

451-200 Surveying 2

Credit Points:	12.50
Level:	2 (Undergraduate)
Time Commitment:	Contact Hours: Twenty-four hours of lectures and 24 hours of tutorials and laboratory sessions. Total Time Commitment: Not available
Prerequisites:	451-100 Geomatics Science (prior to 2006 Geomatics Science 1A), 451-101 Surveying 1 (prior to 2006 Geomatics Science 1B), 620-161 Introductory Mathematics and 620-140 Intermediate Mathematics, or 620-141 Mathematics A
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>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>
Subject Overview:	<p>This subject provides the concepts, theory and applications of high precision measurement techniques used in land surveying. The focus will be on six core areas.</p> <ol style="list-style-type: none"> 1. Introduction to survey standards and specifications. 2. Introduction to survey network design and adjustment. 3. Operational and quality control aspects of electronic distance measurement (EDM), angle measurements, trigonometric heighting and precise levelling. 4. Introduction to satellite positioning, observation techniques and data processing. 5. Introduction to geodetic datums, coordinate systems, map projections, transformations and conversions. 6. Introduction to advanced positioning techniques including; automated field surveying and laser scanning. <p>In undertaking this course, students should be able to:</p> <ul style="list-style-type: none"> # use recommended standard and specifications to describe survey measurements and results # design survey networks consistent with the precision and accuracy requirements of a specific task # undertake data acquisition techniques and computations to obtain co-ordinates from GPS receivers # define the error sources in EDMs, total stations and precise levels and discuss techniques for their minimisation # understand the relationships between coordinate systems, datums and map projections and use appropriate software to convert and transform data # discuss the trends and operational characteristics of modern survey instrumentation
Assessment:	One 3-hour written examination at the end of semester (40%), and one 1 hour mid semester test (10%). A semester long field practice exercise set at the beginning of semester (50%). the submissions for this assignment comprise three reports (no more than 3000 words in

	total) due in weeks four (10%), eight (10%) and twelve (20%) and a brief presentation in week eleven (10%)
Prescribed Texts:	None
Recommended Texts:	Information Not Available
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 basic science and engineering fundamentals # ability to communicate effectively, not only with engineers but also with the community at large # ability to undertake problem identification, formulation and solution # ability to utilise a systems approach to design and operational performance # ability to function effectively as an individual and in multi-disciplinary and multi-cultural teams, with the capacity to be a leader or manager as well as an effective team member # understanding of professional and ethical responsibilities and commitment to them # capacity for independent critical thought, rational inquiry and self-directed learning # profound respect for truth and intellectual integrity, and for the ethics of scholarship
Notes:	Students enrolled in the BSc (pre-2008 degree), BAsc or a combined BSc course will receive science credit for the completion of this subject.
Related Course(s):	Bachelor of Geomatic Engineering Bachelor of Geomatic Engineering and Bachelor of Arts Bachelor of Geomatic Engineering and Bachelor of Information Systems Bachelor of Geomatic Engineering and Bachelor of Science