

# 4637 Bachelor of Engineering (Honours) and Bachelor of Pharmaceutical Science 2015

## Chemical Engineering

### Stage one - Parkville

(48 credit points)

Sem 1	PSC1011 Physiology I	PSC1021 Bioorganic and medicinal chemistry I	PSC1031 Physical chemistry I	PSC1041 Mathematics for pharmaceutical scientists
Sem 2	PSC1012 Physiology II	PSC1022 Bioorganic and medicinal chemistry II	PSC1032 Physical chemistry II	PSC1042 Introduction to pharmaceutical sciences

### Stage two – Clayton: Group 1

(48 credit points)

Sem 1	CHE2164 engineering thermodynamics I	ENG1002 engineering design: cleaner, safer, smarter	ENG1091 Mathematics for engineering	PHS1080 foundation physics
Sem 2	CHE2162 Material and energy balances	CHE2163 Heat and mass transfer	ENG1060 Computing for engineers	ENG2091 Advanced engineering mathematics A

### Stage two – Clayton: Group 2

(48 credit points)

Sem 1	CHE2164 engineering thermodynamics I	CHE2165 Bio-nano engineering	ENG1002 engineering design: cleaner, safer, smarter	ENG1090 foundation mathematics
Sem 2	CHE2162 Material and energy balances	CHE2163 Heat and mass transfer	ENG1060 Computing for engineers	ENG1091 Mathematics for engineering

### Stage two – Clayton: Group 3

(48 credit points)

Sem 1	CHE2164 engineering thermodynamics I	ENG1002 engineering design: cleaner, safer, smarter	ENG1090 foundation mathematics	PHS1080 foundation physics
Sem 2	CHE2162 Material and energy balances	CHE2163 Heat and mass transfer	ENG1060 Computing for engineers	ENG1091 Mathematics for engineering

### Stage two – Clayton: Group 4

(48 credit points)

Sem 1	CHE2164 engineering thermodynamics I	CHE2165 Bio-nano engineering	ENG1002 engineering design: cleaner, safer, smarter	ENG1091 Mathematics for engineering
Sem 2	CHE2162 Material and energy balances	CHE2163 Heat and mass transfer	ENG1060 Computing for engineers	ENG2091 Advanced engineering mathematics A

### Stage three - Parkville

(48 credit points)

Sem 1	PSC2041 Biopharmaceutics	PSC3041 Applied analytical methods	PSC3231 Pharmaceutical product manufacture	PSC3211 Industrial formulation
Sem 2	PSC2132 Introduction to spectroscopy	PSC2222 Formulation chemistry	PSC2232 Colloid chemistry	PSC3222 Advanced formulation and nanotechnology

### Stage four - Clayton

(60 credit points)

Sem 1	CHE2161 mechanics of fluids	CHE3161 Chemistry and chemical thermodynamics	CHE3163 Sustainable processing I	CHE3165 Separation processes and Level 4 Group unit (see below)
Sem 2	CHE3162 Process control	CHE3164 Reaction engineering	CHE3166 Process design	CHE3171 Bioprocess technology and ENG2092 Advanced engineering mathematics B

### Stage five - Clayton

(48 credit points)

Sem 1	CHE3167 transport phenomena and numerical methods	CHE4161 engineering in society	CHE4180 Chemical engineering (12 points)	
Sem 2	CHE4162 Particle technology	CHE4170 Design project (12 points)		CHE4171 Biochemical engineering

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Chemical Engineering

**Stage 2 Group units:**

**Group 1 students must complete:**

ENG2091 Advanced engineering mathematics A  
PHS1080 foundation physics

**Group 2 students must complete:**

CHE2165 Bio-nano engineering  
ENG1090 foundation mathematics

**Group 3 students must complete:**

ENG1090 foundation mathematics  
PHS1080 foundation physics

**Group 4 students must complete:**

CHE2165 Bio-nano engineering  
ENG2091 Advanced engineering mathematics A

**Stage 4 Group units:**

**Group 1 students must complete:**

CHE2165 Bio-nano engineering

**Group 2 students must complete:**

ENG2091 Advanced engineering mathematics A

**Group 3 students must complete:**

ENG2091 Advanced engineering mathematics A

**Group 4 students must complete:**

One 6 point chemical engineering elective unit chosen from the electives below

**Engineering elective units:**

MTE2541 Crystal structures, thermodynamics and phase equilibria      ENE3608 environmental impact assessment and management

**Notes:**

<b>Overloading</b>	Students will normally expect to complete the course in five years. This is achieved by undertaking one additional unit per semester twice in the later stages of the degree. Overloading is not compulsory, students may choose to complete in 5 ½ years.
<b>Credit points</b>	Unless specified, all units are worth 6 credit points <b>Bachelor of Engineering</b> 22 units x 6cp + 2 x 12cp = <b>Total of 156 credit points</b> <b>Bachelor of Pharmaceutical Science</b> 16 units x 6cp = <b>Total of 96 credit points</b>
<b>Duration of degree</b>	5 years full-time, 10 years part-time
<b>Time limit</b>	10 years. Students have ten years in which to complete this award from the time they commence first year. Periods of intermission are counted as part of the ten years.
<b>Variation to course structure</b>	<b>Group 1:</b> students who have completed Specialist mathematics 3/4 but who have not completed VCE Physics 3/4 or the equivalent <b>Group 2:</b> students have completed VCE Physics 3/4 but who have not completed VCE Specialist mathematics 3/4 or the equivalent <b>Group 3:</b> students have not completed Specialist mathematics 3/4 and have not completed VCE Physics 3/4 or the equivalent <b>Group 4:</b> students have completed both VCE Specialist mathematics 3/4 and VCE Physics 3/4 or the equivalent
<b>Course advice</b>	<a href="http://www.eng.monash.edu.au/current-students/course-advice.html">www.eng.monash.edu.au/current-students/course-advice.html</a> <a href="http://www.monash.edu/pharm/current/">www.monash.edu/pharm/current/</a>
<b>Monash University handbook</b>	Students should follow the course requirements for the year the course was commenced <a href="http://monash.edu/pubs/2015handbooks/courses/index-byfaculty-eng.html">http://monash.edu/pubs/2015handbooks/courses/index-byfaculty-eng.html</a>

All information correct at publication but may be subject to change – 15 November 2014  
Faculty of Engineering, Monash University  
CRICOS code 058485F