

## B-ENG Chemical and Biomolecular Engineering stream

<b>Year and Campus:</b>	2014																																						
<b>Coordinator:</b>	Professor George Franks																																						
<b>Contact:</b>	<b>Email: <a href="mailto:gvfranks@unimelb.edu.au">gvfranks@unimelb.edu.au</a> (mailto:gvfranks@unimelb.edu.au)</b>																																						
<b>Overview:</b>	<p><b>THERE IS NO FURTHER ENTRY INTO THIS COURSE. THE COURSE STRUCTURE BELOW ONLY APPLIES TO RE-ENROLLING STUDENTS WHO COMMENCED THEIR STUDIES PRIOR TO 2010</b></p> <p>The Chemical and Biomolecular Engineering stream of the Bachelor of Engineering (for students commencing in 2008 and later years).</p>																																						
<b>Learning Outcomes:</b>	See Bachelor of Engineering (B-ENG)																																						
<b>Structure &amp; Available Subjects:</b>	The structure of the Bachelor of Engineering degree requires completion of specific subjects as part of this stream. The majority of subjects have one or more prerequisites and therefore the sequence in which subjects are taken is very important. It is unlikely that prerequisite waivers will be granted for these engineering subjects and therefore students should take care to select subjects in one study period that satisfy prerequisites for subjects in later study periods.																																						
<b>Subject Options:</b>	<p><b>First Year (normally 100 points taken in Year 1)</b></p> <table border="1"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>ENGR10003 Engineering Systems Design 2</td> <td>Summer Term, Semester 2</td> <td>12.50</td> </tr> <tr> <td>ENGR10004 Engineering Systems Design 1</td> <td>Semester 1, Semester 2</td> <td>12.50</td> </tr> <tr> <td>CHEM10003 Chemistry 1</td> <td>Semester 1, Semester 2</td> <td>12.50</td> </tr> <tr> <td>CHEM10004 Chemistry 2</td> <td>Summer Term, Semester 2</td> <td>12.50</td> </tr> <tr> <td>MAST10005 Calculus 1</td> <td>Semester 1, Semester 2</td> <td>12.50</td> </tr> <tr> <td>MAST10006 Calculus 2</td> <td>Semester 1, Semester 2</td> <td>12.50</td> </tr> </tbody> </table> <p>Plus</p> <ul style="list-style-type: none"> <li># Two breadth subjects (i.e. 25.00 credit points total)</li> </ul> <p>N.B.</p> <ul style="list-style-type: none"> <li># Students who have completed VCE Specialist Mathematics (or equivalent) are exempt from MAST10005 Calculus 1 and should therefore enrol in MAST10006 Calculus 2 and MAST10007 Linear Algebra.</li> <li># Students with a high level of achievement in mathematics may enrol in both MAST10008 Accelerated Mathematics 1 and MAST10009 Accelerated Mathematics 2 instead of both MAST10006 Calculus 2 and MAST10007 Linear Algebra.</li> </ul> <p><b>Second Year (normally 100 points taken in Year 2)</b></p> <table border="1"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>CHEN20007 Chemical Process Analysis 1</td> <td>Semester 1, Semester 2</td> <td>12.50</td> </tr> <tr> <td>CHEN20008 Chemical Process Analysis 2</td> <td>Semester 2</td> <td>12.50</td> </tr> <tr> <td>CHEN20009 Transport Processes</td> <td>Semester 2</td> <td>12.50</td> </tr> <tr> <td>CHEM20018 Chemistry: Reactions and Synthesis</td> <td>Semester 1</td> <td>12.50</td> </tr> </tbody> </table>			Subject	Study Period Commencement:	Credit Points:	ENGR10003 Engineering Systems Design 2	Summer Term, Semester 2	12.50	ENGR10004 Engineering Systems Design 1	Semester 1, Semester 2	12.50	CHEM10003 Chemistry 1	Semester 1, Semester 2	12.50	CHEM10004 Chemistry 2	Summer Term, Semester 2	12.50	MAST10005 Calculus 1	Semester 1, Semester 2	12.50	MAST10006 Calculus 2	Semester 1, Semester 2	12.50	Subject	Study Period Commencement:	Credit Points:	CHEN20007 Chemical Process Analysis 1	Semester 1, Semester 2	12.50	CHEN20008 Chemical Process Analysis 2	Semester 2	12.50	CHEN20009 Transport Processes	Semester 2	12.50	CHEM20018 Chemistry: Reactions and Synthesis	Semester 1	12.50
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MAST10007 Linear Algebra	Summer Term, Semester 1, Semester 2	12.50
MAST20029 Engineering Mathematics	Summer Term, Semester 1, Semester 2	12.50
ENGR30002 Fluid Mechanics	Semester 1, Semester 2	12.50

Plus

# One breadth subject (i.e. 12.50 credit points total)

N.B.

# Students who have completed VCE Specialist Mathematics (or equivalent) and completed either both MAST10006 Calculus 2 and MAST10007 Linear Algebra or both MAST10008 Accelerated Mathematics 1 and MAST10009 Accelerated Mathematics 2 in Year 1 can replace MAST10007 Linear Algebra in the table above with a science elective.

# A science elective is any subject available as science credit in the Bachelor of Science course (B-SCI). Refer to **Science-credited subjects - new generation B-SCI and B-ENG** ([././view/current/%21B-SCI-SPC%2B1021](#)) for a full list of subjects. Science electives may have prerequisites.

### Third Year (normally 100 points taken in Year 3)

Subject	Study Period Commencement:	Credit Points:
CHEN30001 Reactor Engineering	Semester 1	12.50
CHEN30005 Heat and Mass Transport Processes	Semester 1	12.50
CHEN30015 Process Engineering Case Studies	Semester 2	12.50
CHEN90020 Chemical Engineering Management	Semester 1	12.50
CHEN90032 Process Dynamics And Control	Semester 2	12.50
CHEN90031 Bioprocess Engineering	Semester 1	12.50
BIEN90004 Biochemical & Pharmaceutical Engineering	Semester 2	12.50

Plus one Chemical Engineering elective selected from:

Subject	Study Period Commencement:	Credit Points:
BMEN90011 Tissue Engineering & Stem Cells	Semester 2	12.50
CHEN90007 Advanced Thermo & Reactor Engineering	Semester 2	12.50
CHEN90011 Bioenvironmental Engineering	Semester 2	12.50
CHEN90010 Minerals, Materials and Recycling	Semester 2	12.50
BMEN90012 Soft Matter Engineering	Semester 1	12.50

### Fourth Year (normally 100 points taken in Year 4)

Subject	Study Period Commencement:	Credit Points:
CHEN90009 Fermentation Processes	Semester 1	12.50
CHEN90012 Process Equipment Design	Semester 1	12.50
CHEN90013 Process Engineering	Semester 1	12.50
CHEN90018 Particle Mechanics and Processing	Semester 1	12.50
BIEN90002 Biochemical Engineering Design Project	Semester 2	25

	BIEN90001 Biochemical Engineering Research Project	Summer Term, Semester 1, Semester 2	25
<b>Notes:</b>	<ul style="list-style-type: none"> <li># Students who completed third year in 2010 will have taken BIEN30001 Bionanoengineering as a core subject instead of CHEN30015 Process Engineering Case Studies. These students may choose to take CHEN30015 as an elective.</li> <li># Students who completed third year prior to 2013 will have taken CHEN90008 Biology for Engineers instead of CHEN90031 Bioprocess Engineering. Credit cannot be obtained for both subjects.</li> <li># Students who completed third year prior to 2013 will have taken ENGR30001 Fluid Mechanics and Thermodynamics instead of ENGR30002 Fluid Mechanics. Credit cannot be obtained for both subjects.</li> <li># Credit cannot be obtained for both BIEN30001 Bionanoengineering and BMEN90012 Soft Matter Engineering</li> </ul>		
<b>Related Course(s):</b>	Bachelor of Engineering		