FREQUENTLY ASKED QUESTIONS ABOUT CHEMICAL ENGINEERING

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ENTRY TO COURSES

- ***What will the entry score be for 2010 and how is it decided?***

  This is impossible to predict; it changes every year because of changes in the number of places available, the number of applicants, and the standard of applicants. Altering any of these factors will have an effect on the final entry cut-off score.

  The Faculty does not 'decide' in advance what the entry score will be. It is a result of the number of places offered, the number of applications, and the level of scores of the applicants. The cut-off entry score reflects the ENTER of the person with the lowest score who received an offer in the course in the first-round when the line is drawn at the number of VCE school-leavers to be offered places in that year.

- ***What if I don't achieve the entry score and don't get into the course?***

  One option would be to enroll in a related course from another faculty at Monash and apply for an internal transfer at the end of first year, but be aware that you would need at least a credit-level average to be accepted into a different course and that admission may be subject to hurdle requirements, such as satisfying unit prerequisites. Alternatively, you could do a similar course at another institution (university or TAFE) then apply for a transfer (through VTAC) after your first year there, or you could consider studying for an additional group of VCE subjects (which do not incur a penalty) and try again.

- ***What was the cut-off point in VCE ENTER (CSP place) scores required to enter the Faculty of Engineering in 2009?***

  Bachelor Engineering

Clayton	91.15

  Students entering the Bachelor of Engineering course on any campus, take a common first year course and progress to one of seven disciplines offered by the Faculty of Engineering. Students wishing to enroll in Bachelor Engineering (Chemical) would enroll in course code 0032.

  Double Degrees

BA/BE	94
BCom/BE	95.1
BSc/BE	93.35
BE/LLB	98.35
BBiomed Sci/BE	93.30
BPharm/BE	92.2

- ***Can I get in if I do a course from another university or a TAFE course; and what credits will I be given?***

  Exemptions for studies undertaken at other Australian or overseas universities are given, depending on whether the content of such subjects is comparable with ours. Students are normally advised of the credit they are likely to receive at enrolment. We do not pre-assess exemptions prior to enrolment except for international student offers.

- ***What VCE subjects should I do apart from the prerequisites?***

  Do whatever you enjoy. Providing the entrance requirements are met, it is not essential that any particular subjects have been studied. The study of particular subjects may be beneficial within the middle band, where re-ranking is necessary. However for the BE, bonus points are given for doing both Chemistry and Physics, and for doing Specialist Mathematics if you are in the middle band.

- ***Will it be hard to do first year units if I have no background in this discipline?***
  You must not assume that units are the same just because they have similar titles in VCE and first-year university. All first year units are offered for all students irrespective of whether they have done similar subjects before at VCE, so everyone has a chance to embark on new subjects for the first time and also to major in them.

- ***At what point should the cut-offs influence preferences?***
  Within reason students should choose a course that will lead them to their desired career. If you are not certain of your career preference, consider choosing a more generalist course to allow flexibility of choice and keep your options open. Other considerations should be the total content of the course and its campus, then previous ENTERs for the course (dropping down about 5 points). Be very realistic at change of preference time – obtain advice from Careers Teachers, Selection Officers, etc.

- ***What are the entry requirements for double degree courses?***
  Entry requirements for any double course are higher than the single degrees.

- ***How should I list my preferences - for example, I want to do Commerce/Engineering at Clayton?***
  1. Commerce/Engineering (Clayton)
  2. Engineering (Clayton)
  3. Commerce (Clayton)

  If you do not get your first preference, you can begin a single degree and apply for a transfer to the double degree/another campus provided your results are good enough, e.g. minimum credit (60%) average.

- ***How easy is it to move from one course to another within the Faculty?***
  Moving between courses is relatively straightforward, subject to certain requirements. Transfers to a place in another program will not normally be considered until a student has completed eight units in their original program.

- ***Can I defer?***
  Yes, normally for one year only. When you receive your offer from VTAC, come in on the enrolment day specified and apply for deferment, or you can telephone the Faculty and advise that you wish to defer, followed by written confirmation.

- ***What if I haven't done Maths, or haven't done the right Maths?***
  The prerequisite is VCE Maths Methods. We cannot accept an applicant without this subject or equivalent.

- ***Does this Faculty give bonus points for any VCE studies?***
  Bonus points are only applied in the middle band selection for both Chemistry and Physics and for Specialist Mathematics.

- ***What is looked for when selecting from the 'middle band'?***
  When applicants are considered, there are three groups: those clearly above the 'middle band', those clearly below, and those (maximum 20%) around the middle band, about whom more information is needed before it can be decided whether to offer a place or not. This includes looking at whether an applicant has completed both Chemistry and Physics or Specialist Mathematics.

- ***How many first year students do you take in?***
  In 2009 the Faculty enrolled approximately 200 students into the single BE degree at Clayton.

- ***Can I study part-time?***
  The faculty permits both full-time and part-time enrolment. Units to the value of 24 credit points constitute a normal full-time enrolment in any semester. There are therefore 48 credit points in a normal full-time year.

  An overweight enrolment of up to 30 credit points in a semester can be permitted.

  The faculty believes that full-time enrolment is generally in the best interests of students studying in on-campus mode, but is well aware of the variety of circumstances, which may oblige a student to take a reduced load. Part-time enrolment is allowed, provided the student is aware of the maximum time limit for degree completion stated in the regulations for the relevant course.

- **Time limit and leave of absence**
  For engineering degrees at Monash, the time limit is eight years from initial enrolment except for the double degree in law and engineering where the time limit is 10 years. For distance education students, the time limit is 12 years. For the two B. Tech degrees, the time limit is six years including an allowance of one year for completion of approved studies at TAFE. Where circumstances arise which oblige students to suspend their studies for a time, leave of absence may be sought from the faculty for one semester or one year at a time (but not more). Information about the appropriate steps to be taken is available from the faculty's administration offices on each campus. Students should remember that periods granted as leave of absence are counted as part of their total time limit.

COURSES AND STUDIES

- ***What is the course structure like?***
  Bachelor of Engineering in Chemical Engineering
  The Bachelor of Engineering (BE) degree course has four levels and is normally a four-year course if it is completed as full-time (one level per year). Level One, which is common to all engineering branches, includes an introduction to the main Engineering disciplines: Chemical, Civil, Electrical, Materials and Mechanical engineering and also the following units some of which are electives:
  - ***Engineering Systems***
  - ***Engineering Computing***
  - ***Engineering Context***
  - ***Engineering Mathematics***
  - ***Physics in Engineering***
  - ***Chemistry in Engineering***

  Transfer into specific branches of engineering does not occur until Level Two.

Structure of the BE (Chemical Engineering) Degree Course (2008)

YEAR 1	YEAR 2	YEAR 3	YEAR 4
Semester One			
Common Level One Units	CHM2735 Chemistry-principles and practice	CHE3161 Chemistry and Chemical Thermodynamics	CHE4161 Engineering in Society)
	ENG 2091 Advanced Engineering Mathematics A	CHE3163 Sustainable Processing 1	***Option Stream Unit 2***
	CHE2164 Engineering Thermodynamics	CHE3165 Separation Processes	CHE4180 Chemical engineering research project
	CHE2165 Bio-Nano Engineering	CHE3167 Transport Phenomena and Numerical Methods	
Semester Two			
Common Level One Units	CHE2162 Material and Energy Balances	CHE3162 Process Control	CHE4170 Design project
	CHE2163 Heat and Mass Transfer	CHE3164 Reaction engineering	
	CHE2161 Fluid Mechanics	CHE3166 Process Design	CHE4162 Particle Technology
	ENG 2092 Advanced Engineering Mathematics B	***Option Stream Unit 1***	***Option Stream Unit 3***

In Level Three of the course, students will continue to study core chemical engineering units as well a unit from the following optional streams:

Biotechnology
Nanotechnology and Materials
Sustainable processing

Level Four of the course includes two major projects: the Research project and the Design project. The research project permits students to learn something of the research in which the Department is involved and gives them the opportunity to sample the life of a research professsional. The design project draws on all previously studied topics in a capstone exercise which usually involves the complete design of a chemical plant, with particular regard to environmental impact, safe operation and including an economic evaluation. They will also complete 2 additional units from their option stream.

The various double degree programs offered by the department include the core units from the BE(Chemical Engineering) double degree together with units from the partner Faculty, integrated throughout the duration of the course. For further information, please refer to the brochures on the course and the university handbook.

- **Is there a lot of Chemistry in Chemical Engineering?**
  The Chemical Engineering degree course includes relatively few units under the heading of chemistry. However, physical chemistry and chemical thermodynamics are covered in several Chemical Engineering units.

What double degrees are there within the Faculty?

Engineering students may elect to undertake Chemical Engineering with one of the double degree programs with the faculties of Arts, Business & Economics, Medicine, Pharmacy, Science or Law. There are other double degrees available, but these cannot be taken with Chemical Engineering. The details and normal minimum duration of these double degree programs are given below:

Code	Name of Course	Duration
BA/BE	Arts-Engineering	5 years
BCom/BE	Commerce-Engineering	5 years
BSc/BE	Science-Engineering	5 years
BE/BPham,Sci	Engineering-Pharmacy	5 years
BE/LLB	Law-Engineering	6 years
BBioMed Sci/BE	Biomedical Science – Engineering	5 years

- ***What are the differences between the courses within the Faculty?***

  Engineering first year comprises of introductory units in engineering and the foundation sciences. After first year, subject to academic merit and any quotas, students move into a preferred engineering discipline. Students pursue one of six disciplines:

  - chemical,
  - civil,
  - electrical and computer systems,
  - materials,
  - mechanical,
  - mechatronics,

- ***How many units from other faculties can I do in the single degrees?***

  It depends on the degree undertaken and can change from year to year. See the Undergraduate Student handbook at http://www.monash.edu.au/pubs/handbooks/

- ***Can a language be studied as part of a degree?***

  A language can only be studied as a double degree, or as part of the Diploma of Languages which can be taken concurrently with your undergraduate degree.

- ***Is it possible to do electives at another campus?***

  The student must check with the Faculty to see if the elective unit is permitted.

- ***Do the courses have any industrial experience built into them?***

  Faculty regulations state that, before graduating, each student must complete a minimum of 12 weeks vacation employment with an approved organisation(s), and that the work must be covered by one or more reports submitted. Students of the BE(Chemical Engineering) maintaining a sufficiently high academic performance are offered the opportunity to include an integral industrial training placement in their penultimate semester of their course.

- ***How do I gather further information on specific units?***

  Refer to the Undergraduate University Handbook. Your Careers Teacher should have a copy of this or you can obtain one from campus bookshops, or refer to the handbook online: **www.monash.edu.au/pubs/handbooks/**

PROFESSIONAL ACCREDITATION

- ***Can courses lead to accreditation with professional organisations?***
  Yes, the Bachelor of Engineering (Chemical Engineering) is fully accredited by the Institution of Engineers, Australia (IEAust) and the Institution of Chemical Engineers (UK). This means that as a graduate you can practice as a chemical engineer in many parts of the world without needing to re-qualify.

CAREER OPTIONS

- ***What are the career and job options for graduates from the courses offered by the Faculty?***
  Prospects are good in a huge range of professional, government, commercial fields, especially for those students who achieve good results. Almost any job is possible, limited only by your interests, subjects studied and imagination!

  Details regarding employment of graduates can be found in the annual publication 'Graduate Destination Survey' for the Faculty of Engineering (available from Monash University Careers Service). Example industries which employ chemical engineers together with a description of their processes and products are listed below:

Industry	Examples of processes and products
Oil refining	Refining of crude oil to produce petrol, other fuels, oils and feed stocks for the petrochemical industry.
Petrochemicals	Processing of crude oil into plastics such as polythene, polystyrene, polypropylene.
Chemicals	Making fertilisers, detergents and cosmetics
Pharmaceuticals	Making the medicines required by an expanding population worldwide.
Minerals	Processing bauxite ore to produce aluminum – used wherever we need a lightweight strong material or a good conductor of heat and electricity.
Food processing	Making beer from malted barley, hops and water. Making cheese, yoghurt and dried milk from milk.
Environmental	Solving air and water pollution problems. Developing new processes with high efficiency and minimal impact of the environment.
Energy	Developing new high efficiency, environmentally friendly processes for generation of electric power from fossil fuels.
Paper	Recovery and recycling of chemical used in breaking down wood into wood pulp for manufacture of paper.
Biotechnology	Developing processes for using renewable raw materials (e.g. plants) for manufacture of fuels, medicines, plastics, chemicals etc.
Nanotechnology	Nanotechnology is literally engineering at the molecular level. Over the last two decades, our ability to manipulate matter at the molecular level has improved dramatically. This revolution will let us fabricate an entire new generation of products that are cleaner, stronger, lighter, and more precise. Chemical engineers will play an important role in this revolution.

- ***What does the job of a Chemical Engineer working in manufacturing and production involve?***
  ●**Process engineer** – works on an existing process. Maintains production. Solves problems (troubleshooting). Works on ways of increasing production rates when required (de-bottlenecking)

  ●**Design engineer** – designs processes and equipment for clients within or external to his own company. This can be a copy of an existing process but with a different production rate or it could be an entirely new process. The design must be safe, profitable and meet environmental emissions standards.

  ●**Research engineer** – invents new products and processes. Improves efficiency, safety and environmental performance of existing processes.

- ***What are the benefits of a career in Chemical Engineering?***
  Chemical engineering offers technological challenge including problem solving, intellectual satisfaction, variety, and flexibility in a changing world, working with people in a professional team, social value – helping society, international opportunities, good salary, and responsibility.

GENERAL INFORMATION

- ***What is Chemical Engineering all about?***
  What do soap, toothpaste, aspirin, photographic film, mobile phones, paint, petrol, paper, instant coffee and clean power have in common? The answer is, like many other everyday things we take for granted, they all involve chemical engineering at some stage of their manufacture. Chemical engineering is concerned with the economic and safe design, operation and management of processes in which raw materials are converted to useful and valuable products by chemical and physical means and with minimal environmental impact. Chemical engineering has its foundation in chemistry, physics and mathematics; its operations are developed from knowledge provided by these sciences and by other branches of engineering, applied sciences, biological sciences and economics.

- ***Can one make a lot of money as a Chemical Engineer? What does a chemical engineer earn?***
  Regular surveys by the Institution of Chemical Engineers show that Chemical Engineers are amongst the highest paid engineers

- ***How high can one rise as a Chemical Engineer?***
  Chemical Engineers often reach Senior Management positions and often end up as the CEO of large multinational companies. You are limited only by your ambition.

- ***Can one do part of the degree overseas?***
  Monash University has exchange partnerships with more than 80 universities in Asia, Europe, the Middle East and North America. Check with the Monash Abroad Office about the latest opportunities. Both local and international students are eligible to apply. As the process takes time, make sure you begin planning early. Talk to Monash Abroad or faculty staff to see whether you are eligible. In general, students will need faculty support and good academic results and will need to have completed at least one year of their course by the intended date of departure. In addition, it is required that applicants have sufficient proof of their finances to support their period of stay overseas and satisfy the host country's visa requirements.

Continued.

Students are responsible for health insurance, accommodation, living and some travel costs. If you are selected for an exchange placement, tuition fees will not be charged by the overseas institution. Your HECS will cover the government charges or tuition fees for going overseas. Monash University will not charge you extra for studying overseas. Students can continue to receive Youth Allowance benefits when studying overseas, provided they meet eligibility guidelines.

In the third year of studies, students maintaining a sufficiently high academic performance will be offered the opportunity of a semester at one of the following universities with which the Department of Chemical Engineering at Monash University has a special agreement:

In the USA	*In the UK*
University of Colorado	University of Leeds
University of Florida	University of Birmingham
	University College London

Scholarships will be available to eligible students.

Students who select an institution that does not have an exchange arrangement with Monash may be charged tuition fees. There is some financial assistance provided for fee-paying programs that are faculty approved students must also meet the eligibility guidelines for these grants.

If you are interested, start planning now. You need to plan at least 6 to 12 months in advance. Visit the Monash Abroad Office and talk to staff about what programs are available. Information and handbooks about the programs are available at the Monash Abroad Office. Also talk to your lecturers and teachers about what programs will suit you. Pick up an application form from the Monash Abroad Office and submit before the application due dates (end of July for the first semester intake or mid December for the second semester intake).

Students who complete a program will receive a certificate from the university to acknowledge their international academic experience and to add to their resumes.

- ***Monash Abroad grants***
  Some financial assistance and travel grants are available for current Monash University students for approved and accredited periods of overseas study. Additional funds may be available for students who seek financial assistance. Please check with the Monash Abroad Office for eligibility guidelines.

- ***Are there any fees?***
  All university courses attract fees. At Monash the majority of places offered are HECS liable. Under the Higher Education Contribution Scheme (HECS), you pay a proportion of the cost of your course and the balance is funded by the government. HECS payments may be made 'up-front' or deferred and paid back through your income tax when you earn a salary over a certain level, or part payment. In 1998 fee-liable places were introduced whereby students pay the full annual cost of the course up-front. However, admission to all courses is still determined by students' ability to satisfy standard entrance requirements set by Monash University.

  In addition to course fees, there is a Student Amenities fee, which contributes to subsidising the cafeterias, sports facilities, and certain clubs and societies.

Are there Scholarships?

Engineering offers several types of scholarship to first (and later-year) engineering students. Scholarships available for first year students are:

- Sir John Monash Deans Scholars Program
- Sir John Monash Awards for Excellence
- Anthony Joseph Pratt Scholarship
- The Rio Tinto Aboriginal Foundation Scholarships
- Monash Merit and Equity Scholarships
- Department of Chemical Engineering Scholarships
- Women in Engineering Bursaries
- Engineering Excellence Awards
- Monash University Engineering Scholarships

For Scholarship information contact the Scholarships Office:
Telephone: (03) 9905 3013
Fax: (03) 9905 5004
Email: scholars@adm.monash.edu.au

How much do textbooks cost? What textbooks should I buy?

It is hard to estimate the cost of textbooks as the costs are regulated by the publisher from year to year. Check with your lecturer before purchasing a textbook. Some units provide all material, others require textbooks.

- ***Do you include the use of computers in units studied? Do I need to buy a computer?***

  Computers are used in all units. You are strongly encouraged to purchase your own computer. Whilst the university provides computing facilities, it is impossible to provide equipment for everyone when they require it. Wireless access is available on campus.

- ***How many hours a week do I have to study?***

  University policy is that 12 hours per week are expected to be devoted to each Faculty subject during the semester. Generally this will involve 5-6 contact hours for on-campus students and 6-7 hours of independent study.

- ***What facilities are available on the campus?***

  Clayton campus is Monash University's original campus and also its largest. It has more than 60 buildings, covers about 100 landscaped hectares and is the home campus for more than 19,000 students, of whom approx. 1000 live on campus. It is located at the demographic centre of Melbourne. The University's central administration is based at Clayton, as is the administration of most of the faculties, the main library collections and central computer facilities.

  There is a wide range of cultural and recreational facilities; including many sports grounds, tennis and squash courts, gyms and a swimming pool, medical and dental services, a theatre, an art gallery, and an arts and crafts centre. Activities to utilise these facilities are encouraged via more than 150 student clubs. Over a dozen eating outlets cater for a wide variety of tastes and budgets.

Full-time school-leavers are particularly well catered for in terms of facilities, activities, timetabling, and emphasis in courses. The campus has extensive car parking facilities and a major bus terminus on campus.

- ***What assistance does the Faculty offer to new students in the transition from school to university?***
  The Faculty of Engineering offers first year students a mentoring program. The overall goal of mentoring students is to facilitate their personal and career development by establishing and fostering relationships with role models in their field. In a mentoring relationship, professional engineers or Faculty staff in the student's field act as role models and help with the student's transition from academic to professional life. The specific objectives of mentoring students are to:
  - Provide students with positive role models
  - Provide access to the professional community
  - Ease the transition from school to university and also to ease the transition from university to work
  - Offer personal and career guidance
  - Expand the students' horizons

  By providing role models and personal encouragement, mentoring programs offer strong support to students, helping them to persevere in their studies.

Contact: Ms Vicki Nash – Course Advisor within the Faculty of Engineering:
Vicki.Nash@eng.monash.edu.au

- ***What avenues exist to learn more about the Department and its course?***
  - Monash Open Day – all campuses are open to the public and prospective students and their parents are very welcome.
  - Department website – http://www.eng.monash.edu.au/chemeng/index.html .
  - Faculty contacts are shown in the VTAC book and are listed below. Course advisers and directors can be contacted through the Faculty or relevant department.

- ***How do I apply?***
  Australian permanent residents:
  School-leavers (VCE) and applicants with comparable Victorian, interstate or overseas Year 12 or tertiary qualifications, or people applying under the University's Special Admission Scheme, must apply through the Victorian Tertiary Admissions Centre (VTAC). Tel: 1300 364 133
  Web site: www.vtac.edu.au

  The VTAC codes for the Bachelor of Engineering are:

Campus	**CSP**
Clayton	28091
International *	28093

International students:
International students wishing to study at Monash University should contact:
International Recruitment Services
Monash University
871 Dandenong Road
Caulfield East Victoria 3145
Australia

Telephone +61 3 9627 4852
Fax: +61 3 9903 4778
Email: study@monash.edu

IELTS (English Language Centre) queries

International Admissions 9905 2346 (course enquiries, ECOe's and general information about courses)

* International students studying VCE or equivalent in Australia must apply through VTAC.

- ***I live outside Melbourne. Does Monash have accommodation available?***

  Yes, Monash has several Halls of Residence. You can get more information by calling Accommodation Services or accessing the Monash website.
  http://www.monash.edu/international/accommodation/

  There is also a lot of rental accommodation in the Clayton area and lots of students looking to share. This type of accommodation is advertised year round in the Campus Centre or you can view the Housing Advisory Service Database - lists currently available share and whole properties, as well as any full board vacancies. http://www.adm.monash.edu.au/commserv/housing/clayton/housing.html