



The University of Sydney

School of Chemical and Biomolecular Engineering

Master of Engineering (Environmental)

Program overview

Chemical and Biomolecular Engineering is a dynamic, challenging and stimulating profession. Chemical and Biomolecular Engineers build a bridge between science and manufacturing, applying the principles of chemistry and engineering to solve problems in medical research and clinical healthcare as well as issues associated in the production or use of chemicals. Student will study and conduct research in materials science, photonics, environmental sustainability, energy, mineral processing, biotechnology, wastewater treatment, and biofuel products.

Students are required to study 48 credit points to complete this Master degree program. Outstanding performance in this program can lead to acceptance into a Master by research or a PhD program. If students are offered the Graduate Diploma program, students are only required to study 36 credit points to complete the degree. Outstanding performance in this program can lead to acceptance into a Master degree program. Students may enrol in any Master of Engineering unit of study offered in Faculty of Engineering, but must enrol in at least half of the total number units of study from School of Chemical and Biomolecular Engineering. Special Permission is required to enrol in units outside the School.

Admission:

Recognised equivalent Bachelor degree in Science, Engineering, Pharmacy or Technology.

Duration:

1-year full time, or 2-year part time.

Core units of study

Candidates must complete 4 out of 5 of these core units of study offered.

Unit of study	Credit points	A: Assumed knowledge P: Prerequisites C: Corequisites N: Prohibition	Session
CHNG5601 Membrane Science	6		Semester 1
CHNG5603 Analysis, Modelling, Control: BioPhy Sys	6		Semester 1
CHNG5002 Environmental Decision Making	6	A Ability to conduct mass and energy balances, and the integration of these concepts to solve 'real' chemical engineering problems. Ability to understand basic principles of physical chemistry, physics and mechanics. Ability to use basic calculus and linear algebra, and carry out such computations using Matlab and MS Excel. Ability to read widely outside of the technical literature and to synthesise arguments based on such literature. Ability to write coherent reports and essays based on information from diverse sources. P CHNG3801 Process Design CHNG3802 Operation, Analysis and Improvement of Industrial Systems CHNG3803 Design Practice 1 - Chemical & Biological Processes CHNG3805 Product Formulation and Design CHNG3806 Management of Industrial Systems CHNG3807 Design Practice 2 - Products and Value Chains <i>This UoS is an advanced elective in chemical engineering. The concepts and enabling technologies taught in this course are relevant to the real world practice of chemical engineering across a range of industries.</i>	Semester 2
CHNG5604 Membrane Science Laboratory	6		Semester 2
CHNG5003 Green Engineering	6	A Enrolment in this unit of study assumes that all (six) core chemical engineering UoS in third year have been successfully completed. P CHNG3801 Process Design CHNG3802 Operation, Analysis and Improvement of Industrial Systems CHNG3803 Design Practice 1 - Chemical & Biological Processes CHNG3805 Product Formulation and Design CHNG3806 Management of Industrial Systems CHNG3807 Design Practice 2 - Products and Value Chains	Semester 2

Recommended elective units of study

Candidates must complete 24 credit points from this table, or other units, approved by the Postgraduate Director School of Chemical and Biophysical Engineering

CHNG5602 Cellular Biophysics	6		Semester 1
CHNG5004 Particle and Surfaces	6	A Enrolment in this unit of study assumes that all (six) core chemical engineering UoS in third year have been successfully completed. P CHNG3801 Process Design CHNG3802 Operation, Analysis and Improvement of Industrial	Semester 2

		Systems CHNG3803 Design Practice 1 - Chemical & Biological Processes CHNG3805 Product Formulation and Design CHNG3806 Management of Industrial Systems CHNG3807 Design Practice 2 - Products and Value Chains	
CHNG5904 Seminar 1	2	<i>Note: Department permission required for enrolment See School of Chemical and Biomolecular Engineering for information</i>	Semester 1 Semester 2
CHNG5605 Bio-Products: Laboratory to Marketplace	6	Semester 2 <i>This unit of study is offered as an advanced elective unit of study to final year undergraduate students. Students may be required to attend lectures off-campus.</i>	Semester 2
CHNG5902 Project Part B	6	<i>Note: Department permission required for enrolment See School of Chemical and Biomolecular Engineering for information</i>	Semester 1 Semester 2
CHNG5905 Seminar 2	2	<i>Note: Department permission required for enrolment See School of Chemical and Biomolecular Engineering for information</i>	Semester 1 Semester 2
CHNG5906 Extended Project	12	<i>Note: Department permission required for enrolment See School of Chemical and Biomolecular Engineering for information</i>	Semester 1 Semester 2
CHNG5907 Extended and Enhanced Project	24	<i>Note: Department permission required for enrolment See School of Chemical and Biomolecular Engineering for information</i>	Semester 1 Semester 2

Please visit our website: www.chem.eng.usyd.edu.au or send us an email to: info@chem.eng.usyd.edu.au for more information.