

985AC Bachelor of Engineering (Chemical) and Bachelor of Science

Year and Campus:	2010 - Parkville
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Level:	Undergraduate
Duration & Credit Points:	500 credit points taken over 60 months full time. This course is available as full or part time.
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Course Overview:	Chemical engineers invent, design and implement processes through which raw materials are converted into valuable products such as petrol, power and toothpaste. This specialisation promotes development of practical, laboratory-based skills, combined with expertise in computing and simulation. There is a strong focus on the sustainable development of chemical processes and products. Career opportunities in the field are extensive and encompass the petrochemical, mining, food, pharmaceutical or chemical industries.
Objectives:	The course objectives are that graduates should have acquired: <ul style="list-style-type: none"> # A broad knowledge of science and engineering in several disciplines including a sound fundamental understanding of scientific and engineering principles and methods; # An in-depth knowledge and skills within specified areas of engineering and science; # The appropriate analytical, problem-solving and design skills; # Capacity to apply practical skills towards the development of mathematical and computer-based solutions of problems;A # Learning skills and a knowledge base to enable them to readily accommodate future changes in technology; # Verbal and written communication skills that enable them to communicate effectively in the context of defining and solving problems; # An understanding of the basic principles underlying the management of physical, human and financial resources; # Skills, personal attributes and depth of knowledge which equip them for positions of leadership in basic and applied research, engineering and management of technology-intensive enterprises; # An appreciation of the roles and responsibilities of engineers and scientists in society; and # The educational and professional standards of the professional institutions with which the faculties' courses are accredited.
Course Structure & Available Subjects:	The standard BE/BSc combined degrees require a total of 500 points, within which students must take a minimum of 300 engineering points and 237.5 science points. The total points of a standard course can be kept to 500 as at least 50 points of core material within the various streams of engineering also earn science points. BE/BSc course structure To satisfy course requirements students must: take the set of core engineering subjects prescribed for the branch of engineering being studied. This will include the professional study requirements in one of chemical engineering, civil engineering, environmental engineering, mechanical engineering; and either electrical, computer or software engineering; accumulate a minimum of 237.5 science points, which must include:

between 75 and 125 points at 100-level;

completion of 50 points of a prescribed science major at the 300-level. Detailed information on the science majors available is contained within the course entry for the Bachelor of Science (**course code 755-BB (/view/2008/755-BB)**)

With regard to the science component note that:

There are no specific requirements at the 200-level.

Science points are awarded for the completion of science subjects listed in the Faculty of Science section of this Handbook. The majority of subjects listed in this section earn science credit, although there are exceptions. Some subjects offered by the Department of Information Systems, Department of Mathematics and Statistics, and School of Earth Sciences do not earn science credit. If a subject does not earn science credit it is labelled as non-science in the subject description. Any subject that does not appear in the science section of this Handbook is a non-science subject.

The engineering component may require the completion of specific (generally 100-level) science subjects. These subjects are detailed in the requirements of the various engineering courses that follow in the departmental entries.

A science major in computer science is not available to students undertaking the Software Engineering stream in the BE. These students will be required to undertake a major in an alternative science discipline (e.g. mathematics and statistics).

Students will not normally be permitted to complete more than 237.5 science points.

Selection of science subjects

Students are normally able to enrol in any subjects earning science credit where they have satisfied the prerequisite and corequisite requirements. These requirements are included in individual subject descriptions. Note that some science subjects are quota-restricted as the demand for the subject exceeds the number of places available. Selection into quota subjects is based on academic merit. Refer to the Faculty of Science section Quota subjects

Students who commenced prior to 1999

Students who first enrolled in the combined engineering/science course before 1999 must complete the requirements set out above with the exception that they do not need to complete a prescribed science major, but rather 50 points at 300-level made up of science subjects of their choice.

Subject Options:

There will be no First to Third year Entry into this course from 2010

Note: Students who commenced 3rd year in 2009 and have not completed (or who have failed) the third year subjects required in the Bachelor of Engineering degree please see a course adviser.

Fourth Year

Subjects listed below MUST be taken in this approved order, regardless of semester availability

Semester 1

Subject	Study Period Commencement:	Credit Points:
CHEN30001 Reactor Engineering	Semester 1	12.50
CHEN30005 Heat and Mass Transport Processes	Semester 1	12.50
CHEN30013 Chemical Engineering Management	Semester 1	12.50
CHEN30014 Bioprocess Engineering	Semester 1	12.50

Semester 2

Subject	Study Period Commencement:	Credit Points:
CHEN30009 Process Dynamics and Control	Semester 2	12.50
CHEN30010 Practical and Computer Laboratory	Semester 2	12.50

CHEN30012 Process Engineering 2	Semester 2	12.50
BIEN30001 Bionanoengineering	Semester 2	12.50

Fifth Year

Subjects listed below MUST be taken in this approved order, regardless of semester availability

Semester 1

Subject	Study Period Commencement:	Credit Points:
CHEN40002 Particle Mechanics and Processing	Semester 1	12.50
CHEN40004 Heat and Mass Transport Processes 2	Semester 1	12.50
CHEN40005 Process Equipment Design	Semester 1	12.50
CHEN40007 Process Engineering 3	Semester 1	12.50

Semester 2

Subject	Study Period Commencement:	Credit Points:
CHEN40008 Research Project	Summer Term, Semester 1, Semester 2	18.75
CHEN40009 Design Project	Semester 2	18.75

AND **one** of the following two subjects

Subject	Study Period Commencement:	Credit Points:
CHEN40010 Biochemical/Environmental Engineering 2	Semester 2	12.50
CHEN40011 Minerals, Materials and Recycling	Semester 2	12.50

Entry Requirements:	There will be no further entries into the combined degree.
Core Participation Requirements:	For the purposes of considering request for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Students Experiencing Academic Disadvantage Policy, academic requirements for this subject are articulated in the Subject Description, Subject Objectives, Generic Skills and Assessment Requirements of this entry. The University is dedicated to provide support to those with special requirements. Further details on the disability support scheme can be found at the Disability Liaison Unit. Website: http://www.services.unimelb.edu.au/disability
Further Study:	On completion of a Bachelor of Engineering, students may choose to apply for candidature in a Masters by Research or PhD degree. They may also apply to undertake a one year Advanced Masters by Coursework degree.
Graduate Attributes:	The Bachelor of Engineering is a professional degree. Graduate can obtain professional recognition by joining Engineers Australia who has accredited these programs. The Bachelor of Engineering also delivers on the University graduate attribute - http://www.unimelb.edu.au/about/attributes.html
Professional Accreditation:	The Bachelor of Engineering is accredited with Engineers Australia
Generic Skills:	Upon completion of this course the student should have developed their: <ul style="list-style-type: none"> # Ability to apply knowledge of basic science and engineering fundamentals; # Ability to communicate effectively, not only with engineers but also with the community at large; # In-depth technical competence in at least one engineering discipline; # Ability to undertake problem identification, formulation and solution; # Ability to utilise a systems approach to design and operational performance;

- # Ability to function effectively as an individual and in multi-disciplinary and multicultural teams, with the capacity to be a leader or manager as well as an effective team member;
- # Understanding of the social, cultural, global and environmental responsibilities of the professional engineer, and the need for sustainable development;
- # Understanding of the principles of sustainable design and development;
- # Understanding of and commitment to professional and ethical responsibilities; and
- # Expectation and capacity to undertake life-long learning.