GEOM90040 Geomatics Problem Solving and Analysis

Credit Points:	12.50
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	This subject is not offered in 2013.
Time Commitment:	Contact Hours: 48 hours, comprising of two hours of lectures and two hours of lab exercises per week Total Time Commitment: 120 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
Contact:	Dr Allison Kealy **a.kealy@unimelb.edu.au (https://mce_host/faces/htdocs/a.kealy@unimelb.edu.au)**
Subject Overview:	This subject will provide skills in the computational processes applicable to problems commonly arising in Geomatics and spatial information in general. Topics to be covered include geometry of the ellipsoid, coordinate systems and geodetic datums; coordinate conversion, transformation and map projections; design, adjustment and analysis of survey networks by application of least squares techniques.
Objectives:	Upon completion of this subject students should be able to: # Define parameters of an ellipsoid as a mathematical representation of the Earth's surface and use it for computations relevant to surveying, navigation and geodesy # Manipulate coordinates on the basis of understanding the concepts of datums, coordinate systems and map projections # Use vector theory to solve fundamental problems associated with practice in Geomatics # Apply least square theory appropriately to solve simple adjustment and estimation problems in the spatial sciences
Assessment:	10 x Written assignments (6 hours workload), weekly (40%, 4% each) 1-hour class test, week 8 (10%) 2-hour examination held in the examination period (50%) Hurdle requirement: Students must pass the written examination at the end of the semester in order to pass this subject
Prescribed Texts:	TBA
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 apply knowledge of science and engineering fundamentals • Ability to undertake problem identification, formulation, and solution • Ability to communicate effectively, with the engineering team and with the community at large

	• Capacity for lifelong learning and professional development
Related Course(s):	Master of Information Technology Master of Information Technology Master of Philosophy - Engineering Ph.D.- Engineering
Related Majors/Minors/ Specialisations:	Master of Engineering (Geomatics)