Geomatics (Geomatic Engineering) major

Year and Campus:	2016
Coordinator:	Cliff Ogleby Email: clogleby@unimelb.edu.au
Contact:	**Currently enrolled students**: # General information: **https://ask.unimelb.edu.au (https://ask.unimelb.edu.au/)** # **Contact Stop 1 (http://students.unimelb.edu.au/stop1)**
Overview:	**THERE IS NO FURTHER ENTRY INTO THIS COURSE. THE COURSE STRUCTURE BELOW ONLY APPLIES TO RE-ENROLLING STUDENTS WHO COMMENCED THEIR STUDIES PRIOR TO 2015.** Geomatic Engineering is the study of the science and technologies of 3D measurement, mapping and visualisation. This major provides the opportunity to acquire skills in modern, sophisticated technologies such as global positioning system (GPS), three dimensional computer visualisations, geographic information systems (GIS), surveying, and satellite and photographic image processing. **Careers and Further Study** Students pursuing a career in Geomatics will complete the Bachelor of Environments with a major in Geomatics, followed by the two-year Master of Engineering (Geomatics). The five-year Bachelor-Master combination leads to professional accreditation by Engineers Australia and the Institution of Surveyors, Australia. For more information on the Masters of Engineering and graduate careers, please visit the Melbourne School of Engineering web site: **http://eng.unimelb.edu.au (http://eng.unimelb.edu.au/)**
Learning Outcomes:	By the end of a three year Bachelor of Environments degree with a Geomatics major, students will have developed a sound understanding of technologies used in one of the fastest growing IT industries in the world today. For more information visit: **www.benvs.unimelb.edu.au (http://www.benvs.unimelb.edu.au/)**
Structure & Available Subjects:	112.5 points (9 subjects) of Geomatics subjects.
Majors/Minors/ Specialisations	Course planning for a Geomatics major A major in Geomatics in the Bachelor of Environments consists of: # 112.5 points (9 subjects) of Geomatics subjects; # 37.5 points (3 subjects) of core first year subjects (Natural Environments, Reshaping Environments and Urban Environments); # 12.5 points (1 subject) of mathematics breadth required for the major (either Calculus 1 or Calculus 2). This is in addition to electives and breadth to make up the 300 points required for the degree. Specific details of the Bachelor of Environments course structure can be found at: **https://handbook.unimelb.edu.au/view/current/B-ENVS (../../view/current/B-ENVS)**
Subject Options:	The following description of the Geomatics (Geomatic Engineering) major aligns with the Study Plan Structure viewable on the Portal for students who commenced the Bachelor of Environments in 2013 or later. The components within the structure of this major have been designed to enforce the requirements of both this specific major and of the course overall, e.g. the requirement that at least 62.5 points of Environments discipline subjects (which can include subjects taken within the major) are taken at each of Level 2 and Level 3. It is strongly recommended that students refer to the full description of this major. The layout of this description is not necessarily in the order in which subjects are taken.

E.g. breadth subjects should be taken in a student's first year and the information on breadth is displayed at the end of this entry.

N.B. The major in Geomatics has been amended from 2011 to 2012. Changes include:

two core Level 3 subjects in the major will not be offered after 2011 (GEOM30010 Programming Geomatics Applications and GEOM30011 Computational Methods in Geomatics). From 2012 these core Level 3 subjects will be replaced by CVEN30008 Risk Analysis and GEOM30013 Land Administration Systems. Students undertaking this major who have not completed the 2011 subjects will be required to complete the 2012 subjects instead.
a Level 1 statistics subject was required for this major in 2011. From 2012 this is no longer a requirement in this major.
MAST10007 Linear Algebra was listed as a required breadth subject in 2011. From 2012 this subject becomes a required core subject in the Geomatics major.

Students who commenced the Bachelor of Environments prior to 2013 should refer to the handbook entry for the year they commenced in conjunction with the 2013 handbook listings for Environments elective and Breadth subjects.

Level 1 Core subjects - Bachelor of Environments (37.5 points)

Core subjects that must be taken by all Bachelor of Environments students.

All of

Subject	Study Period Commencement:	Credit Points:
ENVS10001 Natural Environments	Semester 1, Semester 2	12.50
ENVS10002 Reshaping Environments	Semester 1, Semester 2	12.50
ENVS10007 Urban Environments	Semester 1, Semester 2	12.50

Level 1 Environments Electives (37.5 points)

Select three of the following subjects.

N.B.

ENVS10005 Governing Environments and ENVS10006 Mapping Environments are recommended.

Subject	Study Period Commencement:	Credit Points:
ENVS10003 Constructing Environments	Semester 1, Semester 2	12.50
ENVS10004 Designing Environments	Semester 1, Semester 2	12.50
ENVS10005 Governing Environments	Semester 2	12.50
ENVS10006 Mapping Environments	Semester 1	12.50
ENVS10009 Structural Environments	Semester 2	12.50
ENVS10010 Owned Environments	Semester 1	12.50
ENVS10011 Productive Environments	Semester 2	12.50
ABPL10003 Visualising Environments	Semester 1, Semester 2	12.50

Geomatics (Geomatic Engineering) major - core subjects (112.5 points)

All of

Subject	Study Period Commencement:	Credit Points:
MAST10007 Linear Algebra	Summer Term, Semester 1, Semester 2	12.50

COMP20005 Engineering Computation	Semester 1, Semester 2	12.50
GEOG20003 Environmental Politics and Management	Semester 1	12.50
GEOM20013 Applications of GIS	Semester 1	12.50
GEOM20015 Surveying and Mapping	Semester 2	12.50
CVEN30008 Engineering Risk Analysis	Semester 1	12.50
GEOM30009 Imaging the Environment	Semester 1	12.50
GEOM30012 Integrated Spatial Systems	Semester 2	12.50
GEOM30013 Land Administration Systems	Semester 2	12.50

Level 2 Environments elective subject (12.5 points)

Select one x 12.5 point subject at Level 2 from the list of **Environments Discipline subjects (../../view/current/%21B-ENVS-SPC%2B1000)**

Level 3 Environments elective subject (12.5 points)

Select one x 12.5 point subject at Level 3 from the list of **Environments Discipline subjects (../../view/current/%21B-ENVS-SPC%2B1000)**

Level 2 or Level 3 Environments elective subject (12.5 points)

Select one x 12.5 point subject at Level 2 or Level 3 from the list of **Environments Discipline subjects (../../view/current/%21B-ENVS-SPC%2B1000)**

Breadth subjects

Bachelor of Environments students must complete between 50 and 75 credit points of subjects selected from those available as breadth for Bachelor of Environments students; with no more than 37.5 points at Level 1. For a complete listing of available subjects please click the 'Find breadth subjects' link on the **Handbook homepage (../../)** and perform a search.

The breadth requirements for the Bachelor of Environments include the restriction of some subjects as breadth options, depending on an individual student's choice of major. Subjects in the Handbook that are marked as available as breadth in the Bachelor of Environments may be subject to further restrictions, depending up which major a student is completing in that course. Detailed information on these **Restrictions for Breadth Options (../../view/CURRENT/%21B-ENVS-SPC%2B1001)** is available.

Required Level 1 breadth subjects

Please note the following regarding the mathematics sequence of subjects that are essential to the Geomatics (Geomatic Engineering) major (students must check the prerequisite requirements of subjects before enrolling to ensure it is appropriate and should consult a student advisor if they are unsure):

Students who have completed VCE Mathematical Methods Units 1 and 2 only, should enrol in MAST10012 Introduction to Mathematics, followed by MAST10005 Calculus 1 as breadth subjects.
Students who have completed VCE Mathematical Methods Units 3 and 4 with a study score of 25 or more should enrol in MAST10005 Calculus 1 as a breadth subject.
Students who have completed VCE Specialist Maths Units 3 and 4 with a study score of 30 or more are not permitted to enrol in MAST10005 Calculus 1 but should instead enrol in MAST10006 Calculus 2 as a breadth subject.

Subject	Study Period Commencement:	Credit Points:
MAST10012 Introduction to Mathematics	Summer Term, Semester 1	12.50
MAST10005 Calculus 1	Semester 1, Semester 2	12.50
MAST10006 Calculus 2	Semester 1, Semester 2	12.50

N.B. From 2012 the Level 1 mathematics subject MAST10007 Linear Algebra is not considered breadth in the Geomatics major. It is a core subject within the major.

Breadth restrictions for Geomatics major students

	Students undertaking the Geomatics major are not permitted to take as breadth: # any Civil Engineering subjects (subject codes beginning CVEN) # any Computer Science subjects (subject codes beginning COMP) # any Engineering subjects (subject codes beginning ENGR) # any Geomatics subjects (subject codes beginning GEOM) # any Informatics subjects (subject codes beginning INFO) # any Mathematics and Statistics subjects (subject codes beginning MAST) - with the exception of MAST10006 Calculus 2 and MAST10007 Linear Algebra (and any required prerequisites for these subjects such as MAST10005 Calculus 1 and MAST10012 Introduction to Mathematics) # any Physics subjects (subject codes beginning PHYC) # any Science Informatics subjects (subject codes beginning SINF)
Notes:	For more information on this major and to view a sample course plan please visit: **http://edsc.unimelb.edu.au/sample-course-plans-bachelor-environments (http://edsc.unimelb.edu.au/sample-course-plans-bachelor-environments)**