Master of Engineering (Biomolecular)

Year and Campus:	2012
Coordinator:	Professor Sandra Kentishsandraek@unimelb.edu.au
Contact:	Melbourne School of Engineering Ground Floor, Old Engineering (Building 173) Current students: Email: **13MELB@unimelb.edu.au (mailto:13MELB@unimelb.edu.au)** Phone: 13MELB (13 6352) +61 39035 3511 Prospective students: Email: **eng-info@unimelb.edu.au (mailto:eng-info@unimelb.edu.au)** Phone +61 3 8344 6944
Overview:	Biomolecular engineers explore the development of large scale processes using microbial, plant or animal cells. Career opportunities for biomolecular engineers exist in specialized biomolecular industries such as the pharmaceutical and food industries but also encompass more traditional chemical engineering fields including petrochemical, minerals and energy, environmental consulting and fertiliser, paint and detergent manufacture.
Objectives:	To produce graduates who are both skilled in biomolecular engineering principles and have the ability to apply these skills to complex, open-ended engineering tasks and problems.
Structure & Available Subjects:	The Master of Engineering (Biomolecular) consists of 300 points of study - 275 points core plus 25 points elective subjects as listed below. Advanced standing will be awarded for equivalent subjects taken in prior study to applicants on the following basis: # A maximum of 100 points for applicants with a 4 year Bachelor of Engineering or equivalent # A maximum of 100 points for applicants with a 3 year undergraduate degree. Students entering with a three year bachelor degree must complete at least 200 points of study within the Masters of Engineering. In cases where applicants have completed the equivalent of more than 100 points of core masters subjects, discipline specific electives must be taken to fulfill the 200 minimum masters study requirement Note: applicants from the University of Melbourne with: # An appropriate “Engineering System” major will receive 100 points of advanced standing. Chemical Engineers from the Bachelor of Science will receive 100 points of advanced standing and be exempt from 25 points of completed core subjects but will need to take an additional 25 points in of Chemical Engineering electives # Engineering breadth sequences (including those in the Bachelor of Commerce) will receive advanced standing to a maximum of 100 points
Subject Options:	Total 300 points - 275 points core (compulsory) plus 25 points elective subjects from the list below. Students must complete all 300 points of subjects, including all core subjects, or have advanced standing or exemption. The core and elective subjects are those listed below. The order of subjects below is one way of progressing through the course - students who meet subject requisites may tailor their individual study plan to take into account advanced standing and their preferred study load. Students plan their study on-line, however Melbourne School of Engineering course advisors are available to assist students with individual study plans. **Suggested first 100 points:** Suggested study plan for first 100 points: # 100 points core subjects from the list below:

Subject	Study Period Commencement:	Credit Points:

MAST20029 Engineering Mathematics	Summer Term, Semester 1, Semester 2	12.50
ENGR90021 Engineering Communication	Semester 1, Semester 2	12.50
ENGR30001 Fluid Mechanics & Thermodynamics	Semester 1, Semester 2	12.50
CHEN20007 Chemical Process Analysis 1	Semester 1, Semester 2	12.50
CHEM20018 Reactions and Synthesis	Semester 1	12.50
CHEN20008 Chemical Process Analysis 2	Semester 2	12.50
CHEN20009 Transport Processes	Semester 2	12.50
CHEN90032 Process Dynamics And Control	Semester 2	12.50

Suggested second 100 points:

Suggested study plan for the second 100 points:

100 points core subjects including 75 points from the list below:

Subject	Study Period Commencement:	Credit Points:
CHEN30001 Reactor Engineering	Semester 1	12.50
CHEN30005 Heat and Mass Transport Processes	Semester 1	12.50
CHEN90020 Chemical Engineering Management	Semester 1	12.50
CHEN90008 Biology for Engineers	Semester 1	12.50
CHEN90016 Metabolic Engineering	Semester 2	12.50
CHEN30015 Process Engineering Case Studies	Semester 2	12.50

AND a 25 point project subject from the list below:

(Note: enrolment in CHEN90028 Industry Project is subject to approval from the Course Co-ordinator)

Subject	Study Period Commencement:	Credit Points:
BIEN90001 Biomolecular Engineering Research Project	Summer Term, Semester 1, Semester 2	25
CHEN90028 Industry Project	Summer Term, Semester 1, Semester 2	25

Suggested third 100 points:

Suggested study plan for third 100 points:

75 points core subjects from the list below:

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

AND 25 points elective subjects chosen from the list below:

Subject	Study Period Commencement:	Credit Points:
CHEN90028 Industry Project	Summer Term, Semester 1, Semester 2	25
BIEN90003 Biomolecular Engineering Minor Thesis	Summer Term, Semester 1, Semester 2	25
CHEN90019 Advanced Heat & Mass Transport Processes	Semester 1	12.50
BMEN90011 Tissue Engineering & Stem Cells	Semester 2	12.50
CHEN90010 Minerals, Materials and Recycling	Semester 2	12.50
ENGR90024 Computational Fluid Dynamics	Semester 1	12.50
BMEN90012 Bionanoengineering	Semester 2	12.50
CHEN90007 Advanced Thermo & Reactor Engineering	Semester 2	12.50
ENGR90026 Engineering Entrepreneurship	Semester 2	12.50
CHEN90027 Carbon Capture and Storage	Semester 1	12.50
ENGR90025 Multidisciplinary Project	Not offered 2012	12.50
CHEN90011 Bioenvironmental Engineering	Semester 2	12.50

Note: Students may opt to complete a second 25 point project subject for the 25 points in elective subjects.

Links to further information:	http://www.eng.unimelb.edu.au/Postgrad/MEng/me_biomolecular.html
Related Course(s):	Master of Engineering