for electric vehicles  
 Solid-state rechargeable lithium batteries for telecommunication and portable electronic devices  
 Developing new cathode materials for lithium-ion batteries using Australian mineral resources  
 Investigation of nano-materials for use in lithium rechargeable batteries  
 Composite cathode materials for lithium ion batteries using chemical coating technique  
 Hydrogen storage materials  
 Nickel-metal hydride batteries  
 Processing of thin films  
 Investigation of superconductor thin films  
 Nanofabrication of novel multilayer materials  
 Coated conductors  
 Nanostructure of electronic materials

**Ceramic and Refractory Materials:**

Sintering kinetics  
 High temperature degradation  
 Extrusion of resin-bonded ceramics  
 Processing of refractories

**Intelligent Polymers:**

Artificial muscles  
 Chemical and physical sensors  
 Electronic textiles

**Nano-materials:**

Synthesis and characterisation of carbon nanotubes  
 High energy ball milling  
 Structure and properties of nanocrystalline materials

**Welding and Joining/Surface Engineering:**

Structure and properties of welded metals  
 Weld metal cracking  
 Post weld heat treatment  
 Weldability of creep resistant steels  
 Brazing and diffusion bonding  
 Fusion welding of coated steels  
 Surface engineering of materials  
 Wear and surface property testing  
 Physical vapour deposition processing of metals  
 Ion implantation  
 Microwave processing of materials  
 Solidification

***Mechanical Engineering (Includes Mechatronics)***

**Applied Mechanics:**

Bio-mechanics  
 Solid mechanics  
 Computational fluid mechanics  
 Jet cooling in industrial applications  
 Finite element analysis  
 Natural and hybrid ventilation of buildings  
 Industrial ventilation systems  
 Renewable energy systems  
 Wave energy conversion  
 Small wind energy systems  
 Mechanical engineering design  
 Heavy vehicle and rail dynamics

## Course Information

- Railway engineering
- Rolling mill technology
- Solar thermal system analysis and design
- Solid mechanics of elastic and magneto- elastic bodies
- System identification and control
- Tribology-bearing friction and wear
- Alternative fuels
- Novel IC engines

### **Manufacturing and Mechatronics:**

- Sensors and actuators
- Smart materials and structures
- MEMS and Nanotechnology
- Laser welding and surfacing
- Automated pipe welding
- Robotic repair technology
- Novel control of arc processes
- Virtual reality weld simulator
- Magnetic impelled arc butt welding
- Automated QC and reliability engineering
- Chip control in automated manufacture
- Expert/knowledge system in automated machining
- Intelligent manufacturing systems
- Monitoring/diagnosis of manufacturing processes and machinery conditions
- Integrated CAD/CAM
- Maintenance management

### **Bulk Materials Handling:**

- Prediction of bin wall loads and flow rates
- Feeding and discharging systems including pressurised systems
- Dust and fume control
- Pneumatic conveying
- Computer simulation of discrete particles
- Biomass handling and feeding systems
- Fluidisation and deaeration

### ***Mining Engineering***

- Rock mechanics
- Surface mining
- Mine simulation, planning and design
- Mine safety and mine ventilation
- Geostatistics
- Computer applications in mining engineering
- Mine water
- Environmental impact of mining

### ***Physics***

- Astronomy - visible and infrared, planetary surfaces
- Laser spectroscopy
- Medical Radiation Physics
- Scattering of light by solids
- Solid state spectroscopy of impurities in semiconductors
- Studies of electronic wave functions in solids
- Theoretical astrophysics - galaxy formation, gas dynamics

## Master of Engineering - Research

Testamur Title of Degree:	Master of Engineering - Research
Abbreviation:	MEng - Res
Home Faculty:	Faculty of Engineering
Engineering Disciplines:	Civil, Environmental, Materials, Mechanical, Mechatronics, Mining
Duration:	1.5 yrs full-time or part-time equivalent
Total Credit Points:	72 credit points
Entry Requirements:	Relevant degree with Honours Class III or above.
Delivery Mode:	Research/Coursework
Starting Session(s):	Autumn/Spring
Standard Course Fee:	HECS exempt (local); \$8750 AUD per session (international)
Location:	Wollongong
UOW Course Code:	1303
CRICOS Code:	042554G

### Overview

The Master of Engineering degree by research is intended for engineers qualified and interested in specific engineering problems. The degree comprises a 48 credit point research thesis and 24 credit points of coursework. Coursework comprises the six credit point subject ENGG951 Engineering Project Management plus 18 credit points of elective subjects chosen from the relevant Master of Engineering program – refer to following pages.:

Advanced standing for some or all of the coursework component may be granted on demonstrated research skills. Evidence of these skills would normally be a Bachelor of Engineering (Honours Class II Division 2 or better) and/or an appropriate Masters Coursework degree.

For current research areas refer to the PhD program above.

## Master of Science - Research

Testamur Title of Degree:	Master of Science - Research
Abbreviation:	MSc - Res
Home Faculty:	Faculty of Engineering
Engineering School:	Engineering Physics
Duration:	1.5 yrs full-time or part-time equivalent
Total Credit Points:	72 credit points
Entry Requirements:	Honours degree in Physics, or a Graduate Diploma in Science (Physics) or approved equivalent qualification
Delivery Mode:	Research/Coursework
Starting Session(s):	Autumn/Spring
Standard Course Fee:	HECS exempt (local); \$8750 AUD per session (International)
Location:	Wollongong
UOW Course Code:	1304
CRICOS Code:	042555F

### Overview

The Master of Science degree by research equips candidates with superior skills in research design and methodology in preparation for leadership roles in their chosen field. The degree comprises a 48 credit point research thesis and 24 credit points of coursework. Advanced standing for some, or all, of the coursework component may be granted on demonstrated research skills.

Students entering with a degree below Honours Class II, Division 2 will complete the 48 credit point thesis and 24 credit point combination of subjects chosen from the remaining Graduate Subjects below and the list of undergraduate Physics subjects. These subjects will be chosen in consultation with and approved by the Physics Discipline Adviser. For current research areas refer to the PhD program above.

**Course Program**

Subjects	Credit Points
<b>Core Subject</b>	
PHYS401 Theoretical Mechanics and Electromagnetism	8
PHYS441 Advanced Astrophysics	4
PHYS444 Quantum Mechanics	8
PHYS446 Solid State Physics	8
PHYS910 Advanced Project in Physics A	6
PHYS946 Advanced Solid State Physics	6
PHYS947 Special Topics in Physics A	6
PHYS948 Physics of Imaging	6
PHYS960 Advanced Project in Physics B	6
PHYS997 Special Topics in Physics B	6

**Master of Engineering (Civil Engineering)**

Testamur Title of Degree:	Master of Engineering (Civil Engineering)
Abbreviation:	MEng
Home Faculty:	Faculty of Engineering
Duration:	1 yr full-time or part-time equivalent
Total Credit Points:	48 credit points
Entry Requirements:	Bachelor of Engineering with honours at Class III or higher from this University, or an approved equivalent qualification.
Delivery Mode:	Coursework/Dissertation
Starting Session(s):	Autumn/Spring
Standard Course Fee:	\$6000 (local); \$8750 AUD (International) per session
Location:	Wollongong
UOW Course Code:	1403
CRICOS Code:	042657M

**Overview**

The Master of Engineering allows the student to combine specialist postgraduate subjects, according to his or her undergraduate background, with project work. The program comprises a 24 credit point dissertation and at least 24 credit points of coursework. The dissertation typically requires rigorous research in a specialised area – normally in the area of coursework components undertaken.

**Course Program**

Subjects	Credit Points
<b>Core Subject</b>	
ENGG945 Dissertation	24
<b>Elective Subjects</b>	
CIVL901 Project	6
CIVL902 Reliability in Geotechnical Engineering	6
CIVL903 Concrete Technology	6
CIVL904 Highway Materials	6
CIVL905 Transportation Engineering	6
CIVL907 Civil Engineering Computations	6
CIVL908 Advanced Soil Mechanics	6
CIVL909 Advanced Foundation Engineering	6
CIVL910 Vibrations of Structures	6
CIVL911 Finite Element Methods	6
CIVL912 Engineering Hydrology	6
CIVL914 Analysis and Design of Bridge Structures	6
CIVL916 Research Topics in Civil Engineering	6
CIVL918 Steel Structures	6
CIVL919 Earth Structures	6
CIVL923 Advanced Reinforced Concrete	6
ENGG955 Engineering Research Methods	6

*Note: Not all subjects available in any one year – refer Subject Listing.*

## Master of Engineering (Environmental Engineering)

Testamur Title of Degree:	Master of Engineering (Environmental Engineering)
Abbreviation:	MEng
Home Faculty:	Faculty of Engineering
Duration:	1 yr full-time or part-time equivalent
Total Credit Points:	48 credit points
Entry Requirements:	Bachelor of Engineering with honours at Class III or higher from this University, or an approved equivalent qualification.
Delivery Mode:	Coursework/Dissertation
Starting Session(s):	Autumn/Spring
Standard Course Fee:	\$6000 (local); \$8750 AUD (International) per session
Location:	Wollongong
UOW Course Code:	1403
CRICOS Code:	042657M

### Overview

The Master of Engineering allows the student to combine specialist postgraduate subjects, according to his or her undergraduate background, with project work. The program comprises a 24 credit point dissertation and at least 24 credit points of coursework. The dissertation typically requires rigorous research in a specialised area – normally in the area of coursework components undertaken.

### Course Program

Subjects	Credit Points
<b>Core Subject</b>	
ENGG945 Dissertation	24
<b>Elective Subjects</b>	
ENGG955 Engineering Research Methods	6
ENVE901 Project	6
ENVE916 Research Topics in Environmental Engineering	6
ENVE925 Water Quality Engineering	6
ENVE926 Air and Noise Pollution	6
ENVE927 Environmental Engineering Processes Design	6
ENVE928 Design of Urban Water Systems	6
ENVE929 Site Contamination and Remediation Technologies	6
ENVE930 Coastal, River and Groundwater Engineering	6
ENVE931 Membrane Processes and Applications	6
ENVI920 The Scientific Basis of Environmental Management	6
ENVI921 Environmental Planning	6
CIVL908 Advanced Soil Mechanics	6
CIVL912 Engineering Hydrology	6

*Note: Not all subjects available in any one year – refer Subject Listing.*

## Master of Engineering (Maintenance Management)

Testamur Title of Degree:	Master of Engineering (Maintenance Management)
Abbreviation:	MEng
Home Faculty:	Faculty of Engineering
Engineering Discipline:	Mechanical Engineering
Duration:	1 yr full-time or part-time equivalent
Total Credit Points:	48 credit points
Entry Requirements:	A Bachelor of Engineering degree from a recognised institution with Honours Class III, or higher.
Delivery Mode:	Coursework/Dissertation
Starting Session(s):	Autumn/Spring
Standard Course Fee:	\$6000 (local); \$8750 AUD (International) per session
Location:	Wollongong
UOW Course Code:	1403
CRICOS Code:	042657M

### Overview

Maintenance engineers having completed their Graduate Diploma in Maintenance Management will be given appropriate credits for the course they already have completed. Credits may also be approved for other qualifications or experience for suitable applicants. In order to then obtain a Masters of Engineering (Maintenance Management), the candidate must have a Graduate Diploma in Maintenance Management or equivalent and have completed successfully a further 48 cp. These must consist of 2

core and 2 elective subjects and a 24 cp research project leading to a dissertation. The research project will run in parallel with the formal coursework throughout the anticipated last year of a candidate's study. Students will be able to choose a suitable investigation from the current research activities at any of the disciplines involved.

### Course Program

Subjects		Credit Points
<b>Core Subject</b>		
ENGG945	Dissertation	24
MECH971	Systems Analysis for Maintenance	6
MECH973	Systems Engineering and Life Cycle Management	6
MECH976	Maintenance System Design and Management	6
TBS903	Managing People in Organisations	6
<b>Elective Subjects</b>		
ACCY901	Accounting for Managers	6
MECH972	Condition Based Maintenance	6
MECH977	Advanced Topics in Maintenance 1	6
TBS906	Information Systems for Managers	6

*Plus other postgraduate subjects from the Business School or Engineering, subject to approval from the course coordinator.*

## Master of Engineering (Materials Engineering)

Testamur Title of Degree:	Master of Engineering (Materials Engineering)
Abbreviation:	MEng
Home Faculty:	Faculty of Engineering
Duration:	1 yr full-time or part-time equivalent
Total Credit Points:	48 credit points
Entry Requirements:	Bachelor of Engineering with honours at Class III or higher from this University, or an approved equivalent qualification.
Delivery Mode:	Coursework/Dissertation
Starting Session(s):	Autumn/Spring
Standard Course Fee:	\$6000 (local); \$8750 AUD (International) per session
Location:	Wollongong
UOW Course Code:	1403
CRICOS Code:	042657M

### Overview

The Master of Engineering allows the student to combine specialist postgraduate subjects, according to his or her undergraduate background, with project work. The program comprises a 24 credit point dissertation and at least 24 credit points of coursework. The dissertation typically requires rigorous research in a specialised area – normally in the area of coursework components undertaken.

### Course Program

Subjects		Credit Points
<b>Core Subject</b>		
ENGG945	Dissertation	24
<b>Elective Subjects</b>		
<b>Advanced Engineering Materials program</b>		
MATL901	Special Topic in Materials A	6
MATL903	Recent Developments in Materials	6
MATL905	Metallic Materials	6
MATL906	Ceramics, Glasses and Refractories	6
MATL907	Polymeric Materials	6
MATL972	Selection and Design of Materials	6
<b>Materials Processing program</b>		
MATL901	Special Topic in Materials A	6
MATL902	Special Topic in Materials B	6
MATL903	Recent Developments in Materials	6
MATL921	Formability of Sheet Material	6
MATL932	Surface Engineering of Materials	6
MATL937	Process Metallurgy	6
<b>Metallurgy program</b>		



MATL901	Special Topic in Materials A	6
MATL903	Recent Developments in Materials	6
MATL905	Metallic Materials	6
MATL911	Mechanical Behaviour of Materials	6
MATL951	Performance of Materials A	6
MATL952	Performance of Materials B	6
MATL972	Selection and Design of Materials	6

*Note: Not all subjects available in any one year – refer Subject Listing.*

## Master of Engineering (Mechanical Engineering)

Testamur Title of Degree:	Master of Engineering (Mechanical Engineering)
Abbreviation:	MEng
Home Faculty:	Faculty of Engineering
Duration:	1 yr full-time or part-time equivalent
Total Credit Points:	48 credit points
Entry Requirements:	Bachelor of Engineering with honours at Class III or higher from this University, or an approved equivalent qualification.
Delivery Mode:	Coursework/Dissertation
Starting Session(s):	Autumn/Spring
Standard Course Fee:	\$6000 (local); \$8750 AUD (International) per session
Location:	Wollongong
UOW Course Code:	1403
CRICOS Code:	042657M

### Overview

The Master of Engineering allows the student to combine specialist postgraduate subjects, according to his or her undergraduate background, with project work. The program comprises a 24 credit point dissertation and at least 24 credit points of coursework. The dissertation typically requires rigorous research in a specialised area – normally in the area of coursework components undertaken.

### Course Program

Subjects	Credit Points
<b>Core Subject</b>	
ENGG945 Dissertation	24
<b>Elective Subjects</b>	
ENGG955 Engineering Research Methods	6
<b>Advanced Manufacturing Program</b>	
MECH919 Advanced Topics in Mechanical Engineering 1	6
MECH929 Advanced Topics in Mechanical Engineering 2	6
MECH934 Advanced Manufacturing Processes	6
MECH935 Integrated Manufacturing Systems	6
MECH939 Advanced Topics in Mechanical Engineering 3	6
MECH949 Advanced Computer Control of Machines and Processes	6
MECH950 Advanced Robotics	6
<b>Applied Mechanics Program</b>	
MECH903 Biomechanical Engineering	6
MECH918 Sustainable Energy in Buildings	6
MECH919 Advanced Topics in Mechanical Engineering 1	6
MECH920 Numerical Methods in Mechanical Engineering	6
MECH925 Advanced Fluid Power	6
MECH926 Applied Fluid Mechanics	6
MECH928 Finite Element Techniques in Mechanical Engineering	6
MECH929 Advanced Topics in Mechanical Engineering 2	6
MECH930 Mechanical Vibration and Condition Monitoring	6
MECH931 Friction Lubrication and Wear	6
MECH933 Solar Energy	6
MECH939 Advanced Topics in Mechanical Engineering 3	6
MECH979 Sustainable Transport and Engine Technologies	6

### Materials Handling Systems program

## Course Information

### Core

MECH913	Pneumatic Transport of Bulk Solids	6
MECH983	Bulk Solids Handling (Storage and Flow)	6

### Electives

MECH919	Advanced Topics in Mechanical Engineering 1	6
MECH927	Physical Processing of Bulk Solids	6
MECH929	Advanced Topics in Mechanical Engineering 2	6
MECH931	Friction, Lubrication and Wear	6
MECH939	Advanced Topics in Mechanical Engineering 3	6

### Mechatronics Program

#### Core

ECTE955	Advanced Laboratory (replaces ENGG955)	6
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*Plus 3 electives – at least one should be chosen from the Control Engineering subjects and one from the Mechanical Engineering subjects.*

#### Control Engineering Subjects:

ECTE945	Advanced Intelligent Control	6
ECTE946	Advanced Computer Controlled Systems	6
MECH949	Advanced Computer Control of Machines and Processes	6

#### Mechanical Engineering Subjects:

MECH925	Advanced Fluid Power	6
MECH934	Advanced Manufacturing Processes	6
MECH935	Integrated Manufacturing Systems	6
MECH939	Advanced Topics in Mechatronics	6

#### Robotic Subjects:

ECTE973	Advanced Robotics Manipulators	6
ECTE974	Advanced Robotics Sensory Control	6
MECH950	Advanced Robotics	6

*Note: Not all subjects available in any one year – refer Subject Listing.*

## Master of Engineering (Mining Engineering)

Testamur Title of Degree:	Master of Engineering (Mining Engineering)
Abbreviation:	MEng
Home Faculty:	Faculty of Engineering
Duration:	1 yr full-time or part-time equivalent
Total Credit Points:	48 credit points
Entry Requirements:	Bachelor of Engineering with honours at Class III or higher from this University, or an approved equivalent qualification.
Delivery Mode:	Coursework/Dissertation
Starting Session(s):	Autumn/Spring
Standard Course Fee:	\$6000 (local); \$8750 AUD (International) per session
Location:	Wollongong
UOW Course Code:	1403
CRICOS Code:	042657M

### Overview

The Master of Engineering allows the student to combine specialist postgraduate subjects, according to his or her undergraduate background, with project work. The program comprises a 24 credit point dissertation and at least 24 credit points of coursework. The dissertation typically requires rigorous research in a specialised area – normally in the area of coursework components undertaken.

### Course Program

Subjects	Credit Points
<b>Core Subject</b>	
ENGG945 Dissertation	24
<b>Elective Subjects</b>	
ENGG955 Engineering Research Methods	6
MINE901 Transportation of Mineral and Personnel	6
MINE902 Advanced Studies in Mining Engineering	6
MINE903 Simulation of Underground Mining Operations and Problems	6
MINE904 Rock Mechanics and Ground Control	6
MINE905 Environmental Control in Mines	6

MINE906	Mining Engineering Techniques	6
MINE908	Fires, Explosions and Mine Gases	6
MINE909	Mine Subsidence	6

*Note: Not all subjects available in any one year – refer Subject Listing.*

## Master of Engineering Practice (Bulk Solids and Particulate Technologies)

Testamur Title of Degree:	Master of Engineering Practice (Bulk Solids and Particulate Technologies)
Abbreviation:	MEngPrac
Home Faculty:	Faculty of Engineering
Engineering Discipline:	Mechanical Engineering
Duration:	1 yr full-time or part-time equivalent
Total Credit Points:	48 credit points
Entry Requirements:	A Bachelor of Engineering or a Bachelor of Science degree, or an Associate Diploma in a relevant field, plus appropriate industrial experience
Delivery Mode:	Coursework
Starting Session(s):	Autumn/Spring
Standard Course Fee:	Refer Faculty
Location:	Wollongong
UOW Course Code:	590
CRICOS Code:	N/A

### Overview

This course is offered on a part-time (modular) basis over 2 years and is a joint degree with the University of Newcastle. This is a full fee paying course.

Students will be awarded a Master of Engineering Practice (Bulk Solids and Particulate Technologies) on successful completion of 48 cp comprising:

### Course Program

Subjects	Credit Points
<b>Core Subject</b>	
MECH983 Bulk Solids Handline (Storage and Flow)	6
MECH995 Bulk Solids Handling (Systems and Design)	6
MECH990 Project in Bulk Solids and Particulate Technologies	6
<b>Elective Subjects</b>	
MECH913 Pneumatic Transport of Bulk Solids	6
MECH927 Physical Processing of Bulk Solids	6
MECH982 Bulk Solids Characterisation and Particulate Mechanics	6
MECH984 Belt Conveying	6
MECH985 Dust and Fume Systems	6
MECH986 Instrumentation and Control Systems for Bulk Solids	6
MECH987 Advanced Topics in Bulk Solids and Particulate Technologies 1	6
MECH988 Advanced Topics in Bulk Solids and Particulate Technologies 2	6
MECH989 Advanced Topics in Bulk Solids and Particulate Technologies 3	6
MECH993 Maintenance Management of Bulk Handling Systems	6
MECH994 Mechanical Handling Systems	6

*Note: Apart from MECH990, each subject is run on a modular basis comprising 5 days of lectures, laboratory demonstrations, case studies and problem solving, followed by assessable tasks.*

## Master of Engineering Practice (Civil Engineering)

Testamur Title of Degree:	Master of Engineering Practice (Civil Engineering)
Abbreviation:	MEngPrac
Home Faculty:	Faculty of Engineering
Engineering Discipline:	Civil Engineering
Duration:	1 yr full-time or part-time equivalent
Total Credit Points:	48 credit points
Entry Requirements:	A Bachelor of Engineering degree
Delivery Mode:	Coursework
Starting Session(s):	Autumn/Spring
Standard Course Fee:	\$5,500 (local); \$8750 AUD (International) per session
Location:	Wollongong
UOW Course Code:	590
CRICOS Code:	020204M

### Overview

The Master of Engineering Practice allows practising engineers to build on and update their knowledge, and learn in additional areas to those taken in their first degree. The core subjects develop skills that all practising engineers need, and the choice of electives allows specialisation in the areas such as:

- advanced soil mechanics
- advanced foundation geotechnical engineering
- steel structures
- concrete technology
- engineering hydrology

The dissertation is a project allowing study in a particular area in depth. The dissertation develops skills in information retrieval, project planning and organisation analysis, problem solving, and effective communication of results.

### Course Program

Subjects	Credit Points
<b>Core Subject</b>	
ENGG950 Innovation and Design	6
ENGG951 Engineering Project Management	6
ENGG952 Engineering Computing	6
Or	
TBS901 Accounting for Managers	6
<b>Elective Subjects</b>	
CIVL903 Concrete Technology	6
CIVL908 Advanced Soil Mechanics	6
CIVL909 Advanced Foundation Engineering	6
CIVL912 Engineering Hydrology	6
CIVL918 Steel Structures	6
CIVL923 Advanced Reinforced Concrete	6
CIVL981 Special Topic A	6
CIVL982 Special Topic B	6
ENGG940 Dissertation	12
ENGG953 Modelling of Engineering Management Systems	6

*Note: Not all subjects available in any one year – refer Subject Listing.*

## Master of Engineering Practice (Engineering Management)

Testamur Title of Degree:	Master of Engineering Practice (Engineering Management)
Abbreviation:	MEngPrac
Home Faculty:	Faculty of Engineering
Duration:	1 yr full-time or part-time equivalent
Total Credit Points:	48 credit points
Entry Requirements:	A Bachelor of Engineering degree
Delivery Mode:	Coursework
Starting Session(s):	Autumn/Spring
Standard Course Fee:	\$5,500 (local); \$8750 AUD (International) per session
Location:	Wollongong
UOW Course Code:	590
CRICOS Code:	020204M

## Overview

The Master of Engineering Practice allows practising engineers to build on and update their knowledge, and learn in additional areas to those taken in their first degree. The core subjects develop skills that all practising engineers need, and the choice of electives allows specialisation in the areas such as:

- managing people in organisations
- supply chain management
- systems analysis for maintenance
- systems engineering and life-cycle management
- maintenance systems design and management.

The dissertation is a project allowing study in a particular area in depth. The dissertation develops skills in information retrieval, project planning and organisation analysis, problem solving, and effective communication of results.

## Course Program

Subjects		Credit Points
<b>Core Subject</b>		
ENGG950	Innovation and Design	6
ENGG951	Engineering Project Management	6
ENGG952	Engineering Computing	6
<b>Elective Subjects</b>		
ENGG940	Dissertation	12
ENGG953	Modelling of Engineering Management Systems	6
<i>Option 1: Human and Financial Resource Management stream</i>		
TBS901	Accounting for Managers	6
TBS903	Managing People in Organisations	6
TBS908	Supply Chain Management	6
<i>Option 2: Maintenance Management stream</i>		
MECH971	Systems Analysis for Maintenance	6
MECH973	Systems Engineering and Life Cycle Management	6
MECH976	Maintenance System Design and Management	6

*Note: Students may be able to substitute other subjects from the Graduate School of Business (Faculty of Commerce) or Maintenance Management (Faculty of Engineering) depending on background and experience.*

## Master of Engineering Practice (Environmental Engineering)

Testamur Title of Degree:	Master of Engineering Practice (Environmental Engineering)
Abbreviation:	MEngPrac
Home Faculty:	Faculty of Engineering
Engineering Discipline:	Environmental Engineering
Duration:	1 yr full-time or part-time equivalent
Total Credit Points:	48 credit points
Entry Requirements:	A Bachelor of Engineering degree
Delivery Mode:	Coursework
Starting Session(s):	Autumn/Spring
Standard Course Fee	\$5,500 (local); \$8750 AUD (International) per session
Location:	Wollongong
UOW Course Code:	590
CRICOS Code:	020204M

## Overview

The Master of Engineering Practice allows practising engineers to build on and update their knowledge, and learn in additional areas to those taken in their first degree. The core subjects develop skills that all practising engineers need, and the choice of electives allows specialisation in the areas such as:

- principles of environmental engineering
- wastewater engineering
- water supply engineering
- industrial waste engineering and cleaner production
- solid and hazardous waste engineering and management.

The dissertation is a project allowing study in a particular area in depth. The dissertation develops skills in information retrieval, project planning and organisation analysis, problem solving, and effective communication of results.

**Course Program**

<b>Subjects</b>	<b>Credit Points</b>
<b>Core Subject</b>	
ENGG950 Innovation and Design	6
ENGG951 Engineering Project Management	6
ENGG952 Engineering Computing	6
Or	
TBS901 Accounting for Managers	6
<b>Elective Subjects</b>	
ENGG940 Dissertation	12
ENGG953 Modelling of Engineering Management Systems	6
ENVE925 Water Quality Engineering	6
ENVE926 Air and Noise Pollution	6
ENVE927 Environmental Engineering Processes Design	6
ENVE928 Design of Urban Water Systems	6
ENVE929 Site Contamination and Remediation Technologies	6
ENVE930 Coastal, River and Groundwater Engineering	6
ENVE931 Membrane Processes and Applications	6
ENVE981 Special Topic A	6
ENVE982 Special Topic B	6
CIVL904 Highway Materials	6
CIVL912 Engineering Hydrology	6
CIVL924 Advanced Studies in Computer Aided Design	6

*Note: Not all subjects available in any one year – refer Subject Listing.*

**Master of Engineering Practice (Maintenance Management)**

Testamur Title of Degree:	Master of Engineering Practice (Maintenance Management)
Abbreviation:	MEngPrac
Home Faculty:	Faculty of Engineering
Engineering Discipline:	Mechanical Engineering
Duration:	1 yr full-time or part-time equivalent
Total Credit Points:	48 credit points
Entry Requirements:	A Bachelor of Engineering degree from a recognised tertiary institution.
Delivery Mode:	Coursework
Starting Session(s):	Autumn/Spring
Standard Course Fee:	\$5,500 (local); \$8750 AUD (International) per session
Location:	Wollongong
UOW Course Code:	590
CRICOS Code:	020204M

**Overview**

The objective of the program is to ensure continuous improvement in the strategic and tactical response of organisations, and their managers, to the management of infrastructure assets.

Students who complete other Maintenance Management courses with a credit average may apply for entry to the Master of Engineering Practice course. Appropriate advanced standing will be determined by the Course Coordinator.

**Course Program**

<b>Subjects</b>	<b>Credit Points</b>
<b>Core Subject</b>	
ENGG940 Dissertation	12
MECH971 Systems Analysis for Maintenance	6
MECH973 Systems Engineering and Life Cycle Management	6
MECH976 Maintenance System Design and Management	6
STAT942 Design and Analysis for Quality Control	6
TBS903 Managing People in Organisations	6
<b>Plus Elective Subjects from below:</b>	
ENGG953 Modelling of Engineering Management Systems	6
MECH972 Condition Based Maintenance	6
MECH977 Advanced Topics in Maintenance 1	6
TBS901 Accounting for Managers	6

*Note: Students may be able to substitute other subjects from the Graduate School of Business (Faculty of Commerce) or Maintenance Management (Faculty of Engineering) depending on background and experience.*

## Master of Engineering Practice (Materials Engineering)

Testamur Title of Degree:	Master of Engineering Practice (Materials Engineering)
Abbreviation:	MEngPrac
Home Faculty:	Faculty of Engineering
Engineering Discipline:	Materials Engineering
Duration:	1 yr full-time or part-time equivalent
Total Credit Points:	48 credit points
Entry Requirements:	A Bachelor of Engineering degree
Delivery Mode:	Coursework
Starting Session(s):	Autumn/Spring
Standard Course Fee	\$5,500 (local); \$8750 AUD (International) per session
Location:	Wollongong
UOW Course Code:	590
CRICOS Code:	020204M

### Overview

The Master of Engineering Practice allows practising engineers to build on and update their knowledge, and learn in additional areas to those taken in their first degree. The core subjects develop skills that all practising engineers need, and the choice of electives allows specialisation in the areas such as:

- metallurgical processing
- engineering materials
- refractories
- corrosion and degradation
- mechanical behaviour

The dissertation is a project allowing study in a particular area in depth. The dissertation develops skills in information retrieval, project planning and organisation analysis, problem solving, and effective communication of results.

### Course Program

Subjects	Credit Points
<b>Core Subject</b>	
ENGG950 Innovation and Design	6
ENGG951 Engineering Project Management	6
ENGG952 Engineering Computing	6
Or	
TBS901 Accounting for Managers	6
<b>Elective Subjects</b>	
ENGG940 Dissertation	12
ENGG853 Modelling of Engineering Management Systems	6
MATL901 Special Topics in Materials A	6
MATL902 Special Topics in Materials B	6
MATL903 Recent Developments in Materials	6
MATL951 Performance of Materials A	6
MATL952 Performance of Materials B	6

*Note: Not all subjects available in any one year – refer Subject Listing.*

## Master of Engineering Practice (Materials Welding and Joining)

Testamur Title of Degree:	Master of Engineering Practice (Materials Welding and Joining)
Abbreviation:	MEngPrac
Home Faculty:	Faculty of Engineering
Engineering Discipline:	Materials and Mechanical Engineering
Duration:	3 to 4 yrs part-time distance delivery
Total Credit Points:	60 credit points
Entry Requirements:	A Bachelor of Engineering or Bachelor of Science degree
Delivery Mode:	Flexible Delivery
Starting Session(s):	Jan, Mar, May, July, Sept, Nov Intakes
Standard Course Fee:	\$5,500 (local); \$8750 AUD (International) per session
Location:	Wollongong
UOW Course Code:	CR590
CRICOS Code:	020204M

### Overview

This course is offered on a flexible delivery basis. It consists of a set of 16 modules with a total of 48 cp, together with a 12cp Dissertation (ENGG 919). The 3 credit point modules are presented in the form of 12 text based distance delivery subjects and four intensive one week subjects which are offered in February each year. Assessment is by assignment and examination.

In addition to the self study texts a web-based tutor is used.

Approval of the Professor of Materials Welding and Joining will be required for the subject matter of ENGG 919 - Dissertation.

### Course Program

Subjects	Credit Points
ENGG901 Introduction to Welding and Joining Processes	3
ENGG902 Fusion Welding Processes Part 1	3
ENGG903 Other Joining Processes	3
ENGG904 Fusion Welding Processes Part 2	3
ENGG905 Behaviour of Metals during Welding - Part 1	3
ENGG906 Behaviour of Metals during Welding - Part 2	3
ENGG907 Welding of Non-Ferrous Metals and Non-Metals	3
ENGG908 Construction and Design - Part 1	3
ENGG909 Construction and Design - Part 2	3
ENGG910 Fabrication/Applications Engineering - Part 1	3
ENGG911 Fabrication/Applications Engineering - Part 2	3
ENGG914 Fabrication/Applications Engineering Part 3	3
ENGG915 Design on Structures	3
ENGG916 Fabrication Case Studies	3
ENGG917 Processes, Equipment, Automation	3
ENGG918 Weldability and Wear	3
ENGG919 Dissertation	12

## Master of Engineering Practice (Mechanical Engineering)

Testamur Title of Degree:	Master of Engineering Practice (Mechanical Engineering)
Abbreviation:	MEngPrac
Home Faculty:	Faculty of Engineering
Engineering Discipline:	Mechanical Engineering
Duration:	1 yr full-time or part-time equivalent
Total Credit Points:	48 credit points
Entry Requirements:	A Bachelor of Engineering degree
Delivery Mode:	Coursework
Starting Session(s):	Autumn/Spring
Standard Course Fee:	\$5,500 (local); \$8750 AUD (International) per session
Location:	Wollongong
UOW Course Code:	590
CRICOS Code:	020204M



## Overview

The Master of Engineering Practice allows practising engineers to build on and update their knowledge, and learn in additional areas to those taken in their first degree. The core subjects develop skills that all practising engineers need, and the choice of electives allows specialisation in the areas such as:

- air conditioning and refrigeration
- applied fluid mechanics
- continuum mechanics
- lubrication and wear
- advanced robotics
- sustainable transport and engine technologies
- sustainable energy in buildings.

The dissertation is a project allowing study in a particular area in depth. The dissertation develops skills in information retrieval, project planning and organisation analysis, problem solving, and effective communication of results.

## Course Program

Subjects	Credit Points
<b>Core Subject</b>	
ENGG950 Innovation and Design	6
ENGG951 Engineering Project Management	6
ENGG952 Engineering Computing	6
Or	
TBS901 Accounting for Managers	6
<b>Elective Subjects</b>	
ENGG940 Dissertation	12
ENGG953 Modelling of Engineering Management Systems	6
MECH926 Applied Fluid Mechanics	6
MECH930 Mechanical Vibration and Condition Monitoring	6
MECH918 Sustainable Energy in Buildings	6
MECH931 Friction, Lubrication and Wear	6
MECH949 Advanced Computer Control of Machines and Processes	6
MECH950 Advanced Robotics	6
MECH979 Sustainable Transport and Engine Technologies	6

*Note: Not all subjects available in any one year – refer Subject Listing.*

## Master of Engineering Practice (Mechatronics)

Testamur Title of Degree:	Master of Engineering Practice (Mechatronic Engineering)
Abbreviation:	MEngPrac
Home Faculty:	Faculty of Engineering
Engineering Discipline:	Mechatronic Engineering
Duration:	1 yr full-time or part-time equivalent
Total Credit Points:	48 credit points
Entry Requirements:	A Bachelor of Engineering degree
Delivery Mode:	Coursework
Starting Session(s):	Autumn/Spring
Standard Course Fee	\$5,500 (local); \$8750 AUD (International) per session
Location:	Wollongong
UOW Course Code:	590
CRICOS Code:	020204M

## Overview

The Master of Engineering Practice allows practising engineers to build on and update their knowledge, and learn in additional areas to those taken in their first degree.

The program is offered jointly by the Faculty of Engineering and the Faculty of Informatics (School of Electrical, Computer and Telecommunications Engineering). The core subjects develop skills that all practising engineers need, and the choice of electives allows specialisation in the areas such as:

- advanced robotics
- advanced laboratory in electrical control
- advanced computer control of machines and processes
- computer controlled systems
- robotics manipulators
- robotics sensory control.

The dissertation is a project allowing study in a particular area in depth. The dissertation develops skills in information retrieval, project planning and organisation analysis, problem solving, and effective communication of results.

### Course Program

Subjects	Credit Points
<b>Core Subject</b>	
ENGG950 Innovation and Design	6
ENGG951 Engineering Project Management	6
ENGG952 Engineering Computing	6
Or	
TBS901 Accounting for Managers	6
<b>Elective Subjects</b>	
ECTE971 Robotics Manipulators	6
ECTE972 Robotics Sensory Control	6
ECTE941 Intelligent Control	6
ECTE942 Computer Controlled Systems	6
ECTE955 Advanced Laboratory	6
ENGG940 Dissertation	12
or	
ECTE953 Report	12
ENGG953 Modelling of Engineering Management Systems	6
MECH950 Advanced Robotics	6

*Note: Not all subjects available in any one year – refer Subject Listing.*

### Master of Engineering Practice (Steel Processing and Products)

Testamur Title of Degree:	Master of Engineering Practice (Steel Processing and Products)
Abbreviation:	MEngPrac
Home Faculty:	Faculty of Engineering
Engineering Discipline:	Materials and Mechanical Engineering
Duration:	1 yr full-time or part-time equivalent
Total Credit Points:	48 credit points
Entry Requirements:	A Bachelor of Engineering degree
Delivery Mode:	Coursework
Starting Session(s):	Autumn/Spring
Standard Course Fee:	\$5,500 (local); \$8750 AUD (International) per session
Location:	Wollongong
UOW Course Code:	590
CRICOS Code:	020204M

### Overview

Candidates would normally be expected to have a Bachelor Degree in Materials or Mechanical Engineering, but a bachelor degree in another appropriate field of engineering or science together with appropriate professional experience would also be accepted.

### Course Program

Subjects	Credit Points
<b>Core Subjects</b>	
ENGG930 Preliminary Topics in Steel Processing and Products	6
TBS950 Quality in Management	6
ENGG931 Steel Products and their Production	6
MGMT933 Management of Process Innovation 1	6
MECH970 Maintenance Management	6
<b>Electives</b>	
ENGG932 Rolling Technology	6
ENGG933 Coating Technology	6
ENGG934 Steelmaking	6
ENGG935 Casting	6
MATL906 Ceramic Materials	6
ENGG936 Control of Steel Processing	6
MGMT915 Management of Change	6

*Note: Not all subjects available in any one year – refer Subject Listing.*

## Master of Science (Medical Radiation Physics)

Testamur Title of Degree:	Master of Science (Medical Radiation Physics)
Abbreviation:	MSc
Home Faculty:	Faculty of Engineering
Engineering School:	Engineering Physics
Duration:	1 yr full-time or part-time equivalent
Total Credit Points:	48 credit points
Entry Requirements:	Completion of an Honours BSc or equivalent with Physics as a major study.
Delivery Mode:	Coursework
Starting Session(s):	Autumn/Spring
Standard Course Fee:	\$9000 (local); \$8900 AUD (International) per session
Location:	Wollongong
UOW Course Code:	574
CRICOS Code:	035592D

### Overview

Candidates who have completed a bachelors degree which does not include a relevant major study will be required to complete additional subjects in Physics as outlined in the Masters Degree regulations. Students who have completed the Bachelor of Medical Radiation Physics from the University of Wollongong, or equivalent specialist course, would be advised to enrol in a Medical Radiation Physics research program.

The course consists of a research project and four subjects.

### Course Program

Subjects	Credit Points
<b>Core Subject</b>	
PHYS951 Medical Physics Research Project	18
PHYS952 Radiation and Radiotherapy Physics	8
PHYS953 Medical Imaging and Nuclear Medicine	8
PHYS954 Radiobiology and Radiation Protection	8
GHMB927 An Introduction to Human Anatomy and Physiology	6

## Graduate Diploma in Engineering

Testamur Title of Degree:	Graduate Diploma in Engineering
Abbreviation:	GradDipEng
Home Faculty:	Faculty of Engineering
Engineering Disciplines:	Civil, Environmental, Materials, Mechanical, Mining
Duration:	1 yr full-time or part-time equivalent
Total Credit Points:	48 credit points
Entry Requirements:	A Bachelor of Engineering degree from a recognised tertiary institution.
Delivery Mode:	Coursework
Starting Session(s):	Autumn/Spring
Standard Course Fee per FT session:	\$4750 (local); \$8750 AUD (international)
Location:	Wollongong
UOW Course Code:	649
CRICOS Code:	009237F

### Overview

The Graduate Diploma in Engineering is intended to provide specialised studies in engineering. It may provide entry to the Masters – Research program for students who do not have the necessary entry qualifications, particularly if studying this discipline for the first time.

Students enrol in one of the following 48 credit point subjects according to their discipline area:

Civil Engineering	CIVL899 Advanced Topics in Engineering
Environmental Engineering	ENVE899 Advanced Topics in Engineering
Materials Engineering	MATL899 Advanced Topics in Engineering

Mechanical Engineering  
Mining Engineering

MECH899 Advanced Topics in Engineering  
MINE899 Advanced Topics in Engineering

## Graduate Diploma in Maintenance Management

Testamur Title of Degree:	Graduate Diploma in Maintenance Management
Abbreviation:	GradDipMtceMgt
Home Faculty:	Faculty of Engineering
Engineering Discipline:	Mechanical Engineering
Duration:	1 yr full-time or part-time equivalent
Total Credit Points:	48 credit points
Entry Requirements:	A Bachelor of Engineering degree from a recognised tertiary institution.
Delivery Mode:	Coursework
Starting Session(s):	Autumn/Spring
Standard Course Fee per FT session:	\$6000 (local); \$8750 AUD (international)
Location:	Wollongong
UOW Course Code:	672
CRICOS Code:	012108M

### Overview

The Graduate Diploma in Engineering is intended to provide specialised studies in Maintenance Management.

Maintenance Managers/Engineers without tertiary qualifications in engineering but with significant industrial experience, will also be considered for admission to a limited number of places.

Students completing the Graduate Diploma in Maintenance Management at the University of Wollongong will have the option to enter into the Master of Engineering Practice (Maintenance Management), with the appropriate credit.

### Course Program

Subjects	Credit Points
<b>Core Subject</b>	
MECH970 Maintenance Management	6
MECH971 Systems Analysis for Maintenance	6
MECH972 Condition Based Maintenance	6
MECH973 Systems Engineering and Life Cycle Management	6
MECH976 Maintenance System Design and Management	6
TBS902 Statistics for Decision Making	6
TBS903 Managing People in Organisations	6
<b>Plus One Elective Subject from below:</b>	
TBS901 Accounting for Managers	6
TBS906 Information Systems for Managers	6

Note: Students may be able to substitute other subjects from the Graduate School of Business (Faculty of Commerce) or Maintenance Management (Faculty of Engineering) depending on background and experience.

## Graduate Diploma in Materials Welding and Joining

Testamur Title of Degree:	Graduate Diploma in Materials Welding and Joining
Abbreviation:	GradDipMWJ
Home Faculty:	Faculty of Engineering
Engineering Discipline:	Materials and Mechanical Engineering
Duration:	1 yr full-time or part-time equivalent
Total Credit Points:	48 credit points
Entry Requirements:	A Bachelor of Engineering degree from a recognised tertiary institution or approved equivalent qualification, prior learning and experience.
Delivery Mode:	Flexible Delivery
Starting Session(s):	Autumn/Spring
Standard Course Fee:	\$5500 (local); \$8750 AUD (international) per session
Location:	Wollongong
UOW Course Code:	CR666
CRICOS Code:	N/A

## Overview

There are 16 modules. Refer to Master of Engineering Practice in Materials Welding and Joining. This course is offered on a flexible delivery basis and is the same as the MEPrac with the exception of the dissertation which is not required.

## Graduate Diploma in Science (Physics)

Testamur Title of Degree:	Graduate Diploma in Science (Physics)
Abbreviation:	GDipSc
Home Faculty:	Faculty of Engineering
Engineering School:	Engineering Physics
Duration:	1 yr full-time or part-time equivalent
Total Credit Points:	48 credit points
Entry Requirements:	A pass Bachelor degree of at least three years' duration in a relevant discipline.
Delivery Mode:	Coursework
Starting Session(s):	Autumn/Spring
Standard Course Fee:	\$6000 (local); \$8750 AUD (International) per session
Location:	Wollongong
UOW Course Code:	650
CRICOS Code:	002363A

## Overview

This course is designed to provide:

- 1) a Masters qualifying course for students who have inadequate preparation for direct entry into the Masters by Research program;
- 2) an opportunity for Science teachers who have a degree, but have taken Physics to first or second year level only, to improve their understanding and horizons in Physics;
- 3) an opportunity for international students and students without a full major in Physics to update their knowledge of Physics.

Students must consult the Physics Discipline Adviser for admission to the course. Forty eight (48) credit points to be chosen from the following list in consultation with the Physics Discipline Adviser.

## Course Program

Subjects		Credit Points
<b>Core Subject</b>		
PHYS205	Advanced Modern Physics	6
PHYS215	Vibrations, Waves and Optics	6
PHYS233	Introduction to Environmental Physics	6
PHYS235	Mechanics and Thermodynamics	6
PHYS255	Radiation Physics	6
PHYS295	Astronomy - Concepts of the Universe	6
MATH201	Multivariate and Vector Calculus*	6
MATH202	Applied Differential Equations*	6
MATH283	Mathematics 2E for Engineers Part 1	6
PHYS305	Quantum Mechanics*	6
PHYS325	Electromagnetism*	6
PHYS335	Classic Mechanics*	6
PHYS365	Detection of Radiation: Neutrons, Electrons and X-Rays	6
PHYS375	Nuclear Physics	6
PHYS385	Statistical Mechanics*	6
PHYS390	Astrophysics	6
PHYS401	Theoretical Mechanics and Electromagnetism	8
PHYS441	Advanced Astrophysics	4
PHYS444	Quantum Mechanics	8
PHYS446	Solid State Physics	8
PHYS452	Medical Imaging	8
PHYS453	Radiobiology and Radiation Protection	8
PHYS456	Imaging Physics	8
PHYS910	Advanced Project in Physics A	6
PHYS947	Special Topics in Physics A	6
PHYS948	Physics of Imaging	6
PHYS960	Advanced Project in Physics B	6
PHYS990	Applied Physics Project	24

Note: Starred subjects are pre- and co-requisites of some of the physics subjects.

## Graduate Certificate in Engineering

Testamur Title of Degree:	Graduate Certificate in Engineering
Abbreviation:	GCertEng
Home Faculty:	Faculty of Engineering
Duration:	6mths part-time equivalent
Total Credit Points:	24 credit points
Entry Requirements:	A Bachelor of Engineering degree from a recognised tertiary institution.
Delivery Mode:	Coursework
Starting Session(s):	Autumn/Spring
Standard Course Fee:	\$5500 (local); \$8750 AUD (international) per session
Location:	Wollongong
UOW Course Code:	695
CRICOS Code:	N/A

### Overview

This program is designed for those wishing to undertake a short program in engineering. Other qualifications, together with relevant professional experience, will be considered.

On completion of the Graduate Certificate, students can apply to transfer to the Master of Engineering Practice.

### Course Program

Subjects	Credit Points
<b>Core Subject</b>	
ENGG950 Innovation and Design	6
ENGG951 Engineering Project Management	6
ENGG952 Engineering Computing	6

Plus one elective subject from one of the Master of Engineering Practice programs.

## Graduate Certificate in Maintenance Management

Testamur Title of Degree:	Graduate Certificate in Maintenance Management
Abbreviation:	GCertMtcMgt
Home Faculty:	Faculty of Engineering
Duration:	6mths part-time equivalent
Total Credit Points:	24 credit points
Entry Requirements:	A Bachelor of Engineering degree from a recognised tertiary institution.
Delivery Mode:	Coursework
Starting Session(s):	Autumn/Spring
Standard Course Fee:	\$6000 (local); \$8750 AUD (international) per session
Location:	Wollongong
UOW Course Code:	1134
CRICOS Code:	032520M

### Overview

This course is designed for those wishing to undertake a short program in Maintenance Management as a stepping stone to other awards. On completion of the Graduate Certificate, students can apply to transfer to the Master of Engineering Practice (Maintenance Management).

Four subjects are usually chosen from the Master of Engineering Practice (Maintenance Management) with approval from the Course Coordinator.