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

Single Degrees

Bachelor of Engineering
Bachelor of Medical Radiation Physics
Bachelor of Science (Materials)
Bachelor of Science (Photonics)
Bachelor of Science (Physics)
Bachelor of Science Advanced (Honours) - Physics

Double Degrees

Bachelor of Engineering - Bachelor of Arts
Bachelor of Engineering - Bachelor of Commerce
Bachelor of Engineering - Bachelor of Computer Science
Bachelor of Engineering - Bachelor of Mathematics
Bachelor of Engineering - Bachelor of Science
Bachelor of Engineering (Mechanical or Mechatronics) – Bachelor of Science (Exercise Science)
Bachelor of Engineering - Bachelor of Laws
Bachelor of Science (Physics) - Bachelor of Mathematics

Refer to the Faculty of Science for the following double degrees:

Bachelor of Arts – Bachelor of Science (Physics)
Bachelor of Commerce – Bachelor of Science (Physics)

Refer to the Faculty of Creative Arts for the following double degree:

Bachelor of Creative Arts – Bachelor of Science (Physics)

Refer to the Faculty of Law for the following double degree:

Bachelor of Law – Bachelor of Science (Physics)

Refer to the Faculty of Informatics for the following double degree:

Bachelor of Engineering (Computer, Electrical or Telecommunications) – Bachelor of Science (Physics)

Bachelor of Engineering

The Bachelor of Engineering is available in the following disciplines:

Civil Engineering
Environmental Engineering
Materials Engineering
Mechanical Engineering
Mechatronic Engineering
Mining Engineering

Course Requirements

The normal full time load for a Bachelor of Engineering is 48 credit points per year and, apart from thesis and professional experience subjects, all subjects have a credit point value of 6. All students must complete the required number of credit points and satisfy all course requirements for a degree or double degree before to graduation – refer to course structures below.

The Bachelor of Engineering normally takes four years to complete, with double majors and double degrees normally taking five years to complete. All students must take particular notice of the Course Rules regarding minimum rate of progress.

Full-time Bachelor of Engineering students must accumulate at least 12 weeks of approved professional experience, documented in the form of employment reports and preferably in the period between the third and fourth years.

Each student must prepare a substantial project (thesis) on a research or design topic under the supervision of an academic staff member. There are two thesis options – ENGG452 Thesis
A (12 credit points) and ENGG453 Thesis B (18 credit points). Students who elect to undertake the 12 credit point thesis will be required to complete an additional 6 credit point elective subject.

The formal contact hours, methods of teaching and learning and forms of assessment vary from subject to subject. Explicit details will be provided to students at the commencement of each subject by the subject coordinator.

Students should attend all classes including lectures, tutorials and laboratory classes.

Scholars Program

Students require a UAI of 93 to enter the Scholars Program in first year. Once accepted to the program students need to achieve a Weighted Average Mark (WAM) of at least 75 each year to maintain a place. Current students can apply for a course transfer to this program after completion of a minimum of 48 credit points. Scholars Program students must complete all requirements for their respective degrees.

Engineering Scholars Program students have the option of undertaking research projects with the various Faculty Research Units. Students should discuss proposals with the Sub Dean or Discipline Adviser before enrolling in any of the following six credit point elective subjects:

ENGG171 Scholars Research Project 1
ENGG271 Scholars Research Project 2
ENGG371 Scholars Research Project 3

Professional Options

The Faculty encourages the development of engineering skills and knowledge gained in the workplace through Professional Options. Students who work in appropriate industries can enrol in Professional Option subjects and count their industry skills and knowledge toward their degree.

Depending on the degree, and subject to approval by the Discipline Adviser, students will be able to take two or three of the following six credit point Professional Option subjects during their course:

ENGG255 Professional Option 2
ENGG355 Professional Option 3
ENGG455 Professional Option 4

Honours

Honours are awarded at the end of the course on the basis of overall performance throughout the course.

Advanced Standing

Applicants holding relevant TAFE Diplomas and Advanced Diplomas with a consistently good performance will normally be granted 48 credit points (one year) of advanced standing. Students are advised to take the maximum number of mathematics and science units available in their TAFE course. Credit may also be given for appropriate work experience or for courses completed in the workplace.

Professional Recognition

The Engineering degrees have been fully recognised by Engineers Australia. This recognition ensures that graduates from these course are admitted, on application, to the grade of Graduate Membership of Engineers Australia.

Study Options – double majors

A number of double engineering majors are available:
Bachelor of Engineering – Civil/Mining
Bachelor of Engineering – Civil/Environmental
Bachelor of Engineering – Mining/Environmental
These programs of study usually take five years to complete. Students may apply to transfer to a double major at the end of the first year of study. Study programs are detailed in the following pages.

Study Options – double degrees

A number of double degrees are offered by the Faculty of Engineering:

- Bachelor of Engineering – Bachelor of Arts
- Bachelor of Engineering – Bachelor of Commerce
- Bachelor of Engineering – Bachelor of Computer Science
- Bachelor of Engineering – Bachelor of Mathematics
- Bachelor of Engineering – Bachelor of Science
- Bachelor of Engineering (Mechanical or Mechatronics) – Bachelor of Science (Exercise Science)
- Bachelor of Science (Physics) – Bachelor of Mathematics

Requirements for each of the double degrees are outlined in the following pages.

Further Studies Options

Graduates can apply for entry to the Master of Engineering Practice, Master of Engineering-Research or PhD. Continual education is a requirement for registration as a professional engineer and most engineers undertake further study and/or short courses. Research opportunities are also available.

Bachelor of Engineering (Civil Engineering)

Testamur Title of Degree:	Bachelor of Engineering (Civil Engineering)
Abbreviation:	BE
Home Faculty:	Faculty of Engineering
Duration:	4 years full-time or part-time equivalent
Total Credit Points:	192
Delivery Mode:	Face-to-face
Starting Session(s):	Autumn/Spring
Standard Course Fee:	HECS (local); International $8,750 per session
Location:	Wollongong
Approx. UAI Entry:	80
Assumed Knowledge:	Any two units of English plus Mathematics
Recommended Studies:	Physics, Chemistry and HSC Mathematics Ext. 1
UOW Course Code:	721
UAC Code:	755611
CRICOS Code:	027466K

Overview

The Civil Engineering course aims to provide students with broad-based knowledge, training, skills and experience in areas required for practice in civil engineering. Upon satisfactory completion of the course students should be able to practise in areas requiring skills for planning, design and construction of buildings and bridges, dams, harbours, water supply systems, waste management systems, airports, roads, tunnels and railways. Graduates, therefore, will be able to integrate technical, planning, organisational, management and financial skills, with an emphasis on those areas as their talents allow.

Study Options

The degree can be combined with Environmental or Mining Engineering in second year. Double degrees are also available.

Course Program

Subject		Session	Credit Points
Year 1			
CHEM103	Chemistry for Engineers	Autumn	6
CIVL196	Engineering Computing 1	Autumn	6
ENGG154	Engineering Design and Innovation	Autumn	6
MATH141	Mathematics 1C Part 1	Autumn	6
or			
MATH187	Mathematics 1A Part 1	Autumn	6
ENGG152	Engineering Mechanics	Spring	6
ENGG153	Engineering Materials	Spring	6
MATH142	Mathematics 1C Part 2	Spring	6
or			
MATH188	Mathematics 1A Part 2	Spring	6
PHYS143	Physics for Engineers	Spring	6
Year 2		**Session**	**Credit Points**
ENGG251	Mechanics of Solids	Autumn	6
ENGG252	Engineering Fluid Mechanics	Autumn	6
ENGG261	Professional Engineers and the Management of Technology	Autumn	6
MATH283	Mathematics 2E for Engineers Part 1	Autumn	6
CIVL245	Construction Materials	Spring	6
CIVL272	Surveying	Spring	6
ECTE290	Fundamentals of Electrical Engineering	Spring	6
EESC252	Geology for Engineers 1	Spring	6
Year 3		**Session**	**Credit Points**
CIVL311	Structural Design 1	Autumn	6
CIVL352	Structures 1	Autumn	6
CIVL361	Geomechanics 1	Autumn	6
CIVL392	Engineering Computing 2	Autumn	6
CIVL314	Structural Design 2	Spring	6
CIVL322	Hydraulics and Hydrology	Spring	6
CIVL394	Construction	Spring	6
ENGG361	Engineering Management	Spring	6
Year 4		**Session**	**Credit Points**
CIVL462	Geomechanics 2	Autumn	6
CIVL489	Roads Engineering	Autumn	6
ENGG461	Project Management and Human Factors in Engineering	Autumn	6
CIVL444	Civil Engineering Design	Spring	6
CIVL454	Structures 2	Spring	6
ENGG452*	Thesis A	Annual	12
or			
ENGG453	Thesis B	Annual	18
ENGG454	Professional Experience		0
Electives listed below**			**Credit Points**
CIVL415	Structural Design 3		6
CIVL457	Structures 3		6
CIVL463	Geomechanics 3		6
CIVL487	Traffic Engineering		6
CIVL491	Engineering Computing 3		6
CIVL495	Public Health Engineering		6
ECON101	Macroeconomic Essentials for Business		6
ECON111	Introductory Microeconomics		6
ECON215	Microeconomic Theory and Policy		6
GEOS231	Environmental Input of Societies		6
GEOS239	Remote Sensing of the Environment		6
GEOS242	Living in Cities		6
EESC254	Geology for Engineers 11		6
MINE311	Surface Mining and Blasting		6

* Students undertaking the 12cp thesis will be required to complete an additional 6cp elective.

** Electives may not be available every year – check subject timetable.

Bachelor of Engineering (Environmental Engineering)

Testamur Title of Degree:	Bachelor of Engineering (Environmental Engineering)
Abbreviation:	BE
Home Faculty:	Faculty of Engineering
Duration:	4 years full-time or part-time equivalent
Total Credit Points:	192
Delivery Mode:	Face-to-face
Starting Session(s):	Autumn/Spring
Standard Course Fee:	HECS (local); International $8,750 per session
Location:	Wollongong
Approx. UAI Entry:	80
Assumed Knowledge:	Any two units of English plus Mathematics
Recommended Studies:	Physics, Chemistry and HSC Mathematics Ext. 1
UOW Course Code:	733
UAC Code:	755612
CRICOS Code:	027466K

Overview

The Environmental Engineering course aims to provide students with broad based knowledge, training, skills and experience in areas required for practice in environmental engineering.

Study Options

The degree can be combined with Civil or Mining Engineering in second year. Double degrees are also available.

Course Program

Subject		Session	Credit Points
Year 1			
CHEM103	Chemistry for Engineers	Autumn	6
CIVL196	Engineering Computing 1	Autumn	6
ENGG154	Engineering Design and Innovation	Autumn	6
MATH141	Mathematics 1C Part 1	Autumn	6
or			
MATH187	Mathematics 1A Part 1	Autumn	6
ENGG152	Engineering Mechanics	Spring	6
ENGG153	Engineering Materials	Spring	6
MATH142	Mathematics 1C Part 2	Spring	6
or			
MATH188	Mathematics 1A Part 2	Spring	6
PHYS143	Physics for Engineers	Spring	6
Year 2			
ENGG251	Mechanics of Solids	Autumn	6
ENGG252	Engineering Fluid Mechanics	Autumn	6
ENGG261	Professional Engineers and the Management of Technology	Autumn	6
MATH283	Mathematics 2E for Engineers Part 1	Autumn	6
CHEM214	Analytical and Environmental Chemistry	Spring	6
CIVL272	Surveying	Spring	6
ENVE220	Water Quality Engineering	Spring	6
ENVE221	Air and Noise Pollution	Spring	6
Year 3			
BIOL352	Biology for Environmental Engineers	Autumn	6
CIVL361	Geomechanics 1	Autumn	6
ENVE320	Environmental Engineering Design 1	Autumn	6
plus	1 elective	Autumn	6
CIVL322	Hydraulics and Hydrology	Spring	6
ENGG361	Engineering Management	Spring	6
ENVE311	Pollution Control and Cleaner Production	Spring	6
ENVE321	Solid and Hazardous Waste Management	Spring	6
Year 4			
CIVL462	Geomechanics 2	Autumn	6
ENGG461	Project Management and Human Factors in Engineering	Autumn	6
ENVE410	Site Remediation	Spring	6
ENVE421	Environmental Design 2	Spring	6
ENGG452*	Thesis A	Annual	12
or			
ENGG453	Thesis B	Annual	18
ENGG454	Professional Experience		0
plus	2 electives	Aut/Spr	12

Electives listed below**

ACCY100	Accounting 1A	6
CIVL392	Engineering Computing 2	6
CIVL394	Construction	6
CIVL463	Geomechanics 3	6
CIVL487	Traffic Engineering	6
CIVL489	Roads Engineering	6
ECON101	Macroeconomic Essentials for Business	6
ECON111	Introductory Microeconomics	6
ENVE420	Water Engineering	6
ENVE422	Membrane Science and Technology	6
GEOS231	Environmental Impact of Societies	6
GEOS239	Remote Sensing of the Environment	6
GEOS251	Geology for Engineers 1	6
LAW100	Law in Society	6
LAW210	Contract Law	6
LAW334	Environmental Law	6
MECH341	Thermodynamics	6
MECH343	Heat Transfer and Gas Dynamics	6
MECH378	Sustainable Energy Technologies	6
MECH417	Biomedical Engineering	6
MECH438	Sustainable Transport and Engine Technologies	6
MECH474	Systems Engineering and Life Cycle Management	6
STS216	Environment and Technology	6
STS306	Special Topics on the Social and Policy Aspects of Engineering	6
STS376	The Politics of Risk	6

* Students undertaking the 12cp thesis will be required to complete an additional 6cp elective.
** Electives may not be available every year – check subject timetable. Students are encouraged to take MECH378 as the third year elective and ENVE420 as one of the fourth year electives.

Bachelor of Engineering (Materials Engineering)

Testamur Title of Degree:	Bachelor of Engineering (Materials Engineering)
Abbreviation:	BE
Home Faculty:	Faculty of Engineering
Duration:	4 years full-time or part-time equivalent
Total Credit Points:	192
Delivery Mode:	Face-to-face
Starting Session(s):	Autumn/Spring
Standard Course Fee:	HECS (local); International $8,750 per session
Location:	Wollongong
Approx. UAI Entry:	80
Assumed Knowledge:	Any two units of English plus Mathematics
Recommended Studies:	Physics, Chemistry and HSC Mathematics Ext. 1
UOW Course Code:	732
UAC Code:	755613
CRICOS Code:	027466K

Overview

The objective of the Materials Engineering course is to provide students with the knowledge and skills necessary for the design, development, production and application of engineering materials for gainful use by society. This objective is achieved through detailed study of the relationships between the structure, processing and properties of materials. The course is also designed to provide training in effective communication, management and teamwork skills, and the environmental sensitivity required of modern engineers.

Study Options

In the final year, students can choose a series of elective subjects from a number of specialist areas: Materials Science and Technology, Metallurgical Processing or Materials Manufacturing. Double degrees are also available.

Course Program

Subject		Session	Credit Points
Year 1			
CHEM103	Chemistry for Engineers	Autumn	6
ENGG154	Engineering Design and Innovation	Autumn	6
ENGG261	Professional Engineers and the Management of Technology	Autumn	6
MATH141	Mathematics 1C Part 1	Autumn	6
or			
MATH187	Mathematics 1A Part 1	Autumn	6
ENGG152	Engineering Mechanics	Spring	6
ENGG153	Engineering Materials	Spring	6
MATH142	Mathematics 1C Part 2	Spring	6
or			
MATH188	Mathematics 1A Part 2	Spring	6
PHYS143	Physics for Engineers	Spring	6
Year 2			
MATE201	Structure and Properties of Materials	Autumn	6
MATE202	Thermodynamics and Phase Equilibria	Autumn	6
MATE291	Engineering Computing and Laboratory Skills	Autumn	6
MATH283	Mathematics 2E for Engineers Part 1	Autumn	6
ECTE290	Fundamentals of Electrical Engineering	Spring	6
MATE203	Phase Transformations	Spring	6
MATE204	Mechanical Behaviour and Fracture	Spring	6
MATE304	Transport Phenomena in Materials Processing	Spring	6
Year 3			
ENGG251	Mechanics of Solids	Autumn	6
MATE301	Engineering Alloys	Autumn	6
MATE302	Polymeric Materials	Autumn	6
MATE391	Materials Testing Techniques	Autumn	6
ENGG361	Engineering Management	Spring	6
MATE303	Ceramics, Glass and Refractories	Spring	6
MATE305	Primary Materials Processing	Spring	6
MATE306	Degradation of Engineering Materials	Spring	6
Year 4			
ENGG461	Project Management and Human Factors in Engineering	Autumn	6
MATE401	Selection of Materials in Engineering Design	Autumn	6
MATE402	Secondary Materials Processing	Spring	6
ENGG452*	Thesis A	Annual	12
or			
ENGG453	Thesis B	Annual	18
ENGG454	Professional Experience		0
plus	3 electives	Aut/Spr	18

Electives listed below**

Materials Science and Technology

MATE411	Advanced Materials and Processing	6
MATE412	Electronic Materials	6
MATE413	Structural Characterisation Techniques	6
MATE433	Surface Engineering	6

Metallurgical Processing

MINE421	Minerals Beneficiation	6
MATE421	Metallurgical Process Engineering	6
MATE422	Iron and Steelmaking	6
MATE432	Mechanical and Thermal Processing	6

Materials Manufacturing

ENGG434	Introduction to Materials Welding and Joining	6
MATE431	Sheet Metal Processing	6
MATE432	Mechanical and Thermal Processing	6
MATE433	Surface Engineering	6

* Students undertaking the 12cp thesis will be required to complete an additional 6cp elective.

** Electives may not be available every year – check subject timetable.

Bachelor of Engineering (Mechanical Engineering)

Testamur Title of Degree:	Bachelor of Engineering (Mechanical Engineering)
Abbreviation:	BE
Home Faculty:	Faculty of Engineering
Duration:	4 years full-time or part-time equivalent
Total Credit Points:	192
Delivery Mode:	Face-to-face
Starting Session(s):	Autumn/Spring
Standard Course Fee:	HECS (local); International $8,750 per session
Location:	Wollongong
Approx. UAI Entry:	80
Assumed Knowledge:	Any two units of English plus Mathematics
Recommended Studies:	Physics, Chemistry and HSC Mathematics Ext. 1
UOW Course Code:	723
UAC Code:	755614
CRICOS Code:	027466K

Overview

The aim of this course is to give high quality academic training in mechanical engineering and to produce graduates with the core skills, knowledge and attributes required to practice as professional engineers. These required graduate skills/attributes are transferable to a wide range of careers and include: ability to formulate and solve problems; a creative approach to design and synthesis; excellent oral and written communication skills; ability to work effectively in teams; appreciation of the environmental, social and business contexts of Mechanical Engineering; independent and self-motivated approach; understanding and commitment to lifelong learning; and in-depth technical competence in the Mechanical Engineering discipline.

Study Options

Students can select electives from a number of specialist areas in their final year including, Sustainable Energy and Engineering Systems, Manufacturing Engineering, Applied Mechanics and Bulk Materials Handling. The list of electives on offer in any one year varies somewhat, depending on staff availability and other factors. Double degrees are also available.

Course Program

Subject		Session	Credit Points
Year 1			
CHEM103	Chemistry for Engineers	Autumn	6
ENGG154	Engineering Design and Innovation	Autumn	6
MATH141	Mathematics 1C Part 1	Autumn	6
or			
MATH187	Mathematics 1A Part 1	Autumn	6
MECH152	Engineering Computing, Instrumentation and Workshop Practice	Autumn	6
ENGG152	Engineering Mechanics	Spring	6
ENGG153	Engineering Materials	Spring	6
MATH142	Mathematics 1C Part 2	Spring	6
or			
MATH188	Mathematics 1A Part 2	Spring	6
PHYS143	Physics for Engineers	Spring	6
Year 2			
ENGG251	Mechanics of Solids	Autumn	6
ENGG252	Engineering Fluid Mechanics	Autumn	6
ENGG261	Professional Engineers and the Management of Technology	Autumn	6
MATH283	Mathematics 2E for Engineers Part 1	Autumn	6
ECTE290	Fundamentals of Electrical Engineering	Spring	6
MECH201	Engineering Analysis	Spring	6
MECH215	Fundamentals of Machine Component Design	Spring	6
MECH226	Machine Dynamics	Spring	6
Year 3			
MECH311	Mechanical Engineering Design	Autumn	6
MECH321	Dynamics of Engineering Systems	Autumn	6
MECH341	Thermodynamics	Autumn	6
MECH382	Manufacturing Engineering Principles	Autumn	6
ENGG361	Engineering Management	Spring	6
MECH343	Heat Transfer and Aerodynamics	Spring	6
MECH365	Control of Machines and Processes	Spring	6
MECH372	Solids Handling and Process Engineering	Spring	6

Year 4

ENGG461	Project Management and Human Factors in Engineering	Autumn	6
ENGG452*	Thesis A	Annual	12
or			
ENGG453	Thesis B	Annual	18
ENGG454	Professional Experience		0
plus	5 electives	Aut/Spr	30

Electives**

Sustainable Energy and Engineering Systems

MECH378	Sustainable Energy Technologies	6
MECH442	Sustainable Energy in Buildings	6
MECH474	Systems Engineering and Life Cycle Management	6
MECH479	Sustainable Transport and Engine Technologies	6

Applied Mechanics

MECH417	Biomedical Engineering	6
MECH418	Mechanical Behaviour of Engineering Materials	6
MECH419	Finite Element Methods in Engineering	6
MECH420	Engineering Stress Analysis	6
MECH430	Automotive Dynamics	6
MECH431	Computational Fluid Dynamics	6
MECH438	Fluid Power	6

Bulk Materials Handling

MECH426	Storage and Flow of Bulk Solids	6
MECH427	Mechanical Conveying of Bulk Solids	6
MECH428	Pneumatic Conveying and Dust Control	6
MECH429	Physical Processing of Bulk Solids	6

Manufacturing

MECH421	Manufacturing Process Analysis	6
MECH422	Design and Analysis of Manufacturing Systems	6
MECH423	Design for Manufacturing	6
MECH424	Managing Manufacturing Activities	6
MECH468	Computer Control of Machines and Processes	6
MECH481	Materials Welding and Joining (special topics in Mechanical Engineering 1)	6
MECH487	Systems Analysis for Maintenance Management	6
MECH488	Introduction to Condition Monitoring in Mechanical Engineering	6
MECH489	Maintenance Management	6
ECTE494	Robotics	6

* Students undertaking the 12cp thesis will be required to complete an additional 6cp elective.
** Not all electives may be available each year – check subject timetable. Electives may be taken in other departments, subject to written approval by the Discipline Adviser (maximum of two for full-time and one for part-time students).

Bachelor of Engineering (Mechatronics)

Testamur Title of Degree:	Bachelor of Engineering (Mechatronic Engineering)
Abbreviation:	BE
Home Faculty:	Faculty of Engineering
Duration:	4 years full-time or part-time equivalent
Total Credit Points:	192
Delivery Mode:	Face-to-face
Starting Session(s):	Autumn/Spring
Standard Course Fee:	HECS (local); International $8,750 per session
Location:	Wollongong
Approx. UAI Entry:	80
Assumed Knowledge:	Any two units of English plus Mathematics
Recommended Studies:	Physics, Chemistry and HSC Mathematics Ext. 1
UOW Course Code:	759
UAC Code:	755616
CRICOS Code:	027466K

Overview

Mechatronics is the combination of Mechanical, Electrical and Computer technologies. It is a relatively new field of engineering with many exciting developments such as internet control of machines, autonomous robots and engine management systems. In addition, the aim of the program is to produce graduates with the core skills, knowledge and attributes that will help them excel as professional engineers. These skills and attributes include: the ability to formulate and solve problems; a creative

approach to design and synthesis; excellent oral and written communication skills; ability to work effectively in teams; appreciation of the environmental, social and business contexts of Engineering; independent and self-motivated approach; understanding and commitment to lifelong learning; and in-depth technical competence in the field of Mechatronic Engineering.

Study Options

Double degrees are also available.

Course Program

Subject		Session	Credit Points
Year 1			
CSCI1114	Procedural Programming	Autumn	6
ENGG261	Professional Engineers and the Management of Technology	Autumn	6
ENGG154	Engineering Design and Innovation	Autumn	6
MATH141	Mathematics 1C Part 1	Autumn	6
or			
MATH187	Mathematics 1A Part 1	Autumn	6
ECTE101	Electrical Engineering 1	Spring	6
ENGG152	Engineering Mechanics	Spring	6
MATH142	Mathematics 1C Part 2	Spring	6
or			
MATH188	Mathematics 1A Part 2	Spring	6
PHYS142	Fundamentals of Physics B	Spring	6
Year 2			
ECTE202	Circuits and Systems	Annual	6
ECTE233	Digital Hardware 1	Autumn	6
ENGG251	Mechanics of Solids	Autumn	6
MATH283	Mathematics 2E for Engineers Part 1	Autumn	6
ENGG153	Engineering Materials	Spring	6
ECTE212	Electronics and Communications	Spring	6
MECH215	Fundamentals of Machine Component Design	Spring	6
MECH266	Machine Dynamics	Spring	6
Year 3			
ECTE313	Electronics	Annual	6
ECTE371	Mechatronics Design	Annual	6
ECTE344	Control Theory	Autumn	6
MECH311	Mechanical Engineering Design	Autumn	6
MECH382	Manufacturing Engineering Principles	Autumn	6
ECTE301	Digital Signal Processing 1	Spring	6
ECTE333	Digital Hardware 2	Spring	6
plus	1 elective	Spring	6
Year 4			
ECTE323	Power Engineering 2	Autumn	6
ENGG461	Project Management and Human Factors in Engineering	Autumn	6
MECH440	Fluid and Heat Transfer	Autumn	6
ECTE494	Robotics	Spring	6
ENGG452*	Thesis A	Annual	12
or			
ENGG453	Thesis B	Annual	18
or			
ECTE457	Thesis	Annual	18
ENGG454	Professional Experience		0
Plus	2 electives**	Spring	12

* Students undertaking the 12cp thesis will be required to complete an additional 6cp elective.
**Electives are chosen from the list of electives on offer in the Faculties of Engineering and Informatics. The final year study program is to be determined in consultation with the Discipline Adviser.

Bachelor of Engineering (Mining Engineering)

Testamur Title of Degree:	Bachelor of Engineering (Mining Engineering)
Abbreviation:	BE (Mine)
Home Faculty:	Faculty of Engineering
Duration:	4 years full-time or part-time equivalent
Total Credit Points:	192
Delivery Mode:	Face-to-face
Starting Session(s):	Autumn/Spring
Standard Course Fee:	HECS (local); International $8,750 per session
Location:	Wollongong
Approx. UAI Entry:	80
Assumed Knowledge:	Any two units of English plus Mathematics
Recommended Studies:	Physics, Chemistry and HSC Mathematics Ext. 1
UOW Course Code:	724
UAC Code:	755615
CRICOS Code:	027466K

Overview

The Mining Engineering course aims to provide students with broad-based knowledge, training, skills and experience in areas required for practice in mining engineering. Upon satisfactory completion of the course students should be able to practice in areas requiring skills for mine planning and design, rock excavation, water and gas drainage and mine environment control. Graduates therefore, will be able to integrate technical, planning, organisational, management and financial skills with an emphasis on those areas as their talents allow.

Study Options

The degree can be combined with Environmental or Civil Engineering in second year. Double degrees are also available.

Course Program

Subject		Session	Credit Points
Year 1			
CHEM103	Chemistry for Engineers	Autumn	6
CIVL196	Engineering Computing 1	Autumn	6
ENGG154	Engineering Design and Innovation	Autumn	6
MATH141	Mathematics 1C Part 1	Autumn	6
or			
MATH187	Mathematics 1A Part 1	Autumn	6
ENGG152	Engineering Mechanics	Spring	6
ENGG153	Engineering Materials	Spring	6
MATH142	Mathematics 1C Part 2	Spring	6
or			
MATH188	Mathematics 1A Part 2	Spring	6
PHYS143	Physics for Engineers	Spring	6
Year 2			
ENGG251	Mechanics of Solids	Autumn	6
ENGG252	Engineering Fluid Mechanics	Autumn	6
ENGG261	Professional Engineers and the Management of Technology	Autumn	6
MATH283	Mathematics 2E for Engineers Part 1	Autumn	6
MINE221	Underground Coal Mining	Autumn	6
CIVL272	Surveying	Spring	6
ECTE290	Fundamentals of Electrical Engineering	Spring	6
GEOS251	Geology for Engineers 1	Spring	6
Year 3			
CIVL361	Geomechanics 1	Autumn	6
MINE312	Mine Ventilation	Autumn	6
plus	1 elective	Autumn	6
MINE311	Surface Mining and Blasting	Spring	6
ENGG361	Engineering Management	Spring	6
EESC252	Geology for Engineers 2	Spring	6
MINE321	Underground Metal Mining	Spring	6
MINE323	Mining Geomechanics	Spring	6
Year 4			
ENGG461	Project Management and Human Factors in Engineering	Autumn	6
MINE411	Health and Safety in Mines	Autumn	6
MINE421	Minerals Beneficiation	Autumn	6
MINE412	Mining Economics	Spring	6
MINE422	Mine Planning and Development	Spring	6
plus	1 elective	Spring	6
ENGG452*	Thesis A	Annual	12
or			

ENGG453	Thesis B	Annual	18
ENGG454	Professional Experience		0
Electives listed below**			
CIVL392	Engineering Computing 2		6
ECON101	Macroeconomic Essentials for Business		6
ECON111	Introductory Microeconomics		6
ECON215	Microeconomic Theory and Policy		6
EESC306	Resources and Environment		6
MINE431	Mine Water		6
MINE433	Geostatistical Ore Reserve Estimation		6
MINE434	Special Topics in Mining Engineering		6
MINE438	Environmental Impact of Minerals Operation		6

* Students undertaking the 12cp thesis will be required to complete an additional 6cp elective.
** Electives may not be available every year – check subject timetable.

Bachelor of Engineering (Civil and Mining Engineering)

Testamur Title of Degree:	Bachelor of Engineering (Civil and Mining Engineering)
Abbreviation:	BE
Home Faculty:	Faculty of Engineering
Duration:	5 years full-time or part-time equivalent
Total Credit Points:	246
Delivery Mode:	Face-to-face
Starting Session(s):	Autumn/Spring
Standard Course Fee:	HECS (local); International $8,750 per session
Location:	Wollongong
Approx. UAI Entry:	Entry Year 2 and 65+ WAM
Assumed Knowledge:	Any two units of English plus Mathematics
Recommended Studies:	Physics, Chemistry and HSC Mathematics Ext. 1
UOW Course Code:	726
UAC Code:	NA
CRICOS Code:	006984F

Overview

Refer to the descriptions for both the Civil and Mining Engineering programs above.

Course Program

Subject		Session	Credit Points
Year 1			
CHEM103	Chemistry for Engineers	Autumn	6
CIVL196	Engineering Computing 1	Autumn	6
ENGG154	Engineering Design and Innovation	Autumn	6
MATH141	Mathematics 1C Part 1	Autumn	6
or			
MATH187	Mathematics 1A Part 1	Autumn	6
ENGG152	Engineering Mechanics	Spring	6
ENGG153	Engineering Materials	Spring	6
MATH142	Mathematics 1C Part 2	Spring	6
or			
MATH188	Mathematics 1A Part 2	Spring	6
PHYS143	Physics for Engineers	Spring	6
Year 2			
ENGG251	Mechanics of Solids	Autumn	6
ENGG252	Engineering Fluid Mechanics	Autumn	6
ENGG261	Professional Engineers and the Management of Technology	Autumn	6
MATH283	Mathematics 2E for Engineers Part 1	Autumn	6
MINE221	Underground Coal Mining	Autumn	6
CIVL245	Construction Materials	Spring	6
CIVL272	Surveying	Spring	6
ECTE290	Fundamentals of Electrical Engineering	Spring	6
EESC252	Geology for Engineers 1	Spring	6
Year 3			
CIVL361	Geomechanics 1	Autumn	6
CIVL392	Engineering Computing 2	Autumn	6
MINE312	Mine Ventilation	Autumn	6
CIVL394	Construction	Spring	6
EESC254	Geology for Engineers 2	Spring	6

ENGG361	Engineering Management	Spring	6
MINE311	Surface Mining and Blasting	Spring	6
Year 4			
CIVL311	Structural Design 1	Autumn	6
CIVL352	Structures 1	Autumn	6
MINE411	Health and Safety in Mines	Autumn	6
ENGG461	Project Management and Human Factors in Engineering	Autumn	6
CIVL314	Structural Design 2	Spring	6
CIVL322	Hydraulics and Hydrology	Spring	6
MINE412	Mining Economics	Spring	6
MINE421	Minerals Beneficiation	Spring	6
Year 5			
CIVL462	Geomechanics 2	Autumn	6
CIVL489	Roads Engineering	Autumn	6
CIVL444	Civil Engineering Design	Spring	6
CIVL454	Structures 2	Spring	6
MINE422	Mine Planning and Development	Spring	6
ENGG452*	Thesis A	Annual	12
or			
ENGG453	Thesis B	Annual	18
ENGG454	Professional Experience		0

* Students undertaking the 12cp thesis will be required to complete an additional 6cp elective.

Bachelor of Engineering (Civil and Environmental Engineering)

Testamur Title of Degree:	Bachelor of Engineering (Civil and Environmental Engineering)
Abbreviation:	BE
Home Faculty:	Faculty of Engineering
Duration:	5 years full-time or part-time equivalent
Total Credit Points:	246
Delivery Mode:	Face-to-face
Starting Session(s):	Autumn/Spring
Standard Course Fee:	HECS (local); International $8,750 per session
Location:	Wollongong
Approx. UAI Entry:	Entry Year 2 and 65+ WAM
Assumed Knowledge:	Any two units of English plus Mathematics
Recommended Studies:	Physics, Chemistry and HSC Mathematics Ext. 1
UOW Course Code:	721A
UAC Code:	NA
CRICOS Code:	006984F

Overview

Refer to the descriptions for both the Civil and Environmental Engineering programs above.

Course Program

Subject		Session	Credit Points
Year 1			
CHEM103	Chemistry for Engineers	Autumn	6
CIVL196	Engineering Computing 1	Autumn	6
ENGG154	Engineering Design and Innovation	Autumn	6
MATH141	Mathematics 1C Part 1	Autumn	6
or			
MATH187	Mathematics 1A Part 1	Autumn	6
ENGG152	Engineering Mechanics	Spring	6
ENGG153	Engineering Materials	Spring	6
MATH142	Mathematics 1C Part 2	Spring	6
or			
MATH188	Mathematics 1A Part 2	Spring	6
PHYS143	Physics for Engineers	Spring	6
Year 2			
ENGG251	Mechanics of Solids	Autumn	6
ENGG252	Engineering Fluid Mechanics	Autumn	6
ENGG261	Professional Engineers and the Management of Technology	Autumn	6
MATH283	Mathematics 2E for Engineers Part 1	Autumn	6
CIVL245	Construction Materials	Spring	6
CIVL272	Surveying	Spring	6
ECTE290	Fundamentals of Electrical Engineering	Spring	6
EESC252	Geology for Engineers 1	Spring	6

ENVE220	Water Quality Engineering	Spring	6
Year 3			
CIVL361	Geomechanics 1	Autumn	6
CIVL392	Engineering Computing 2	Autumn	6
BIOL352	Biology for Environmental Engineers	Autumn	6
ENVE311	Pollution Control and Cleaner Production	Autumn	6
CHEM214	Analytical and Environmental Chemistry	Spring	6
CIVL394	Construction	Spring	6
ENVE221	Air and Noise Pollution	Spring	6
ENGG361	Engineering Management	Spring	6
Year 4			
CIVL311	Structural Design 1	Autumn	6
CIVL352	Structures 1	Autumn	6
ENVE320	Environmental Engineering Design 1	Autumn	6
ENGG461	Project Management and Human Factors in Engineering	Autumn	6
CIVL314	Structural Design 2	Spring	6
CIVL322	Hydraulics and Hydrology	Spring	6
ENVE321	Solid and Hazardous Waste Management	Spring	6
Year 5			
CIVL489	Roads Engineering	Autumn	6
CIVL454	Structures 2	Autumn	6
CIVL444	Civil Engineering Design	Spring	6
CIVL462	Geomechanics 2	Spring	6
ENVE410	Site Remediation	Spring	6
ENVE421	Environmental Design 2	Spring	6
ENGG452*	Thesis A	Annual	12
or			
ENGG453	Thesis B	Annual	18
ENGG454	Professional Experience		0

* Students undertaking the 12cp thesis will be required to complete an additional 6cp elective.

Bachelor of Engineering (Mining and Environmental Engineering)

Testamur Title of Degree:	Bachelor of Engineering (Mining and Environmental Engineering)
Abbreviation:	BE
Home Faculty:	Faculty of Engineering
Duration:	5 years full-time or part-time equivalent
Total Credit Points:	246
Delivery Mode:	Face-to-face
Starting Session(s):	Autumn/Spring
Standard Course Fee:	HECS (local); International $8,750 per session
Location:	Wollongong
Approx. UAI Entry:	Entry Year 2 and 65+ WAM
Assumed Knowledge:	Any two units of English plus Mathematics
Recommended Studies:	Physics, Chemistry and HSC Mathematics Ext. 1
UOW Course Code:	724A
UAC Code:	NA
CRICOS Code:	006984F

Overview

Refer to the descriptions for both the Environmental and Mining Engineering programs above.

Course Program

Subject		Session	Credit Points
Year 1			
CHEM103	Chemistry for Engineers	Autumn	6
CIVL196	Engineering Computing 1	Autumn	6
ENGG154	Engineering Design and Innovation	Autumn	6
MATH141	Mathematics 1C Part 1	Autumn	6
or			
MATH187	Mathematics 1A Part 1	Autumn	6
ENGG152	Engineering Mechanics	Spring	6
ENGG153	Engineering Materials	Spring	6
MATH142	Mathematics 1C Part 2	Spring	6
or			
MATH188	Mathematics 1A Part 2	Spring	6
PHYS143	Physics for Engineers	Spring	6

Year 2			
ENGG251	Mechanics of Solids	Autumn	6
ENGG252	Engineering Fluid Mechanics	Autumn	6
ENGG261	Professional Engineers and the Management of Technology	Autumn	6
MATH283	Mathematics 2E for Engineers Part 1	Autumn	6
ECTE290	Fundamentals of Electrical Engineering	Spring	6
ENVE220	Water Quality Engineering	Spring	6
GEOS251	Geology for Engineers 1	Spring	6
MINE221	Underground Coal Mining	Spring	6
Year 3			
CIVL361	Geomechanics 1	Autumn	6
CIVL392	Engineering Computing 2	Autumn	6
BIOL352	Biology for Environmental Engineers	Autumn	6
ENVE311	Pollution Control and Cleaner Production	Autumn	6
CHEM214	Analytical and Environmental Chemistry	Spring	6
CIVL272	Surveying	Spring	6
ENVE221	Air and Noise Pollution	Spring	6
GEOS252	Geology for Engineers 2	Spring	6
Year 4			
ENVE320	Environmental Engineering Design 1	Autumn	6
MINE311	Surface Mining and Blasting	Autumn	6
MINE411	Health and Safety in Mines	Autumn	6
ENGG361	Engineering Management	Spring	6
ENVE321	Solid and Hazardous Waste Management	Spring	6
CIVL322	Hydraulics and Hydrology	Spring	6
MINE321	Underground Metal Mining	Spring	6
MINE323	Mining Geomechanics	Spring	6
Year 5			
ENGG461	Project Management and Human Factors in Engineering	Autumn	6
MINE312	Mine Ventilation	Autumn	6
MINE421	Minerals Beneficiation	Autumn	6
ENVE410	Site Remediation	Spring	6
ENVE421	Environmental Design 2	Spring	6
MINE412	Mining Economics	Spring	6
MINE422	Mine Planning and Development	Spring	6
ENGG452*	Thesis A	Annual	12
Or			
ENGG453	Thesis B	Annual	18
ENGG454	Professional Experience		0

* Students undertaking the 12cp thesis will be required to complete an additional 6cp elective.

Bachelor of Medical Radiation Physics

Testamur Title of Degree:	Bachelor of Medical Radiation Physics
Abbreviation:	BMedRadPhys
Home Faculty:	Faculty of Engineering
Duration:	4 years full-time or part-time equivalent
Total Credit Points:	192
Delivery Mode:	Face-to-face
Starting Session(s):	Autumn/Spring
Standard Course Fee:	HECS (local); International $8,900 per session
Location:	Wollongong
Approx. UAI Entry:	85
Assumed Knowledge:	Any two units of English plus Physics and Mathematics
Recommended Studies:	English Advanced, Chemistry and HSC Mathematics Ext. 1
UOW Course Code:	784
UAC Code:	757616
CRICOS Code:	032584F

Overview

The Bachelor of Medical Radiation Physics degree is designed to produce graduates (with a strong background in physics) with the specialist skills in Medical Radiation Physics necessary to find employment in hospitals, research or industry.

Students will gain knowledge in areas relating to nuclear medicine, radiation physics, detector and instrumentation physics and data analysis. Graduates working in the area require both a theoretical background and practical skills in physics with an emphasis on advanced knowledge and practice in specialist areas applicable to medical physics.

Professional medical physicists from major hospitals in the State will deliver key lectures and practical work as well as co-supervising thesis work. Students will find that they will move easily into employment and/or postgraduate work in this specialised area.

Course Requirements

All students must complete the required number of credit points and satisfy all course requirements for the degree – refer to course structure below. The Bachelor of Medical Radiation Physics normally takes four years to complete. All students must take particular notice of the Course Rules regarding minimum rate of progress.

The formal contact hours, methods of teaching and learning and forms of assessment vary from subject to subject. Details will be provided to students at the commencement of each subject by the subject coordinator. Students should attend all classes including lectures, tutorials and laboratory classes.

Honours

This four-year degree will be awarded at either Pass or Honours level, depending on the student's performance throughout the degree.

Professional Recognition

The Bachelor of Medical Radiation Physics degree conforms to the requirements for membership of the Australian Institute of Physics.

Course Program

Subject		Session	Credit Points
Year 1			
BMS101	Systemic Anatomy	Autumn	6
MATH187	Mathematics 1A Part 1	Autumn	6
PHYS141	Fundamentals Physics A	Autumn	6
BMS112	Human Physiology	Spring	6
MATH188	Mathematics 1A Part 2	Spring	6
PHYS142	Fundamentals Physics B	Spring	6
plus	2 electives		12
Year 2			
MATH201	Multivariate and Vector Calculus	Autumn	6
MATH253	Linear Algebra	Autumn	4
PHYS205	Advanced Modern Physics	Autumn	6
PHYS235	Mechanics and Thermodynamics	Autumn	6
MATH291	Differential Equations	Spring	3
PHYS215	Vibrations, Waves and Optics	Spring	6
PHYS225	Electromagnetism and Optoelectronics	Spring	6
PHYS255	Radiation Physics	Spring	6
Year 3			
PHYS305	Quantum Mechanics	Autumn	6
PHYS325	Electromagnetism	Autumn	6
PHYS365	Detection of Radiation: Neutrons, Electrons and X-Rays	Autumn	6
PHYS366	Physics of Radiotherapy	Autumn	6
PHYS375	Nuclear Physics	Spring	6
PHYS385	Statistical Mechanics	Spring	6
PHYS396	Electronic Materials	Spring	6
plus	1 elective		6
Year 4			
PHYS451	Nuclear Medicine	Annual	8
PHYS452	Medical Imaging	Annual	8
PHYS453	Radiobiology and Radiation Protection	Spring	8
PHYS457	Research Project	Aut/Spr	24

Bachelor of Science (Materials)

Testamur Title of Degree:	Bachelor of Science (Materials)
Abbreviation:	BSc
Home Faculty:	Faculty of Engineering
Duration:	3 years full-time or part-time equivalent
Total Credit Points:	144
Delivery Mode:	Face-to-face
Starting Session(s):	Autumn/Spring
Standard Course Fee:	HECS (local); International $8,750 per session
Location:	Wollongong
Approx. UAI Entry:	75
Assumed Knowledge:	Any two units of English plus Mathematics
Recommended Studies:	HSC Mathematics Ext. 1 plus Chemistry or Physics
UOW Course Code:	757
UAC Code:	757636
CRICOS Code:	031274F

Overview

The objective of the Materials Science course is to provide the scientific knowledge and technical skills necessary for a successful materials based career in areas such as quality control and laboratory testing, materials process control, and research and development in government and private sector laboratories. It also provides an ideal basis for those who wish to pursue a career in secondary teaching. The core materials subjects involve detailed study of the structure of properties of metals, ceramics and polymers.

Course Requirements

All students must complete the required number of credit points and satisfy all course requirements for the degree – refer to course structures below. The Bachelor of Science (Materials) normally takes three years to complete. All students must take particular notice of the Course Rules regarding minimum rate of progress.

The formal contact hours, methods of teaching and learning and forms of assessment vary from subject to subject. Details will be provided to students at the commencement of each subject by the subject coordinator. Students should attend all classes including lectures, tutorials and laboratory classes.

Study Options

Electives in second and third years are normally selected to provide a coherent minor in a particular field, eg. Materials, Chemistry, Science and Technology Studies or Engineering. Suggested elective programs are listed below. Students should consult their Course Adviser when choosing elective subjects.

Honours

Students with a good academic record are encouraged to proceed to an Honours year, a fourth year of study providing training in independent research.

Advanced Standing

Applicants holding relevant TAFE Diplomas and Advanced Diplomas with a consistently good performance will normally be granted 48 credit points (one year) of advanced standing.
Students are advised to take the maximum number of mathematics and science units available in their TAFE course.

Further Studies Options

Graduates can apply for entry to Honours in Materials or Master of Science – Research.

Course Program

Subject		Session	Credit Points
Year 1			
CHEM101	Chemistry 1A	Autumn	6
ENGG154	Engineering Innovation and Design	Autumn	6
MATH141	Mathematics 1C Part 1	Autumn	6
or			
MATH187	Mathematics 1A Part 1	Autumn	6
PHYS141	Fundamentals Physics A	Autumn	6
CHEM102	Chemistry 1B	Spring	6
ENGG153	Engineering Materials	Spring	6
MATH142	Mathematics 1C Part 2	Spring	6
or			
MATH188	Mathematics 1A Part 2	Spring	6
PHYS142	Fundamentals Physics B	Spring	6

Year 2			
MATE201	Structure and Properties of Materials	Autumn	6
MATE202	Thermodynamics and Phase Equilibria	Autumn	6
MATE291	Engineering Computing and Laboratory Skills	Autumn	6
MATE203	Phase Transformation	Spring	6
MATE204	Mechanical Behaviour	Spring	6
plus	3 electives		18
Year 3			
MATE301	Engineering Alloys	Autumn	6
MATE302	Polymeric Materials	Autumn	6
MATE391	Materials Testing	Autumn	6
MATE303	Ceramics, Glass and Refractories	Spring	6
plus	3 electives		18
Year 4 (Honours)			
MATE406	Research Project	Annual	24
plus	4 electives		
Materials Electives			
MATE411	Advanced Materials and Processing		6
MATE412	Electronic Materials		6
MATE305	Primary Materials Processing		6
MATE402	Secondary Materials Processing		6
MATE413	Structural Characterisation Techniques		6
Chemistry Electives			
CHEM211	Inorganic Chemistry II		6
CHEM212	Organic Chemistry II		6
CHEM314	Instrumental Analysis		8
CHEM213	Molecular Structure, Reactivity and Change		6
CHEM214	Analytical and Environmental Chemistry		6
CHEM311	Inorganic Chemistry III		8
CHEM321	Organic Synthesis and Reactivity		8
Science and Technology Studies Electives			
STS100	Social Aspects of Science and Technology		6
STS215	Globalisation: Science, Technology and Progress		6
STS112	The Scientific Revolution: History, Philosophy and Politics of Science 1		6
STS376	Risk Assessment, Health and Safety		6
STS216	Environment in Crisis: Technology and Society		6
STS229	Scientific and Technological Controversy		6

Bachelor of Science (Photonics)

Testamur Title of Degree:	Bachelor of Science (Photonics)
Abbreviation:	BSc (Photonics)
Home Faculty:	Faculty of Engineering
Duration:	3 years full-time or part-time equivalent
Total Credit Points:	144
Delivery Mode:	Face-to-face
Starting Session(s):	Autumn/Spring
Standard Course Fee:	HECS (local); International $8,750 per session
Location:	Wollongong
Approx. UAI Entry:	80
Assumed Knowledge:	Any two units of English plus Mathematics
Recommended Studies:	HSC Mathematics Ext. 1 plus Chemistry or Physics
UOW Course Code:	757
UAC Code:	757577
CRICOS Code:	031274F

Overview

Photonics is a rapidly developing area associated with the development of detectors, light sources and optical fibres to support research and development in a wide range of industries including optoelectronics, telecommunications and defence. This degree provides students with training, which combines skills in experimental and theoretical physics and electronics with a strong background in optics, electronics and computing necessary to begin a career in the photonics industry. It is structured around the existing core of Physics subjects.

Course Requirements

All students must complete the required number of credit points and satisfy all course requirements for the degree – refer to course structures below.
The Bachelor of Science (Photonics) normally takes three years to complete. All students must take particular notice of the Course Rules regarding minimum rate of progress.

The formal contact hours, methods of teaching and learning and forms of assessment vary from subject to subject. Details will be provided to students at the commencement of each subject by the subject coordinator. Students should attend all classes including lectures, tutorials and laboratory classes.

Honours

Students with a good academic record are encouraged to proceed to an Honours year, a fourth year of study providing training in independent research.

Physics Course Program – 90cp

Subject		Session	Credit Points
Year 1			
CHEM103	Introductory Chemistry*	Autumn	6
CSCI114	Procedural Programming*	Autumn	6
MATH187	Mathematics 1A Part 1	Autumn	6
PHYS141	Fundamentals Physics A	Autumn	6
ECTE101	Electrical Engineering 1	Spring	6
ECTE196	Internet Technology*	Spring	6
MATH188	Mathematics 1A Part 2	Spring	6
PHYS142	Fundamentals Physics B	Spring	6
* example electives			
Year 2			
MATH203	Linear Algebra	Autumn	6
PHYS205	Advanced Modern Physics	Autumn	6
MATH201	Multivariate and Vector Calculus	Spring	6
MATH291	Differential Equations	Spring	3
MATH293	Complex Variables	Spring	4
PHYS215	Vibrations, Waves and Optics	Spring	6
PHYS225	Electromagnetism and Optoelectronics	Spring	6
PHYS262	Vibrations and Waves	Spring	3
PHYS263	Photonics and Communication	Annual	6
Year 3			
ECTE364	Telecommunications Networks 1	Autumn	6
PHYS305	Quantum Mechanics	Autumn	6
PHYS306	Project in Physics	Aut/Spr	6
PHYS325	Electromagnetism	Autumn	6
PHYS375	Nuclear Physics	Spring	6
PHYS385	Statistical Mechanics	Spring	6
ECTE381	Internet Engineering	TBA	6
PHYS356	Physics of Detectors and Imaging	TBA	6

Bachelor of Science Advanced (Honours) - Physics

Testamur Title of Degree:	Bachelor of Science (Honours) Advanced Program - Physics
Abbreviation:	BSc (Hons) (Physics)
Home Faculty:	Faculty of Engineering
Duration:	4 years full-time or part-time equivalent
Total Credit Points:	1192
Delivery Mode:	Face-to-face
Starting Session(s):	Autumn/Spring
Standard Course Fee:	HECS (local); International $8,750 per session
Location:	Wollongong
Approx. UAI Entry:	95
Assumed Knowledge:	Any two units of English plus Mathematics
Recommended Studies:	HSC Mathematics Ext. 1 plus Chemistry or Physics
UOW Course Code:	757A
UAC Code:	757602
CRICOS Code:	031275E

Overview

The Advanced Program, designed specifically for high achieving students, offers direct entry into Honours, unlike the normal BSc which delays selection for Honours until the completion of the third year. It offers a greater degree of flexibility in program design through the possibility of exemptions from some first year subjects; direct entry into some 200 level subjects; the opportunity to undertake individual research subjects at second, third and fourth year level; the opportunity to progress at a faster rate through the use of “fast-tracking” mechanisms; the chance to participate in various enrichment activities and to develop a close association with an appropriate member of one of the Faculty’s research teams. In the final year, all students undertake a substantial piece of supervised research in their major discipline together with other required seminar and/or coursework.

Study programs are structured on an individual basis in consultation with the Discipline Adviser. Students are required to fulfil all the normal BSc and Honours requirements and may select their major study program from any of those available from Physics.

Bachelor of Science (Physics)

Testamur Title of Degree:	Bachelor of Science (Physics)
Abbreviation:	BSc (Physics)
Home Faculty:	Faculty of Engineering
Duration:	3 years full-time or part-time equivalent
Total Credit Points:	144
Delivery Mode:	Face-to-face
Starting Session(s):	Autumn/Spring
Standard Course Fee:	HECS (local); International $8,750 per session
Location:	Wollongong
Approx. UAI Entry:	75
Assumed Knowledge:	Any two units of English plus Mathematics
Recommended Studies:	HSC Mathematics Ext. 1 plus Chemistry or Physics
UOW Course Code:	757
UAC Code:	757637
CRICOS Code:	031274F

Overview

Physics, as one of the fundamental sciences, provides the basis for making, interpreting and extending observations relating to the behaviour and structure of matter. Physics is fundamental to the study of all sciences and has a key role to play in generating and supporting new technologies. Students majoring in Physics study mechanics, thermodynamics, electricity and magnetism, vibrations, waves, optics, modern, quantum and statistical mechanics, complemented by a number of advanced mathematics subjects.

Course Requirements

All students must complete the required number of credit points and satisfy all course requirements for the degree – refer to course structures below. The Bachelor of Science (Physics) normally takes three years to complete. All students must take particular notice of the Course Rules regarding minimum rate of progress.

The formal contact hours, methods of teaching and learning and forms of assessment vary from subject to subject. Details will be provided to students at the commencement of each subject by the subject coordinator. Students should attend all classes including lectures, tutorials and laboratory classes.

Study Options

Two major programs in Physics are offered:

i. Basic Major Program in Physics – a basic Physics program, designed with a minimum of compulsory subjects for combining with an array of elective subjects or a second major in another discipline.
ii. Full Major Program – a full Physics program for students planning to undertake Honours and to pursue a career as a professional physicist.

The two programs are outlined below.

Honours

Students with a good academic record are encouraged to proceed to Honours year, a fourth year of study providing training in independent research.

Professional Recognition

The Bachelor of Science (Physics) degree conforms to the requirements for membership of the Australian Institute of Physics.

Basic Major Program in Physics – 90cp

Subject		Session	Credit Points
Year 1			
MATH141	Mathematics 1C Part 1	Autumn	6
or			
MATH187	Mathematics 1A Part 1	Autumn	6
PHYS141	Fundamentals Physics A	Autumn	6
MATH142	Mathematics 1C Part 2	Spring	6
or			
MATH188	Mathematics 1A Part 2	Spring	6
PHYS142	Fundamentals Physics B	Spring	6
Plus 4 electives			
Year 2			
MATH201	Multivariate and Vector Calculus	Autumn	6
MATH253	Linear Algebra	Autumn	4
PHYS205	Advanced Modern Physics	Autumn	6
PHYS235	Mechanics and Thermodynamics	Autumn	6
MATH291	Differential Equations	Spring	3
PHYS215	Vibrations, Waves and Optics	Spring	6
PHYS225	Electromagnetism and Optoelectronics	Spring	6
Plus 1 elective			
Year 3			
PHYS305	Quantum Mechanics	Autumn	6
PHYS325	Electromagnetism	Autumn	6
Plus two of the following subjects:			
PHYS335	Classical Mechanics	Autumn	6
PHYS375	Nuclear Physics	Spring	6
PHYS385	Statistical Mechanics	Spring	6
PHYS390	Astrophysics	Spring	6
PHYS396	Electronic Materials	Spring	6
Plus additional 12 cp of subjects taken from the Science or Engineering Schedules.			

Full Major Program in Physics – 108cp

Subject		Session	Credit Points
Year 1			
MATH141	Mathematics 1C Part 1	Autumn	6
or			
MATH187	Mathematics 1A Part 1	Autumn	6
PHYS141	Fundamentals Physics A	Autumn	6
MATH142	Mathematics 1C Part 2	Spring	6
or			
PHYS142	Fundamentals Physics B	Spring	6
Plus 4 electives			
Year 2			
MATH201	Multivariate and Vector Calculus	Autumn	6
MATH253	Linear Algebra	Autumn	4
PHYS205	Advanced Modern Physics	Autumn	6
PHYS235	Mechanics and Thermodynamics	Autumn	6
MATH291	Differential Equations	Spring	3
MATH293	Complex Variables	Spring	4
PHYS215	Vibrations, Waves and Optics	Spring	6
PHYS225	Electromagnetism and Optoelectronics	Spring	6
PHYS295	Astronomy – Concepts of the Universe	Spring	6
Year 3			
PHYS305	Quantum Mechanics	Autumn	6
PHYS325	Electromagnetism	Autumn	6
PHYS335	Classical Mechanics	Autumn	6
PHYS375	Nuclear Physics	Spring	6
PHYS385	Statistical Mechanics	Spring	6
PHYS390	Astrophysics	Spring	6
PHYS396	Electronic Materials	Spring	6

Physics Electives

Subject		Session	Credit Points
Year 1			
PHYS131	Physics for the Environmental and Life Sciences A	Autumn	6
PHYS141	Fundamentals of Physics A	Autumn	6
PHYS132	Physics for the Environmental and Life Sciences B	Spring	6
PHYS142	Fundamentals of Physics B	Spring	6
PHYS143	Physics for Engineers	Spring	6

Year 2			
PHYS205	Modern Physics	Autumn	6
PHYS235	Mechanics and Thermodynamics	Autumn	6
PHYS206	Project in Physics	Aut/Spr	6
PHYS215	Vibrations, Waves and Optics	Spring	6
PHYS225	Electromagnetism and Optoelectronics	Spring	6
PHYS255	Radiation Physics	Spring	6
PHYS295	Astronomy - Concepts of the Universe	Spring	6
Year 3			
PHYS305	Quantum Mechanics	Autumn	6
PHYS325	Electromagnetism	Autumn	6
PHYS335	Classical Mechanics	Autumn	6
PHYS365	Detection of Radiation: Neutrons, Electrons and X Rays	Autumn	6
PHYS306	Project in Physics	Aut/Spr	6
PHYS375	Nuclear Physics	Spring	6
PHYS385	Statistical Mechanics	Spring	6
PHYS390	Astrophysics	Spring	6
PHYS396	Electronic Materials	Spring	6
Year 4			
PHYS405	Honours in Physics	Annual	48
PHYS444	Quantum Mechanics	Annual	8
PHYS446	Solid State Physics	Annual	8
PHYS451	Nuclear Medicine	Annual	8
PHYS452	Medical Imaging	Annual	8
PHYS456	Imaging Physics	Annual	8
PHYS401	Theoretical Mechanics and Electromagnetism	Autumn	8
PHYS457	Research Project	Aut/Spr	24
PHYS441	Astro- and Nuclear Physics	Spring	8
PHYS453	Radiobiology and Radiation Protection	Spring	8

Physics Electives

Subjects offered by non-member Departments of the Faculty of Engineering toward the Physics Program:

CSCI103	Algorithims and Problem Solving	6
CSCI114	Procedural Programming	6
CSCI124	Object Programming	6
MATH187	Mathematics 1A Part 1	6
MATH188	Mathematics 1A Part 2	6
MATH141	Mathematics 1C Part 1	6
MATH142	Mathematics 1C Part 2	6
MATH201	Multivariate and Vector Calculus	6
MATH202	Differential Equations	6
MATH203	Linear Algebra	6
MATH204	Complex Variables and Group Theory	6
MATH253	Linear Algebra	4
MATH283	Mathematics IIE for Engineers	6
MATH291	Differential Equations	3
MATH293	Complex Variables	4
STAT231	Probability and Random Variables	6

Bachelor of Engineering / Bachelor of Arts

Testamur Title of Degree:	Bachelor of Engineering / Bachelor of Arts
Abbreviation:	BE,BA
Home Faculty:	Faculty of Engineering
Duration:	5 years full-time or part-time equivalent
Total Credit Points:	264
Delivery Mode:	Face-to-face
Starting Session(s):	Autumn/Spring
Standard Course Fee:	HECS (local); International $8,750 per session
Location:	Wollongong
Approx. UAI Entry:	80
Assumed Knowledge:	Any two units of English plus Mathematics
Recommended Studies:	Physics, Chemistry and HSC Mathematics Ext. 1
UOW Course Code:	704
UAC Code:	751302
CRICOS Code:	028394B

Overview

The Faculties of Arts and Engineering offer double degree courses over five years of full-time or eight years of part-time study, leading to the degrees of Bachelor of Arts and Bachelor of Engineering. These courses provide education in a discipline of Engineering, together with a major study in Arts to broaden the knowledge base of the graduate thereby enhancing career prospects. The Engineering courses are accredited by Engineers Australia.
Requirements for admission to the double degree is a UAI, or the equivalent, which is equal to or greater than the rank required for admission to the course for the degree of Bachelor of Arts, or the course for the degree of Bachelor of Engineering, whichever is the higher. English and Mathematics pre-requisites for both degrees must be satisfied.

Course Requirements – Bachelor of Arts

To qualify for the award of the degree of Bachelor of Arts, a candidate must satisfactorily complete;
a) subjects to the value of at least 90 credit points selected from the General Schedule or the Arts Schedule, together with
b) subjects to the value of at least 54 credit points prescribed by one of the Engineering programs.

Of the above specified 144 credit points required for the Arts degree:
a) at least 72 credit points, including a major study, shall be from subjects listed in the Arts Schedule;
b) at least 36 credit points shall be for subjects offered by one or more academic units of the Faculty of Arts; and
c) no more than 60 credit points shall be for 100-level subjects.

Students intending to enrol in Japanese must contact the Modern Languages Program Office.
Students undertaking the beginner strand in the Japanese language are required to take 36 credit points in Japanese in the first year of full-time study. Enrolment in Japanese is not recommended for part-time students.

A candidate who qualifies for award of the degree of Bachelor of Arts, and who satisfies entry requirements, may subsequently enrol in the course for the honours degree of Bachelor of Arts as set out in the Course Rule 112.

Course Requirements – Bachelor of Engineering

To qualify for the award of the degree of Bachelor of Engineering, a candidate must complete a total of 192 credit points. Of the 192 credit points, 174 credit points must be Engineering subjects taken from the following:

Bachelor of Engineering - Core Subjects
plus the subjects leading to one of the Engineering degrees:
Bachelor of Engineering - Civil Engineering
Bachelor of Engineering - Environmental Engineering
Bachelor of Engineering - Materials Engineering
Bachelor of Engineering - Mechanical Engineering
Bachelor of Engineering - Mechatronics
Bachelor of Engineering - Mining Engineering

A candidate must complete at least 12 weeks of approved professional engineering experience during the course. A part-time candidate in approved full-time engineering employment may be exempted from up to three specified subjects in accordance with the provisions of the Professional Options subjects, thereby enabling the joint course to be completed in a shorter time.

All students must discuss their Engineering program with the relevant Sub Dean.

Bachelor of Engineering / Bachelor of Commerce

Testamur Title of Degree:	Bachelor of Engineering / Bachelor of Commerce
Abbreviation:	BE,BCom
Home Faculty:	Faculty of Engineering
Duration:	5 years full-time or part-time equivalent
Total Credit Points:	264
Delivery Mode:	Face-to-face
Starting Session(s):	Autumn/Spring
Standard Course Fee:	HECS (local); International $8,750 per session
Location:	Wollongong
Approx. UAI Entry:	80
Assumed Knowledge:	Any two units of English plus Mathematics
Recommended Studies:	Physics, Chemistry and HSC Mathematics Ext. 1
UOW Course Code:	727
UAC Code:	751601
CRICOS Code:	001707A

Overview

The Faculties of Commerce and Engineering offer double degree courses over five years of full-time or eight years of part-time study, leading to the degrees of Bachelor of Commerce and Bachelor of Engineering. These courses provide education in a discipline of Engineering, together with a major study in Commerce to broaden the knowledge base of the graduate thereby enhancing career prospects. The Engineering courses are accredited by Engineers Australia.

Requirements for admission to the double degree is a UAI, or the equivalent, which is equal to or greater than the rank required for admission to the course for the degree of Bachelor of Commerce, or the course for the degree of Bachelor of Engineering, whichever is the higher. English and Mathematics pre-requisites for both degrees must be satisfied.

Course Requirements – Bachelor of Commerce

Candidates are required to complete core subjects and subjects which satisfy the requirements of one of the Commerce majors. Candidates can choose between a number of major and minor combinations. All students must seek advice and approval from the Sub Dean and relevant Head of School before enrolment. Students should be aware that it may not be possible to complete all Commerce programs with the usual 264 credit points required for a double degree.

The following subjects may be substituted for another Commerce major subject on completion of the alternative Engineering subject:

1. BUSS110 Introduction to Business Information Systems

Alternative subjects:

CIVL196	Engineering Computing 1	6
MECH15	Engineering Computing Instrumentation and Workshop	6
2	Practice	
MATE291	Engineering Computing and Laboratory Skills	6
or		
CSCI114	Procedural Programming	6

2. ECON121 Quantitative Methods 1

Alternative subject:

MATH283	Mathematics 2E for Engineers Part 1	6

Course Requirements – Bachelor of Engineering

To qualify for the award of the degree of Bachelor of Engineering, a candidate must complete a total of 192 credit points. Of the 192 credit points, 174 credit points must be Engineering subjects taken from the following:

Bachelor of Engineering - Core Subjects
plus the subjects leading to one of the Engineering degrees:
Bachelor of Engineering - Civil Engineering
Bachelor of Engineering - Environmental Engineering
Bachelor of Engineering - Materials Engineering
Bachelor of Engineering - Mechanical Engineering
Bachelor of Engineering - Mechatronics
Bachelor of Engineering - Mining Engineering

A candidate must complete at least 12 weeks of approved professional engineering experience during the course. A part-time candidate in approved full-time engineering employment may be exempted from up to three specified subjects in accordance with the provisions of the Professional Options subjects, thereby enabling the joint course to be completed in a shorter time.

All students must discuss their Engineering program with the Sub Dean.

Bachelor of Engineering / Bachelor of Computer Science

Testamur Title of Degree:	Bachelor of Engineering / Bachelor of Computer Science
Abbreviation:	BE,BCompSci
Home Faculty:	Faculty of Engineering
Duration:	5 years full-time or part-time equivalent
Total Credit Points:	264
Delivery Mode:	Face-to-face
Starting Session(s):	Autumn/Spring
Standard Course Fee:	HECS (local); International $8,900 per session
Location:	Wollongong
Approx. UAI Entry:	90
Assumed Knowledge:	Any two units of English plus Mathematics
Recommended Studies:	Physics, Chemistry and HSC Mathematics Ext. 1
UOW Course Code:	790
UAC Code:	751609
CRICOS Code:	042540**B**

Overview

The Faculties of Informatics and Engineering offer double degree courses over five years of full-time or eight years of part-time study, leading to the degrees of Bachelor of Engineering and Bachelor of Computer Science.

These courses provide education in a discipline of Engineering, together with a major study in Computer Science to broaden the knowledge base of the graduate thereby enhancing career prospects. The Engineering courses are accredited by Engineers Australia.

Requirements for admission to the double degree is a UAI, or the equivalent, which is equal to or greater than the rank required for admission to the course for the degree of Bachelor of Computer Science, or the course for the degree of Bachelor of Engineering, whichever is the higher. English and Mathematics pre-requisites for both degrees must be satisfied.

Course Requirements – Bachelor of Computer Science

To quality for the award of the degree of Bachelor of Computer Science, a candidate must satisfactorily complete requirements 1, 2, 4 and 5 of the Bachelor of Computer Science Course Rules.

Course Requirements – Bachelor of Engineering

To qualify for the award of the degree of Bachelor of Engineering, a candidate must complete a total of 192 credit points. Of the 192 credit points, 174 credit points must be Engineering subjects taken from the following:

Bachelor of Engineering - Core Subjects
plus the subjects leading to one of the Engineering degrees:
Bachelor of Engineering - Civil Engineering
Bachelor of Engineering - Environmental Engineering
Bachelor of Engineering - Materials Engineering
Bachelor of Engineering - Mechanical Engineering
Bachelor of Engineering - Mechatronics
Bachelor of Engineering - Mining Engineering

A candidate must complete at least 12 weeks of approved professional engineering experience during the course. A part-time candidate in approved full-time engineering employment may be exempted from up to three specified subjects in accordance with the provisions of the Professional Options subjects, thereby enabling the joint course to be completed in a shorter time.

All students must discuss their Engineering program with the relevant Sub Dean.

Bachelor of Engineering / Bachelor of Mathematics

Testamur Title of Degree:	Bachelor of Engineering / Bachelor of Mathematics
Abbreviation:	BE,BMath
Home Faculty:	Faculty of Engineering
Duration:	5 years full-time or part-time equivalent
Total Credit Points:	264
Delivery Mode:	Face-to-face
Starting Session(s):	Autumn/Spring
Standard Course Fee:	HECS (local); International $8,750 per session
Location:	Wollongong
Approx. UAI Entry:	90
Assumed Knowledge:	Any two units of English plus Mathematics
Recommended Studies:	Physics, Chemistry and HSC Mathematics Ext. 1
UOW Course Code:	791
UAC Code:	751610
CRICOS Code:	042626G

Overview

The Faculties of Informatics and Engineering offer double degree courses over five years of full-time or eight years of part-time study, leading to the degrees of Bachelor of Engineering and Bachelor of Mathematics. These courses provide education in a discipline of Engineering, together with a major study in Mathematics to broaden the knowledge base of the graduate thereby enhancing career prospects. The Engineering courses are accredited by Engineers Australia.

Requirements for admission to the double degree is a UAI, or the equivalent, which is equal to or greater than the rank required for admission to the course for the degree of Bachelor of Mathematics, or the course for the degree of Bachelor of Engineering, whichever is the higher. English and Mathematics pre-requisites for both degrees must be satisfied.

Course Requirements – Bachelor of Mathematics

To qualify for the award of the degree of Bachelor of Mathematics, a candidate must satisfactorily complete requirements 1 to 9, excluding 5, of the Bachelor of Mathematics degree rules, including no more than 60 credit points at 100 level.

Course Requirements – Bachelor of Engineering

To qualify for the award of the degree of Bachelor of Engineering, a candidate must complete a total of 192 credit points. Of the 192 credit points, 174 credit points must be Engineering subjects taken from the following:

Bachelor of Engineering - Core Subjects
plus the subjects leading to one of the Engineering degrees:
Bachelor of Engineering - Civil Engineering
Bachelor of Engineering - Environmental Engineering
Bachelor of Engineering - Materials Engineering
Bachelor of Engineering - Mechanical Engineering
Bachelor of Engineering - Mechatronics
Bachelor of Engineering - Mining Engineering

A candidate must complete at least 12 weeks of approved professional engineering experience during the course. A part-time candidate in approved full-time engineering employment may be exempted from up to three specified subjects in accordance with the provisions of the Professional Options subjects, thereby enabling the joint course to be completed in a shorter time.

All students must discuss their Engineering program with the relevant Sub Dean.

Bachelor of Engineering / Bachelor of Science

Testamur Title of Degree:	Bachelor of Engineering / Bachelor of Science
Abbreviation:	BE,BSc
Home Faculty:	Faculty of Engineering
Duration:	5 years full-time or part-time equivalent
Total Credit Points:	264
Delivery Mode:	Face-to-face
Starting Session(s):	Autumn/Spring
Standard Course Fee:	HECS (local); International $8,750 per session
Location:	Wollongong
Approx. UAI Entry:	80
Assumed Knowledge:	Any two units of English plus Mathematics
Recommended Studies:	Physics, Chemistry and HSC Mathematics Ext. 1
UOW Course Code:	750
UAC Code:	751624
CRICOS Code:	031277C

Overview

The Faculties of Science and Engineering offer double degree courses over five years of full-time or eight years of part-time study, leading to the degrees of Bachelor of Engineering and Bachelor of Science. These courses provide education in a discipline of Engineering, together with a major study in Science to broaden the knowledge base of the graduate thereby enhancing career prospects. The Engineering courses are accredited by Engineers Australia.

Requirements for admission to the double degree is a UAI, or the equivalent, which is equal to or greater than the rank required for admission to the course for the degree of Bachelor of Science, or the course for the degree of Bachelor of Engineering, whichever is the higher. English and Mathematics pre-requisites for both degrees must be satisfied.

Course Requirements – Bachelor of Science

To qualify for the award of the degree of Bachelor of Science, a candidate must satisfactorily complete:

a) subjects having a value of at least 90 credit points selected from the Science Schedule, which include either a major study prescribed by the Faculty of Science, or a major prescribed by Engineering Physics within the Faculty of Engineering; together with
b) subjects having a value of at least 54 credit points prescribed by one of the Engineering programs.

Of the above specified 144 credit points required for the Science degree:

a) at least 72 credit points, including a major study, shall be from subjects offered by Academic Units within the Faculty of Science or by Engineering Physics in the Faculty of Engineering; and
b) no more than 60 credit points shall be for 100-level subjects.

A candidate who qualifies for award of the degree of Bachelor of Science, and who satisfies entry requirements, may subsequently enrol in the course for the honours degree of Bachelor of Science as set out in the Course Rule 112.

Course Requirements – Bachelor of Engineering

To qualify for the award of the degree of Bachelor of Engineering, a candidate must complete a total of 192 credit points. Of the 192 credit points, 174 credit points must be Engineering subjects taken from the following:

Bachelor of Engineering - Core Subjects
plus the subjects leading to one of the Engineering degrees:
Bachelor of Engineering - Civil Engineering
Bachelor of Engineering - Environmental Engineering
Bachelor of Engineering - Materials Engineering
Bachelor of Engineering - Mechanical Engineering
Bachelor of Engineering - Mechatronics
Bachelor of Engineering - Mining Engineering

A candidate must complete at least 12 weeks of approved professional engineering experience during the course. A part-time candidate in approved full-time engineering employment may be exempted from up to three specified subjects in accordance with the provisions of the Professional Options subjects, thereby enabling the joint course to be completed in a shorter time.

All students must discuss their Engineering program with the relevant Sub Dean.

Bachelor of Engineering (Mechanical or Mechatronics) / Bachelor of Science (Exercise Science)

Testamur Title of Degree:	Bachelor of Engineering / Bachelor of Science
Abbreviation:	BE,BSc
Home Faculty:	Faculty of Engineering
Duration:	5 years full-time or part-time equivalent
Total Credit Points:	264
Delivery Mode:	Face-to-face
Starting Session(s):	Autumn/Spring
Standard Course Fee:	HECS (local); International $8,750 per session
Location:	Wollongong
Approx. UAI Entry:	80
Assumed Knowledge:	Any two units of English plus Mathematics
Recommended Studies:	Physics, Chemistry and HSC Mathematics Ext. 1
UOW Course Code:	
UAC Code:	751625
CRICOS Code:	

Overview

The Faculties of Engineering and Health and Behavioural Sciences offer double degree courses over five years of full-time or eight years of part-time study, leading to the degrees of Bachelor of Engineering and Bachelor of Science. These courses provide education in either Mechanical Engineering or Mechatronics, together with a major study in Exercise Science to broaden the knowledge base of the graduate thereby enhancing career prospects.

Requirements for admission to the double degree is a UAI, or the equivalent, which is equal to or greater than the rank required for admission to the course for the degree of Bachelor of Science (Exercise Science), or the course for the degree of Bachelor of Engineering, whichever is the higher. English and Mathematics pre-requisites for both degrees must be satisfied.

Course Requirements

To qualify for the award of the double degree, the following subjects must be completed:

Course Program: Bachelor of Engineering (Mechanical) - Bachelor of Science (Exercise Science)

Subject		Session	Credit Points
Year 1			
CHEM103	Chemistry for Engineers	Autumn	6
ENGG154	Engineering Design and Innovation	Autumn	6
MATH187	Mathematics 1A Part 1	Autumn	6
MECH152	Engineering Computing, Instrumentation and Workshop Practice	Autumn	6
ENGG152	Engineering Mechanics	Spring	6
ENGG153	Engineering Materials	Spring	6
MATH188	Mathematics 1A Part 2	Spring	6
PHYS143	Physics for Engineers	Spring	6
Year 2			
BMS101	Systemic Anatomy	Autumn	6
ENGG251	Mechanics of Solids	Autumn	6
ENGG261	Professional Engineers and the Management of Technology	Autumn	6
MATH283	Mathematics 2E for Engineers Part 1	Autumn	6
BMS112	Human Physiology 1	Spring	6
ECTE290	Fundamentals of Electrical Engineering	Spring	6
MECH201	Engineering Analysis	Spring	6
MECH215	Fundamentals of Machine Component Design	Spring	6
MECH226	Machine Dynamics	Spring	6
Year 3			
BMS211	Foundations of Biomechanics	Autumn	6
ENGG252	Engineering Fluid Mechanics	Autumn	6
MECH311	Mechanical Engineering Design	Autumn	6
MECH341	Thermodynamics	Autumn	6
PSYC101	Introduction to Behavioural Science	Autumn	6
BIOL103	Molecules, Cells and Organisms	Spring	6
BMS203	Musculoskeletal Functional Anatomy	Spring	6
ENGG361	Engineering Management	Spring	6
MECH343	Heat Transfer and Aerodynamics	Spring	6
Year 4			
BMS202	Human Physiology II	Autumn	6
MECH321	Dynamics of Engineering Systems	Autumn	6
MECH382	Manufacturing Engineering Principles	Autumn	6
PSYC216	Psychology of Physical Activity	Autumn	6

BMS242	Exercise Physiology	Spring	6
BMS341	Clinical Biomechanics	Spring	6
MECH365	Control of Machines and Processes	Spring	6
Plus	2 electives (Mechanical plus one other)		12
Year 5			
BExS352	Exercise Prescription II	Autumn	8
BExS401	Ergonomics	Autumn	6
ENGG461	Project Management and Human Factors in Engineering	Autumn	6
BExS351	Exercise Prescription I	Spring	8
BMS346	Motor Control and Dysfunction	Spring	6
ENGG452*	Thesis A	Annual	12
or			
ENGG453	Thesis B	Annual	18
ENGG454	Professional Experience		0
Plus	2 electives (1 Mechanical)		

* Students undertaking the 12cp thesis will be required to complete an additional 6cp elective.

Course Program: Bachelor of Engineering (Mechatronics) - Bachelor of Science (Exercise Science)

Subject		Session	Credit Points
Year 1			
CHEM103	Chemistry for Engineers	Autumn	6
CSCI114	Procedural Programming	Autumn	6
ENGG154	Engineering Design and Innovation	Autumn	6
MATH187	Mathematics 1A Part 1	Autumn	6
ECTE101	Electrical Engineering 1	Spring	6
ENGG152	Engineering Mechanics		
MATH188	Mathematics 1A Part 2	Spring	6
PHYS142	Fundamentals of Physics B	Spring	6
Year 2			
BMS101	Systemic Anatomy	Autumn	6
ECTE202	Circuits and Systems	Autumn	6
ECTE233	Digital Hardware 1	Autumn	6
ENGG251	Mechanics of Solids	Autumn	6
MATH283	Mathematics 2E for Engineers Part 1	Autumn	6
BMS112	Human Physiology 1	Spring	6
ECTE212	Electronics and Communications	Spring	6
ENGG153	Engineering Materials	Spring	6
MECH215	Fundamentals of Machine Component Design	Spring	6
Year 3			
BMS202	Human Physiology II	Autumn	6
BMS211	Foundations of Biomechanics	Autumn	6
ENGG261	Professional Engineers and the Management of Technology	Autumn	6
MECH311	Mechanical Engineering Design	Autumn	6
PSYC101	Introduction to Behavioural Science	Autumn	6
BIOL103	Molecules, Cells and Organisms	Spring	6
BMS203	Musculoskeletal Functional Anatomy	Spring	6
BMS242	Exercise Physiology	Spring	6
MECH226	Machine Dynamics	Spring	6
Year 4			
ECTE313	Electronics 3	Autumn	6
ECTE344	Control Theory	Autumn	6
ECTE371	Mechatronics Design	Autumn	6
MECH382	Manufacturing Engineering Principles	Autumn	6
PSYC216	Psychology of Physical Activity	Autumn	6
BMS341	Clinical Biomechanics	Spring	6
BMS346	Motor Control and Dysfunction	Spring	6
ECTE301	Digital Signal Processing 1	Spring	6
ECTE333	Digital Hardware 2	Spring	6
Year 5			
BExS352	Exercise Prescription II	Autumn	6
BExS401	Ergonomics	Autumn	6
ECTE323	Power Engineering 2	Autumn	6
ENGG461	Project Management and Human Factors in Engineering	Autumn	6
MECH440	Fluid and Heat Transfer	Autumn	6
BExS351	Exercise Prescription I	Spring	6
ECTE494	Robotics	Spring	6
ENGG452*	Thesis A	Annual	12
or			
ENGG453	Thesis B	Annual	18
ENGG454	Professional Experience		0

* Students undertaking the 12cp thesis will be required to complete an additional 6cp elective.

Bachelor of Engineering / Bachelor of Laws

Refer to the Faculty of Law section for details of this double degree program.

Bachelor of Science (Physics) / Bachelor of Mathematics

Testamur Title of Degree:	Bachelor of Science (Physics) / Bachelor of Mathematics
Abbreviation:	BSc,BMath
Home Faculty:	Faculty of Engineering
Duration:	4 years full-time or part-time equivalent
Total Credit Points:	216
Delivery Mode:	Face-to-face
Starting Session(s):	Autumn/Spring
Standard Course Fee:	HECS (local); International $8,750 per session (international)
Location:	Wollongong
Assumed Knowledge:	Any two units of English plus Mathematics
Recommended Studies:	HSC Mathematics Ext. 1 plus Chemistry or Physics
UOW Course Code:	782
UAC Code:	751805
CRICOS Code:	

Overview

This double degree provides students with deeper understanding in the complementary areas of mathematics and physics. As well as making them eligible for employment in areas requiring qualifications in both mathematics and physics, this will particularly equip students for work in areas where they will undertake mathematical modelling of physical systems.

Course Requirements

All students must complete the required number of credit points and satisfy all course requirements for the Bachelor of Science (Physics) degree and the Bachelor of Mathematics – refer to course structures below.
All students must take particular notice of the Course Rules regarding minimum rate of progress.

The formal contact hours, methods of teaching and learning and forms of assessment vary from subject to subject. Details will be provided to students at the commencement of each subject by the subject coordinator. Students should attend all classes including lectures, tutorials and laboratory classes.

Honours

Students with a good academic record are encouraged to proceed to an Honours year, an additional year of study providing training in independent research in either discipline would be required.

Course Program

Subject		Session	Credit Points
Year 1			
MATH121	Discrete Mathematics	Autumn	6
MATH187	Mathematics 1A Part 1	Autumn	6
PHYS141	Fundamentals of Physics A	Autumn	6
MATH111	Applied Mathematical Modelling 1	Spring	6
MATH188	Mathematics 1A Part 2	Spring	6
PHYS142	Fundamentals of Physics B	Spring	6
PHYS295	Concepts of the Modern Universe	Spring	6
Plus	2 electives		12
Year 2			
MATH201	Multivariate and Vector Calculus	Autumn	6
MATH203	Linear Algebra	Autumn	6
PHYS205	Advanced Modern Physics	Autumn	6
STAT131	Understanding Variation and Uncertainty	Autumn	6
MATH202	Differential Equations 2	Spring	6
MATH204	Complex Variables and Group Theory	Spring	6
MATH212	Applied Mathematical Modelling 2	Spring	6
PHYS215	Vibrations, Waves and Optics	Spring	6
PHYS225	Electromagnetism and Optoelectronics	Spring	6
Year 3			
MATH222	Continuous and Finite Mathematics	Autumn	6
MATH305	Partial Differential Equations	Autumn	6
PHYS235	Mechanics and Thermodynamics	Autumn	6
PHYS305	Quantum Mechanics	Autumn	6
STAT231	Probability and Random Variables	Autumn	6
CSCI114	Procedural Programming	Spring	6

MATH302	Differential Equations 3	Spring	6
MATH313	Industrial Mathematical Modelling	Spring	6
or			
STAT232	Estimation and Hypothesis Testing	Spring	6
PHYS375	Nuclear Physics	Spring	6
Year 4			
MATH312	Applied Mathematical Modelling 3	Autumn	6
or			
STAT333	Statistical Inference and Multivariate Analysis	Autumn	6
MATH323	Topology and Chaos	Autumn	6
or			
STAT335	Sample Surveys and Experimental Design	Autumn	6
2 x	300 level Mathematics subjects	Spring	12
or			
STAT304	Operations Research and Applied Probability	Spring	6
and			
STAT332	Multiple Regression and Time Series	Spring	6
PHYS385	Statistical Mechanics	Spring	6
PHYS390	Astrophysics	Spring	6