# Master of Engineering (Civil with Business)

| | |
|---|---|
| **Year and Campus:** | 2014 |
| **Coordinator:** | Associate Professor Nelson Lamntkl@unimelb.edu.au |
| **Contact:** | Melbourne School of Engineering<br>Ground Floor,Old Engineering (Building 173)<br>Current students:<br>Email: **13MELB@unimelb.edu.au (mailto:13MELB@unimelb.edu.au)**<br>Phone: 13MELB (13 6352)<br>+61 3 9035 5511<br>Prospective students:<br>Visit **Master of Engineering (Civil with Business) (http://www.eng.unimelb.edu.au/study/graduate/master-eng-civil-business.html)** |
| **Overview:** | Civil engineers design and create many different kinds of infrastructure to support our society. This specialization offers the opportunity to study the core elements of civil engineering in the context of the business of engineering practice. It is the objective of this course that graduates have acquired a sound fundamental understanding of the scientific principles underlying a number of sub-disciplines including sustainability, environmental processes, structural engineering, geo-technical and hydraulic engineering, transport, and project management. In addition students study a series of subjects that are directed specifically to develop knowledge around the business context of engineering including marketing, financing, engineering contracts, economic analysis and strategic planning. Great emphasis is also placed on the development of generic skills with management, communication, problem-solving and design and innovation in civil engineering. Interaction with industry professionals is available through guest lectures, field and project work. Career opportunities abound in government, construction, property, infrastructure, consulting, mining, land, water, and waste. |
| **Learning Outcomes:** | On the successful completion of the Master of Engineering (Civil with business) students should have:<br>a) Gained advanced knowledge of the principles of civil engineering underpinning the provision of infrastructure<br>b) Had the opportunity to develop research principles and methods in the field of civil engineering<br>c) Cognitive skills to demonstrate mastery of theoretical knowledge and to reflect critically on theory and professional practice of civil engineering in the context of the business world<br>d) Cognitive, technical and creative skills to investigate, analyse and synthesise complex information, problems, concepts and theories and to apply established theories to different bodies of knowledge or practice related to business and civil engineering<br>e) Communication and technical research skills to justify and interpret theoretical propositions, methodologies, conclusions, professional and business decisions to engineering and non-engineering audiences<br>g) Technical and communication skills to design, evaluate, implement, analyse, theorise about developments that contribute to professional practice or scholarship in the field of civil engineering<br>Graduates of Master of Engineering (Civil with Business) will demonstrate the application of knowledge & skills in the fields of infrastructure engineering with specific emphasis on the financial and business contexts of engineering practice:<br>h) With creativity and initiative to new situations in professional practice and/or for further learning<br>i) With high level personal autonomy and accountability<br>j) To plan and execute a substantial piece of scholarship |
| **Structure & Available Subjects:** | The Master of Engineering (Civil with Business) consists of 300 points of study<br>Advanced standing will be awarded for equivalent subjects taken in prior study to applicants on the following basis:<br># A maximum of 100 points for applicants with a 4 year Bachelor of Engineering or equivalent<br># 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.

A list of discipline specific approved electives can be found under the Master of Engineering (Civil) specialisation description.

Note: applicants from the University of Melbourne with:

# An appropriate “Engineering System” major will receive 100 points of advanced standing. Applicants who have completed more than 100 points of core subjects in their undergraduate degree will obtain exemption for the cores taken but will need to replace the points in excess of 100 points with elective subjects.
# 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 - consisting of 300 points core (compulsory) subjects. Students must complete all 300 points of subjects, or have advanced standing or exemption

The core 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 online, however Melbourne School of Engineering course advisors are available to assist students with individual study plans.

### Suggested first 100 points:

# 100 points Core

| Subject | Study Period Commencement: | Credit Points: |
|---|---|---|
| ENGR20004 Engineering Mechanics | Summer Term, Semester 1, Semester 2 | 12.50 |
| ENGR30002 Fluid Mechanics | Semester 1, Semester 2 | 12.50 |
| ENGR90021 Engineering Communication | Semester 1, Semester 2 | 12.50 |
| MAST20029 Engineering Mathematics | Summer Term, Semester 1, Semester 2 | 12.50 |
| ENEN20002 Earth Processes for Engineering | Semester 2 | 12.50 |
| ENGR20003 Engineering Materials | Semester 2 | 12.50 |
| CVEN30009 Structural Theory and Design | Semester 2 | 12.50 |
| CVEN30010 Systems Modelling and Design | Semester 2 | 12.50 |

### Suggested second 100 points:

# 100 points Core

| Subject | Study Period Commencement: | Credit Points: |
|---|---|---|
| CVEN90043 Sustainable Infrastructure Engineering | Semester 1 | 12.50 |
| CVEN90044 Engineering Site Characterisation | Semester 1 | 12.50 |
| CVEN90049 Structural Theory and Design 2 | Semester 1 | 12.50 |
| CVEN90045 Engineering Project Implementation | Semester 2 | 12.50 |
| CVEN90048 Transport Systems | Semester 2 | 12.50 |
| CVEN90051 Civil Hydraulics | Semester 2 | 12.50 |
| ENGM90014 The World of Engineering Management | Semester 1, Semester 2 | 12.50 |
| ENGM90012 Marketing Management for Engineers | Semester 2 | 12.50 |

**Suggested third 100 points:**

# 100 points Core

| Subject | Study Period Commencement: | Credit Points: |
|---|---|---|
| CVEN90022 IE Research Project 1 | Semester 1, Semester 2 | 12.50 |
| CVEN90052 Integrated Design | Year Long | 25 |
| CVEN90050 Geotechnical Engineering | Semester 1 | 12.50 |
| ENGM90006 Engineering Contracts and Procurement | Semester 2 | 12.50 |
| ENGM90011 Economic Analysis for Engineers | Semester 1 | 12.50 |
| ENGM90013 Strategy Execution for Engineers | Not offered 2014 | 12.50 |

**Note:**

NB: CVEN90022 IE Research Project 1 is of year long duration. Students may commence in either semester 1 or semester 2 and continue in the consecutive semester. The subject will take up 25 credit points in total.

| | |
|---|---|
| **Links to further information:** | http://www.eng.unimelb.edu.au/Postgrad/MEng/me_civil.html |
| **Notes:** | # ENGR30002 Fluid Mechanics replaced ENGR30001 Fluid Mechanics & Thermodynamics in 2013. Students who have completed ENGR30001 prior to 2013 are not required to undertake ENGR30002. Credit cannot be obtained for both subjects |
| **Related Course(s):** | Master of Engineering |