### 2015 SAMPLE COURSE PLANS

#### Chemical Systems
**Bachelor of Science**

<table>
<thead>
<tr>
<th>Year</th>
<th>Semester 1</th>
<th>Semester 2</th>
<th>Semester 3</th>
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</thead>
<tbody>
<tr>
<td>First Year</td>
<td>MAST10006 Calculus 2</td>
<td>ENGR10004 Engineering Systems Design 1</td>
<td>CHEM10003 Chemistry 1</td>
<td>Breadth</td>
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<tr>
<td></td>
<td>MAST10007 Linear Algebra</td>
<td>ENGR10003 Engineering Systems Design 2</td>
<td>CHEM10004 Chemistry 2</td>
<td>Breadth</td>
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<tr>
<td>Second Year</td>
<td>Science Elective</td>
<td>CHEM20010 Material and Energy Balances</td>
<td>CHEM20018 Chemistry: Reactions and Synthesis</td>
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<td></td>
<td>CHEN20011 Chemical Process Analysis</td>
<td>CHEM20009 Transport Processes</td>
<td>MAST20029 Engineering Mathematics</td>
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<tr>
<td>Third Year</td>
<td>CHEN30001 Reactor Engineering</td>
<td>CHEM30005 Heat and Mass Transport Processes</td>
<td>Science Elective</td>
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<td></td>
<td>ENGR30002 Fluid Mechanics</td>
<td>CHEM30015 Process Engineering Case Studies</td>
<td>Science Elective</td>
<td>Breadth</td>
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Without chemical engineering we would not have many important advances in areas such as environmental control and biotechnology. Also, we wouldn't be enjoying some of the products we take for granted today - including plastics, pharmaceuticals, toiletries, processed food and drinks, fertilisers, paint and household cleaners.

Chemical engineering as a profession began around the time of the Industrial Revolution when chemists were trained to apply fundamental science to large-scale chemical production. Known as the 'universal engineer', chemical and biomolecular engineers are extremely versatile and take on a wide range of technical roles, from developing new products and techniques to providing solutions for environmental problems on climate change, pollution and water resources.

The Chemical Systems major leads directly to a **Master of Engineering (Chemical)** or a **Master of Engineering (Biomedical)** and professional registration as an engineer.

**What careers can this major lead to?**

Engineering graduates from the University of Melbourne find interesting and varied employment, reflecting the breadth and value of the courses offered and the University's close links with industry.

Employment can be found in a wide variety of industries including:

- Biochemical engineering
- Biomedical engineering
- Chemicals and allied products
- Energy
- Environmental engineering
- Food manufacture
- Interfacial engineering
- Materials science
- Metal production
What graduate courses does Chemical Systems lead to?
Bachelor of Science graduates who major in Chemical Systems will be eligible to continue on to the Master of Engineering (Chemical) or a Master of Engineering (Biomolecular), and are also well-placed to apply for:

- Professionally-focused graduate degrees in the sciences and technology, including biotechnology, environmental systems, informatics, management science, and nanotechnology
- Graduate degrees preparing for a wide range of professions including engineering, law, medicine and other health sciences, and teaching
- Masters and Honours pathways to research higher degrees in the sciences and technology within the Melbourne Graduate School of Science, Graduate School of Humanities and Social Sciences, Melbourne School of Engineering, Melbourne School of Land and Environment, and the Faculty of Medicine, Dentistry and Health Sciences