ENGR10004 Engineering Systems Design 1

Credit Points:	12.50
Level:	1 (Undergraduate)
Dates & Locations:	This subject is not offered in 2013.
Time Commitment:	Contact Hours: 3 x one hour lectures + 1 x three hour workshop per week Total Time Commitment: Estimated 120 hours
Prerequisites:	A mark of at least 25 in VCE Math Methods or equivalent OR Admission into the Bachelor of Science
Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	None
Core Participation Requirements:	For the purposes of considering request for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Students Experiencing Academic Disadvantage Policy, academic requirements for this subject are articulated in the Subject Description, Subject Objectives, Generic Skills and Assessment Requirements of this entry.The University is dedicated to provide support to those with special requirements. Further details on the disability support scheme can be found at the Disability Liaison Unit website: http://www.services.unimelb.edu.au/disability/
Contact:	Email: **buskesgj@unimelb.edu.au (mailto:buskesgj@unimelb.edu.au)**
Subject Overview:	Engineering Systems Design 1 introduces students to the world of engineering through a mix of design projects, interactive workshops and lectures. This subject centres on the engineering method, the approach to problem solving and engineering design that makes engineers unique. The subject will prepare students for an exciting and rigorous engineering education that will allow them to serve an increasingly complex society.
Objectives:	At the completion of this subject students should be able to: # Explain the importance of engineers and the place of engineering in society # Apply basic knowledge of the physical sciences, life sciences, and information sciences underpinning the broad field of engineering to solve design problems across multiple engineering disciplines # Explain the imperatives of safety and of sustainability, and approaches to developing and maintaining safe and sustainable systems # Plan and quantify performance over the life-cycle of an engineering project, integrating technical performance with social, environmental and economic outcomes # Identify the nature of a technical problem and make appropriate simplifying assumptions, in order to achieve a solution # Develop and construct mathematical, physical and conceptual models of situations, systems and devices, and utilise such models for purposes of analysis and design # Analyse possible alternative engineering approaches and evaluate their advantages and disadvantages in terms of functionality, cost, sustainability and all other factors # Demonstrate competency in current tools for analysis, simulation, visualisation, synthesis and design, particularly computer-based tools and packages
Assessment:	Weekly subject reflective journal – 10% Online group blog – 10% Team-based project assessments due throughout semester – 40% A written end of semester group report – 40%
Prescribed Texts:	None

Recommended Texts:	Brockman, Jay B., *Introduction to Engineering: Modeling and Problem Solving*, 2009, Wiley.
Breadth Options:	This subject potentially can be taken as a breadth subject component for the following courses: # **Bachelor of Arts (https://handbook.unimelb.edu.au/view/2013/B-ARTS)** # **Bachelor of Commerce (https://handbook.unimelb.edu.au/view/2013/B-COM)** # **Bachelor of Music (https://handbook.unimelb.edu.au/view/2013/B-MUS)** You should visit **learn more about breadth subjects (http://breadth.unimelb.edu.au/breadth/info/index.html)** and read the breadth requirements for your degree, and should discuss your choice with your student adviser, before deciding on your subjects.
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Generic Skills:	At the completion of this subject students should have developed their: # Ability to interact with people in other engineering disciplines and professions to broaden their knowledge and achieve successful outcomes in an engineering design project # Ability to realistically assess the scope and dimensions of a project or task, and employ appropriate planning and time management skills to achieve a substantial outcome # Communication skills in order to make effective oral and written presentations to technical and non-technical audiences and with other team members # Ability to apply creative approaches to identify and develop alternative concepts and problem solving procedures # Perception of their own learning and development; understanding the need to critically review and reflect on capability and undertake appropriate learning programs
Notes:	Students enrolled in the BSc (new degree only) will receive science credit for the completion of this subject.
Related Majors/Minors/ Specialisations:	B-ENG Chemical Engineering stream B-ENG Chemical and Biomolecular Engineering stream B-ENG Civil Engineering stream B-ENG Electrical Engineering stream B-ENG Mechanical Engineering stream B-ENG Software Engineering stream Science-credited subjects - new generation B-SCI and B-ENG. Core selective subjects for B-BMED.
Related Breadth Track(s):	Chemical Engineering