

# 4638 Bachelor of Science and Bachelor of Engineering (Honours) 2015

## Chemical engineering

### Stage one: (48 credit points)

<b>Sem 1</b>	ENG1002 Engineering design: cleaner, safer, smarter	CHM1011 Chemistry I or CHM1051 Chemistry I advanced	MTH1020 Analysis of change or MTH1030 Techniques for modelling	Stage 1 sequence as outlined below
<b>Sem 2</b>	ENG1060 Computing for engineers	CHM1022 Chemistry II or CHM1052 Chemistry II advanced	MTH1030 Techniques for modelling or MTH2010 Multivariable calculus	Stage 1 sequence as outlined below

### Stage two (48-54 credit points)

<b>Sem 1</b>	CHE2161 Fluid mechanics	CHE2164 Thermodynamics	MTH2021 Linear algebra with applications	Stage 2 sequence as outlined below
<b>Sem 2</b>	CHE2162 Material and energy balances	CHE2163 Heat and mass transfer	MTH2032 Differential equations with modelling and MTH2010 Multivariable calculus ( <i>if not taken at stage one</i> )	Stage 2 sequence as outlined below

### Stage three (48 credit points)

<b>Sem 1</b>	CHE3161 Chemistry and chemical thermodynamics	CHE3163 Sustainable processing I	Stage 3 sequence as outlined below	Stage 3 sequence as outlined below
<b>Sem 2</b>	CHE3162 Process control	Stage 3 sequence as outlined below	Stage 3 sequence as outlined below	Stage 3 sequence as outlined below

### Stage four (48 credit points)

<b>Sem 1</b>	CHE3164 Reaction engineering	CHE3165 Separation processes	Stage 4 sequence as outlined below	Stage 4 sequence as outlined below
<b>Sem 2</b>	CHE3166 Process design	Stage 4 sequence as outlined below	Stage 4 sequence as outlined below	Stage 4 sequence as outlined below

### Stage five (48 credit points)

<b>Sem 1</b>	CHE3167 transport phenomena and numerical methods	CHE4161 Engineers in society	CHE4180 Chemical engineering project (12cp)
<b>Sem 2</b>	CHE4162 Particle technology	Stage 5 sequence as outlined below	CHE4170 Design project (12cp)

#### Stage 1 sequences:

##### Generic sequence – choose one pair:

-ASP1010 Earth to cosmos – introductory astronomy and ASP1022 Life and the universe  
 -BIO1011 Biology and BIO1022 Biology II  
 -ESC1011 Planet earth: Our place in the universe and ESC1022 Planet earth, Surface processes  
 -FIT1029 Algorithmic problem solving and FIT1040 Programming fundamentals  
 -PHS1011 Physics (or PHS1080 Foundation physics) and PHS1022 Physics  
 -STA1010 Statistical methods for science and MAT1830 Discrete mathematics for computer science

##### Major sequence in life sciences:

BIO1011 Biology I  
 BIO1022 Biology II

##### Major sequence in chemistry with a minor sequence in life sciences:

BIO1011 Biology I  
 BIO1022 Biology II

#### Stage 2 sequences (select one sequence to undertake throughout the degree):

##### Generic sequence:

An approved 12 point science sequence to complete a minor in a different science area of study other than mathematics

##### Major sequence in chemistry with a minor sequence in life sciences:

CHM2911 Synthetic chemistry I  
 6 point approved level two chemistry unit

##### Major sequence in life sciences:

Select one pair of units from:

-BCH2011 Structure and function of cellular biomolecules and BCH2022 Metabolic basis of human diseases  
 -MIC2011 Microbiology: The microbial world and MIC2022 Microbiology: Host and environmental interactions  
 -MOL2011 Molecular biology: Genes and their expression and MOL2022 Molecular biology: Gene technology and its application

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Stage 3 sequences:	
<p><b>Generic sequence:</b>            CHE2165 Bio-nano engineering or 6 point chemical engineering elective (if BIO1011 taken at stage one)            24 points of approved science units to complete a major sequence in science</p> <p><b>Major sequence in life sciences:</b>            6 point approved chemical engineering elective unit            12 points of approved science units towards a major sequence in biochemistry, or biochemistry and molecular biology, or microbiology, or microbiology and molecular biology            12 points of approved science units to complete a minor sequence in chemistry</p>	<p><b>Major sequence in chemistry with a minor sequence in life sciences:</b>            BCH2011 Structure and function of cellular biomolecules            BCH2022 Metabolic basis of human diseases            6 point approved chemical engineering unit            12 points of approved science units towards a major sequence in chemistry</p>

Stage 4 sequences:	
<p><b>Generic sequence:</b>            6 point approved chemical engineering unit            24 points of approved science units to complete a second major sequence, or a double major sequence in science</p> <p><b>Major sequence in life sciences:</b>            CHE3171 Bioprocess technology            12 points of approved science units to complete an additional minor sequence in a different science area of study</p>	<p><b>Major sequence in chemistry with a minor sequence in life sciences:</b>            CHE3171 Bioprocess technology            12 points of approved science units to complete an additional minor sequence in a different science area of study</p> <p><b>In addition:</b>            Students studying the major sequence in life sciences select 12 points of approved science units to complete a major sequence in biochemistry or biochemistry and molecular biology or microbiology or microbiology and molecular biology            Students studying the major sequence in chemistry with a minor sequence in life sciences select 12 points of approved science units to complete a major sequence in chemistry</p>

Stage 5 sequences:	
<p><b>Generic sequence:</b>            6 point approved Chemical engineering unit</p> <p><b>Major sequence in life sciences:</b>            CHE4171 Biochemical engineering</p>	<p><b>Major sequence in chemistry with a minor sequence in life sciences:</b>            CHE4171 Biochemical technology</p>

**Notes:**

<b>Choosing the right level one maths unit</b>	The choice of either <a href="#">MTH1020</a> and <a href="#">MTH1030</a> or <a href="#">MTH1030</a> and <a href="#">MTH2010</a> at stage one is determined by the level of preparation from VCE studies
<b>MTH2032</b>	Students who complete a major or extended major in mathematics do not need to overload at stage two but rather complete the unit at stage three
<b>Overloading</b>	Students will normally expect to complete the course in five years. In some cases, overloading may also be required to meet Science requirements – please seek advice from the Faculty of Science. 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 - minimum of: <b>Bachelor of Engineering</b> 18 units x 6cp + 2 x 12cp = <b>Total of 132 credit points</b> <b>Bachelor of Science</b> 18 units x 6cp = <b>Total of 108 credit points</b> (240cp)
<b>Unit requisites</b>	All pre-requisite and co-requisite requirements must be undertaken in order to be able to enrol into a specific unit
<b>Duration of degree</b>	5 years full-time, 10 years part-time
<b>Time limit</b>	Time limit = 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>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://monash.edu/science/current/undergraduate/help/">http://monash.edu/science/current/undergraduate/help/</a>
<b>Monash University handbook</b>	Students should follow the course requirements for the year the course was commenced <a href="http://www.monash.edu.au/pubs/2015handbooks/courses/index-byfaculty-eng.html">www.monash.edu.au/pubs/2015handbooks/courses/index-byfaculty-eng.html</a>