### Mechanical Engineering

**Stage one:**

**48 credit points (36 credit point Engineering and 12 credit points Commerce)**

Course advice is required for enrolment in stage one – enrolment plan depends on the need for foundation units.

Level 2 electives may be undertaken following successful completion of 24 credit points.

Students undertake a common first year and nominate their chosen specialisation through the ‘branch selection’ process.

<table>
<thead>
<tr>
<th>Core Units (30 credit points) – all students complete:</th>
<th>Foundation units (0 or 6 credit points)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG1060 Computing for engineers</td>
<td>Students who have not completed VCE units 3 &amp; 4 of Chemistry, Physics</td>
</tr>
<tr>
<td>ENG1091 Mathematics for engineering</td>
<td>and/or Specialist Mathematics must complete one or two units from:</td>
</tr>
<tr>
<td>ENG1001 Engineering design: lighter, faster, stronger</td>
<td>ENG1070 Foundation chemistry</td>
</tr>
<tr>
<td>ENG1002 Engineering design: cleaner, safer, smarter</td>
<td>ENG1090 Foundation mathematics</td>
</tr>
<tr>
<td>ENG1003 Engineering mobile apps</td>
<td>PHS1080 Foundation physics</td>
</tr>
</tbody>
</table>

Students who have not completed Year 12 VCE Specialist Mathematics (or equivalent) must undertake ENG1090 Foundation mathematics.

**Elective units (0 or 6 credit points):**

**Level-one electives:**

- CHE2161 Mechanics of fluids or MEC2404 Mechanics of fluids
- CHM1051 Chemistry I advanced
- ECE2041 Telecommunications
- ECE2072 Digital systems
- ENE1621 Environmental engineering
- ENG1021 Spatial communication in engineering

Students who have not completed VCE units 3 & 4 of Chemistry, Physics and/or Specialist Mathematics must complete one or two units from:

- ENG1071 Chemistry for engineering
- ENG1081 Physics for engineering
- MAE2405 Aircraft performance
- MNE1010 Introduction to mining
- TRC2001 Introduction to systems engineering

6-point elective from any faculty where prerequisites can be met.

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### Stage one (48 credit points)

#### 36cp Engineering and 12cp Commerce

<table>
<thead>
<tr>
<th>Sem 1</th>
<th>Engineering stage one foundation unit or elective unit</th>
<th>Engineering stage one core unit</th>
<th>Engineering stage one core unit</th>
<th>Commerce unit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Engineering stage one core unit</td>
<td>Engineering stage one core unit</td>
<td>Engineering stage one core unit</td>
<td>Commerce unit</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sem 2</th>
<th>Engineering stage one core unit</th>
<th>Engineering stage one core unit</th>
<th>Engineering stage one core unit</th>
<th>Commerce unit</th>
</tr>
</thead>
</table>

### Stage two (48 credit points)

<table>
<thead>
<tr>
<th>Sem 1</th>
<th>MEC2401 Dynamics I</th>
<th>MEC2402 Engineering design I</th>
<th>MEC2403 Mechanics of Materials</th>
<th>Commerce unit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Co-requisites:</td>
<td>MEC2403 or MAE2401 or TRC 2201</td>
<td></td>
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<tr>
<td></td>
<td>ENG1060</td>
<td></td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sem 2</th>
<th>MEC2456 Engineering computational analysis</th>
<th>Commerce unit</th>
<th>Commerce unit</th>
<th>Commerce unit</th>
</tr>
</thead>
</table>

### Stage three (54 credit points)

<table>
<thead>
<tr>
<th>Sem 1</th>
<th>MEC2405 Thermodynamics</th>
<th>Commerce unit</th>
<th>Commerce unit</th>
<th>Commerce unit</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Sem 2</th>
<th>ENG2091 Advanced engineering maths A</th>
<th>MEC2404 Fluid mechanics I</th>
<th>MEC2407 Electromechanics</th>
<th>Commerce unit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Prerequisites</td>
<td>Prerequisites</td>
<td>Prerequisites</td>
<td>Prerequisites</td>
</tr>
</tbody>
</table>

### Stage four (54 credit points)

<table>
<thead>
<tr>
<th>Sem 1</th>
<th>MEC3451 Fluid mechanics II</th>
<th>MEC3453 Dynamics II</th>
<th>MEC3454 Thermodynamics and heat transfer</th>
<th>MEC3455 Solid mechanics</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Prerequisites</td>
<td>Prerequisites</td>
<td>Prerequisites</td>
<td>Prerequisites</td>
</tr>
<tr>
<td></td>
<td>ENG2091 and MEC2404</td>
<td>MEC2401, ENG2091</td>
<td>MEC2404 and MEC2405</td>
<td>MEC2402 and MEC2403</td>
</tr>
<tr>
<td></td>
<td>or MTH2021 or MTH2032</td>
<td>or MTH2021 or MTH2032</td>
<td>or MTH2021 or MTH2032</td>
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</tr>
</tbody>
</table>

**NOTE:** To complete the double degree in 5 years, 1 extra Commerce Unit must be taken as an overload in EITHER semester in Level 3 and 4.

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### Stage five (48 credit points)

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course</th>
<th>Prerequisites</th>
<th>Prerequisites</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sem 1</td>
<td>MEC4401 Final year project</td>
<td>Must have passed 36 credit points at level three in the engineering component of the course.</td>
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<tr>
<td></td>
<td>MEC4404 Professional practice</td>
<td>Must have passed 120 credit points</td>
<td>Commerce unit</td>
<td>Commerce unit</td>
</tr>
<tr>
<td>Sem 2</td>
<td>MEC4407 engineering design III</td>
<td>Engineering elective – choose from elective list</td>
<td>Commerce unit</td>
<td>Commerce unit</td>
</tr>
</tbody>
</table>

#### Mechanical Engineering elective units:

- MEC4417 Refrigeration and air-conditioning
- MEC4418 Control systems
- MEC4425 Micro/nano solid and fluid mechanics
- MEC4426 Computer-aided design
- MEC4427 Systems integrity and maintenance
- MEC4428 Advanced dynamics
- MEC4444 Industrial noise and its control
- MEC4446 Composite structures
- MEC4447 computers in fluids and energy
- MEC4456 Robotics
- MEC4459 Wind engineering
- MEC4402 Final year project – thesis
- MEC4416 Momentum, energy & mass transport in engineering systems

### Notes:

- **Overloading**: 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.
- **Credit points**: Unless specified, all units are worth 6 credit points. **Bachelor of Engineering** 26 units x 6cp = **Total of 156 credit points**. **Bachelor of Commerce** 16 units x 6cp = **Total of 96 credit points**.
- **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**: 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 eight years.
- **Course advice**: [www.eng.monash.edu.au/current-students/course-advice.html](http://www.eng.monash.edu.au/current-students/course-advice.html)
- **Monash University handbook**: Students should follow the course requirements for the year the course was commenced [www.monash.edu.au/pubs/handbooks/undergrad/eng-courses.html](http://www.monash.edu.au/pubs/handbooks/undergrad/eng-courses.html)

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Faculty of Engineering, Monash University
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