### Chemical engineering

#### Stage one: (48 credit points)

<table>
<thead>
<tr>
<th>Sem</th>
<th>Course</th>
<th>Requirements</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ENG1002 Engineering design: cleaner, safer, smarter</td>
<td>CHM1011 Chemistry I or CHM1051 Chemistry I advanced</td>
<td>Stage 1 sequence as outlined below</td>
</tr>
<tr>
<td>2</td>
<td>ENG1060 Computing for engineers</td>
<td>CHM1022 Chemistry II or CHM1052 Chemistry II advanced</td>
<td>Stage 1 sequence as outlined below</td>
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</tbody>
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#### Stage two: (48-54 credit points)

<table>
<thead>
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<tbody>
<tr>
<td>1</td>
<td>CHE2161 Fluid mechanics</td>
<td>CHE2164 Thermodynamics</td>
<td>MTH2021 Linear algebra with applications</td>
</tr>
<tr>
<td>2</td>
<td>CHE2162 Material and energy balances</td>
<td>CHE2163 Heat and mass transfer</td>
<td>MTH2032 Differential equations with modelling and MTH2010 Multivariable calculus (if not taken at stage one)</td>
</tr>
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#### Stage three: (48 credit points)

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</tr>
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<tbody>
<tr>
<td>1</td>
<td>CHE3161 Chemistry and chemical thermodynamics</td>
<td>CHE3163 Sustainable processing I</td>
<td>Stage 3 sequence as outlined below</td>
</tr>
<tr>
<td>2</td>
<td>CHE3162 Process control</td>
<td>Stage 3 sequence as outlined below</td>
<td>Stage 3 sequence as outlined below</td>
</tr>
</tbody>
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#### Stage four: (48 credit points)

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<thead>
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</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>CHE3164 Reaction engineering</td>
<td>CHE3165 Separation processes</td>
<td>Stage 4 sequence as outlined below</td>
</tr>
<tr>
<td>2</td>
<td>CHE3166 Process design</td>
<td>Stage 4 sequence as outlined below</td>
<td>Stage 4 sequence as outlined below</td>
</tr>
</tbody>
</table>

#### Stage five: (48 credit points)

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

### 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 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
Stage 3 sequences:

**Generic sequence:**
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

**Major sequence in life sciences:**
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

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

Stage 4 sequences:

**Generic sequence:**
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

**Major sequence in life sciences:**
CHE3171 Bioprocess technology
12 points of approved science units to complete an additional minor sequence in a different science area of study

**Major sequence in chemistry with a minor sequence in life sciences:**
CHE3171 Bioprocess technology
12 points of approved science units to complete an additional minor sequence in a different science area of study

In addition:
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

Stage 5 sequences:

**Generic sequence:**
6 point approved Chemical engineering unit

**Major sequence in life sciences:**
CHE4171 Biochemical engineering

**Major sequence in chemistry with a minor sequence in life sciences:**
CHE4171 Biochemical technology

Notes:

Choosing the right one maths unit
The choice of either MTH1020 and MTH1030 or MTH1030 and MTH2010 at stage one is determined by the level of preparation from VCE studies

MTH2032
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

Overloading
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.

Credit points
Unless specified, all units are worth 6 credit points - minimum of:
**Bachelor of Engineering** 18 units x 6cp + 2 x 12cp = Total of 132 credit points
**Bachelor of Science** 18 units x 6cp = Total of 108 credit points

(240cp)

Unit requisites
All pre-requisite and co-requisite requirements must be undertaken in order to be able to enrol into a specific unit

Duration of degree
5 years full-time, 10 years part-time

Time limit
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

Course advice
www.eng.monash.edu.au/current-students/course-advice.html
http://monash.edu/science/current/undergraduate/help/

Monash University handbook
Students should follow the course requirements for the year the course was commenced