ENEN90011 Energy Efficiency Technology

Credit Points:	12.5
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	2016, Parkville This subject commences in the following study period/s: Semester 2, Parkville - Taught on campus.
Time Commitment:	Contact Hours: 36 hours (Lectures/discussion: 3 hour per week) Total Time Commitment: 200 hours
Prerequisites:	None
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 Student Support and Engagement Policy, academic requirements for this subject are articulated in the Subject Overview, Learning Outcomes, Assessment and Generic Skills sections of this entry. It is University policy to take all reasonable steps to minimise the impact of disability upon academic study, and reasonable adjustments will be made to enhance a student's participation in the University's programs. Students who feel their disability may impact on meeting the requirements of this subject are encouraged to discuss this matter with a Faculty Student Adviser and Student Equity and Disability Support: http://services.unimelb.edu.au/disability
Coordinator:	Dr Behzad Rismanchi
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Subject Overview:	**AIMS** This subject explores the scope and methods for improving energy efficiency across a range of sectors. Improving energy efficiency is one of the key responses to increasingly scarce natural resources and problems caused by pollutants arising from energy production and use. A range of energy supply and usage scenarios will be considered including transport, manufacturing, commercial and domestic sectors. Collection of information by auditing and then using this information for planning, demand management and impact assessment will be investigated. Knowledge gained in this subject will allow graduates to practice in the area of energy efficiency. This subject draws on students' fundamental understanding of engineering efficiency, as well as their ability to use mathematics and statistics to analyse data to inform innovative solutions. The subject complements other subjects offered in the energy theme of the Department such as Energy for Sustainable Development and Sustainable Infrastructure Engineering. **INDICATIVE CONTENT** Areas of study include: potential for improvements in energy efficiency in petrol and diesel vehicles; energy efficiency technologies for the manufacturing, commercial and domestic sectors; demand side management; integrated resource planning; energy auditing; and economic and environmental impacts. These are applied to the following thematic areas; # Introduction: fundamentals, energy conversion, supply, distribution and utilisation of energy, Indices, indicators and measurements # Transport sector # Residential sector # Commercial sector (office & retail)

	# Manufacturing sector # Energy policy and planning # Energy audits # Life cycle energy analysis # Advanced energy systems # Developing countries & remote areas
Learning Outcomes:	**INTENDED LEARNING OUTCOMES (ILO)** On completion of this subject the student is expected to: 1 Identify the basic issues in energy efficient technologies and their implementation 2 Discuss the current possibilities for improving the ratio of energy used per unit of output (energy intensity) in the main sectors of society, i.e. transportation, manufacturing, commercial, domestic, and energy supply industries 3 Analyse the social, economic and environmental implications for the adaption of these technologies.
Assessment:	One 3-hour written examination (50%) end of semester. Intended Learning Outcomes (ILOs) 1, 2 and 3 are addressed in this examination One group report (35%) 2000 words per student, due at the end of semester, requiring approximately 60 hours of work per student. ILOs 1, 2 and 3 are addressed in this report One 1000 word per student group report (15%) due mid semester, requiring approximately 25 hours of work per student. ILOs 1, 2 and 3 are addressed in this report.
Prescribed Texts:	None
Breadth Options:	This subject is not available as a breadth subject.
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Generic Skills:	# Ability to undertake problem identification, formulation and solution # Ability to communicate effectively, with the engineering team and with the community at large # Ability to manage information and documentation # Understanding of professional and ethical responsibilities, and commitment to them # Capacity for lifelong learning and professional development.
Notes:	**LEARNING AND TEACHING METHODS** The subject is based on presentations by experienced industry professionals who present case studies in their area of expertise. In addition each student prepares and presents a group research paper on a topic of their interest selected from an extensive list. **INDICATIVE KEY LEARNING RESOURCES** Journals: • Energy conversion and management • Energy, The International Journal • Renewable & Sustainable Energy Reviews **CAREERS / INDUSTRY LINKS** Sustainable Energy Association of Australia (SEA) Guests from industry present case studies.
Related Course(s):	Doctor of Philosophy - Engineering Master of Engineering Structures Master of Environmental Engineering Master of Philosophy - Engineering
Related Majors/Minors/ Specialisations:	B-ENG Civil Engineering stream Climate Change Climate Change Development Development Energy Efficiency Modelling and Implementation

	Energy Efficiency Modelling and Implementation Energy Studies Energy Studies Environmental Science Environmental Science Master of Engineering (Civil) Master of Engineering (Environmental) Tailored Specialisation Tailored Specialisation