**Course progression map for 2021 commencing students**

This progression map provides advice on the suitable sequencing of units and guidance on how to plan unit enrolment for each semester of study. It does not substitute for the list of required units as described in the course 'Requirements' section of the Handbook. Please note that the map is subject to updates. Update version: 13 December 2021

**E3008 Bachelor of Engineering (Honours) and Bachelor of Pharmaceutical Science**

**Engineering specialisation – Chemical engineering**

**Pharmaceutical science specialisation - Formulation science**

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Semester 1</th>
<th>BPS1011 Human physiology I: Cells to systems</th>
<th>BPS1021 Medical chemistry I: Structure</th>
<th>BPS1031 Physical chemistry I: Equilibria and change</th>
<th>BPS1041 Scientific inquiry</th>
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<tr>
<td></td>
<td>February</td>
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<tr>
<td>Year 1</td>
<td>Semester 2</td>
<td>BPS1012 Human physiology I: Body systems</td>
<td>BPS1022 Medical chemistry II: Reactivity and biomolecules</td>
<td>BPS1032 Physical chemistry II: Solutions, surfaces and solids</td>
<td>BPS1042 Pharmaceutical science in context</td>
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<tr>
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<td>July</td>
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<tr>
<td>Year 2</td>
<td>Semester 1</td>
<td>ENG1001 Engineering design: Lighter, faster, stronger</td>
<td>ENG1002 Engineering design: Cleaner, safer, smarter</td>
<td>Foundation unit* or First Year engineering technical elective (if no foundation units are required)</td>
<td>CHE2164 Thermodynamics 1</td>
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<td>Replace with ENG1011 from 2022</td>
<td>Replace with ENG1012 from 2022</td>
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<tr>
<td>Year 2</td>
<td>Semester 2</td>
<td>ENG1005 Mathematics for engineering</td>
<td>ENG1060 Computing for engineers</td>
<td>CHE2163 Heat and mass transfer</td>
<td>CHE2162 Material and energy balances</td>
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<td>July</td>
<td>Required: ENG1000 *</td>
<td>Replace with ENG1014 from 2022</td>
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<td>Year 3</td>
<td>Semester 1</td>
<td>BPS2021 Analytical methods I: Principles and applications</td>
<td>BPS2041 Drug delivery and Pharmacokinetics</td>
<td>BPS3051 Pharmaceutical product development</td>
<td>BPS3061 Industrial formulation</td>
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<tr>
<td>Year 3</td>
<td>Semester 2</td>
<td>BPS2022 Drug discovery and design OR</td>
<td>BPS2042 Drug development</td>
<td>BPS3052 Applied Pharmacokinetics/ dynamics and nanotechnology</td>
<td>BPS3062 Professional experience OR BPS3012 Applied pharmaceutical science: from concept to market</td>
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<tr>
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<td>July</td>
<td>BPS2032 Analytical Methods II</td>
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<tr>
<td>Year 4</td>
<td>Semester 1</td>
<td>CHE3161 Chemistry and chemical thermodynamics</td>
<td>CHE3165 Separation processes</td>
<td>ENG1003 Engineering mobile apps</td>
<td>ENG2006 Advanced engineering mathematics</td>
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<td>Replace with ENG1013 from 2022</td>
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<tr>
<td>Year 4</td>
<td>Semester 2</td>
<td>CHE3166 Process design</td>
<td>CHE2161 Mechanics of fluids</td>
<td>CHE3162 Process control</td>
<td>CHE3164 Reaction engineering</td>
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<tr>
<td>Year 5</td>
<td>Semester 1</td>
<td>ENG4701 Final year project A</td>
<td>CHE4162 Particle technology</td>
<td>CHE4161 Engineers in society</td>
<td>CHE3167 Transport phenomena and numerical methods</td>
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<td>ENG0001 Continuous Professional Development (0 credit points)</td>
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<td>Year 5</td>
<td>Semester 2</td>
<td>ENG4702 Final year project B</td>
<td>CHE4170 Design project</td>
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### Chemical engineering

- **CHE3161 Chemistry and chemical thermodynamics**
- **CHE3165 Separation processes**
- **CHE3166 Process design**
- **CHE2161 Mechanics of fluids**
- **CHE3162 Process control**
- **CHE4162 Particle technology**
- **CHE4161 Engineers in society**
- **CHE4170 Design project**
- **CHE4171 Biochemical engineering**

### Formulation science

- **BPS1011 Human physiology I: Cells to systems**
- **BPS1021 Medical chemistry I: Structure**
- **BPS1031 Physical chemistry I: Equilibria and change**
- **BPS1041 Scientific inquiry**
- **BPS1012 Human physiology I: Body systems**
- **BPS1022 Medical chemistry II: Reactivity and biomolecules**
- **BPS1032 Physical chemistry II: Solutions, surfaces and solids**
- **BPS1042 Pharmaceutical science in context**
- **BPS2021 Analytical methods I: Principles and applications**
- **BPS2041 Drug delivery and Pharmacokinetics**
- **BPS3051 Pharmaceutical product development**
- **BPS3061 Industrial formulation**
- **BPS2022 Drug discovery and design OR BPS2032 Analytical Methods II**
- **BPS2042 Drug development**
- **BPS3052 Applied Pharmacokinetics/ dynamics and nanotechnology**
- **BPS3062 Professional experience OR BPS3012 Applied pharmaceutical science: from concept to market**
- **BPS3064 Computing for engineers**
- **ENG1001 Engineering design: Lighter, faster, stronger**
- **ENG1002 Engineering design: Cleaner, safer, smarter**
- **ENG1005 Mathematics for engineering**
- **CHE2163 Heat and mass transfer**
- **CHE2162 Material and energy balances**
- **ENG1060 Computing for engineers**
- **ENG1000 Chemistry and chemical thermodynamics**
- **ENG1003 Engineering mobile apps**
- **ENG1004 Chemical thermodynamics**
- **ENG1005 Mathematics for engineers**
- **ENG1060 Computing for engineers**
- **ENG1005 Mathematics for engineers**
- **CHE3167 Transport phenomena and numerical methods**
- **ENG0001 Continuous Professional Development (0 credit points)**

#### Note:
- *Foundation units: You enrol in the foundation units ENG1090 and/or PHS1001 if you have not completed the Australian VCE (Units 3 & 4) or equivalent Specialist mathematics and/or Physics with the required study score.*
- CHE3164 and CHE4165 are integrated industrial project units are in place of the final year project units ENG4701 and ENG4702 and for select students only.
- Depending on placement location, you may have to overload a semester or extend an additional semester in order to complete your course.
- CHE4170 - You should not overload in the semester when undertaking this unit.
- You are required to complete at least 420 hours of Continuous Professional Development (CPD) in order to graduate. For further information refer to the [CPD webpage](#).
- For enrolment advice, please refer to the [Course advisers webpage](#).

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