

ABPL90324 Materials and Structures

Credit Points:	12.5
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	2016, Parkville This subject commences in the following study period/s: Semester 1, Parkville - Taught on campus.
Time Commitment:	Contact Hours: 3 hours per week Total Time Commitment: 170 hours
Prerequisites:	Admission into one of the following courses: MC-CM Master of Construction Management MC-CONMG3Y Master of Construction Management (300 points) OR approval from the subject coordinator.
Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	None
Core Participation Requirements:	<p><p>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.</p> <p><p>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</p></p> </p>
Coordinator:	Mr James Helal
Contact:	<p>Subject Coordinator email: james.helal@unimelb.edu.au (mailto:james.helal@unimelb.edu.au)</p> <p>The Eastern Precinct (building 138) (between Doug McDonnell building and Eastern Resource Centre)</p> <p>Enquiries: Current Student: http://ask.unimelb.edu.au/ (http://ask.unimelb.edu.au/) Web: http://msd.unimelb.edu.au/ (http://msd.unimelb.edu.au/)</p>
Subject Overview:	This subject is an introduction to engineering materials, statics, mechanics, and structural systems designed for students without a background in engineering, construction or building. It provides a general understanding of engineering materials and discusses how these materials are used in construction. Concepts of mechanics of materials and structural systems will be discussed by drawing on examples in residential and low-rise construction. Various forms of structural systems for timber, reinforced concrete and steel construction will be investigated.
Learning Outcomes:	<ul style="list-style-type: none"> # To develop the capacity to evaluate the effects of loads and actions in the behaviour of structural systems; # To provide a fundamental understanding of the properties of engineering materials and how these mechanical properties influence the selection of materials for application in contemporary buildings; # To provide a sound theoretical background in statics, mechanics and structural analysis for understanding the choice of materials and structural systems; and # To provide an introduction to the basic principles of reinforced concrete design.

Assessment:	Ten individual assignments (20%) equivalent to 150 words each due on a weekly basis. (week 2- 12); One group assignment (20%) equivalent to 1000 words per student due in Week 10; One 3 hour exam at the end of semester (60%). Hurdle requirement: A minimum mark of 40% must be achieved in the examination in order to pass the subject.
Prescribed Texts:	Wayne. Architectural structures, John Wiley and Sons, 2007.Dietmar Gross. Engineering mechanics. 1, Statics [electronic resource], Springer, 2009.Hosford. Solid mechanics [electronic resource], Cambridge University Press, 2010.Foster, Kilpatrick, Warner. Reinforced concrete basics 2E: analysis and design of reinforced concrete structures, Pearson, 2010.
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:	At the completion of the subject, students should have developed the following skills and capabilities: <ul style="list-style-type: none"> # Ability to visualise physical building and structural configurations in terms of real materials, actual constraints, and practical limitations which govern the behaviour of structures. # Enable students to select materials based on the requirements of the building and the mechanical properties of materials. # Ability to understand the choice of structural system in relation to applied loads and building types.
Related Course(s):	Master of Construction Management
Related Majors/Minors/Specialisations:	300 point Master of Construction Management Melbourne School of Design multidisciplinary elective subjects