

MCEN90014 Materials

Credit Points:	12.50						
Level:	9 (Graduate/Postgraduate)						
Dates & Locations:	2011, Parkville This subject commences in the following study period/s: Semester 1, Parkville - Taught on campus.						
Time Commitment:	Contact Hours: 36 hours of lectures, 10 hours of tutorials, and 6 hours of laboratory Total Time Commitment: Not available						
Prerequisites:	Prerequisite for this subject is - <table border="1" data-bbox="389 546 1485 696"> <thead> <tr> <th>Subject</th> <th>Study Period Commencement:</th> <th>Credit Points:</th> </tr> </thead> <tbody> <tr> <td>MCEN30017 Mechanics & Materials</td> <td>Semester 1</td> <td>12.50</td> </tr> </tbody> </table>	Subject	Study Period Commencement:	Credit Points:	MCEN30017 Mechanics & Materials	Semester 1	12.50
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MCEN30017 Mechanics & Materials	Semester 1	12.50					
Corequisites:	N/A						
Recommended Background Knowledge:	N/A						
Non Allowed Subjects:	436285 Engineering Design & Materials 1 436286 Engineering Design & Materials 2						
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/						
Coordinator:	Prof Kenong Xia						
Contact:	k.xia@unimelb.edu.au						
Subject Overview:	This subject introduces the concept of microstructure and explores its relationship with processing and properties in the context of basic types of engineering materials and their applications. Topics covered include: diffusion, phase equilibrium and diagrams, phase transformation, metallic alloys, ceramics, polymers, composites, surface properties, and selected non-mechanical properties.						
Objectives:	At the conclusion of this subject students should be able to: <ul style="list-style-type: none"> • Perform analysis of equilibrium phase diagrams and use transformation diagrams to deduce microstructures resulting from specific heat treatments. • Relate processing, microstructure and properties. • Describe various engineering materials and their application areas. 						
Assessment:	One three-hour end of semester written examination (80%), and 2 laboratory sessions (20%) during the semester with reports (totaling not more than 4000 words) due throughout the semester. Attendance at the labs and submission of written lab reports as required in order to pass the subject.						
Prescribed Texts:	Materials Science and Engineering – an Introduction by W. D. Callister, Jr.						
Recommended Texts:	N/A						
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:	<ul style="list-style-type: none"># Ability to apply knowledge of science and engineering fundamentals# Ability to undertake problem identification, formulation, and solution# Ability to utilise a systems approach to complex problems and to design and operational performance# Ability to communicate effectively, with the engineering team and with the community at large
Related Majors/Minors/ Specialisations:	B-ENG Mechanical Engineering stream Master of Engineering (Mechanical)