Spatial Systems

Year and Campus:	2016
Coordinator:	Cliff Ogleby Email: clogleby@unimelb.edu.au
Contact:	**Currently enrolled students:** • General information: **https://ask.unimelb.edu.au (http://ask.unimelb.edu.au/)** • **Contact Stop 1 (http://students.unimelb.edu.au/stop1)** **Future students:** • Further information: **https://futurestudents.unimelb.edu.au (https://futurestudents.unimelb.edu.au)** •Email via: h**ttp://benvs.unimelb.edu.au/ (http://benvs.unimelb.edu.au/)**
Overview:	Spatial Systems 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 Spatial Systems will complete the Bachelor of Environments with a major in Spatial Systems, 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 Spatial Systems major, students will have developed a sound understanding of technologies used in one of the fastest growing IT industries in the world today.
Structure & Available Subjects:	100 points of Spatial Systems subjects.
Majors/Minors/ Specialisations	Course planning for a Spatial Systems major A major in Spatial Systems in the Bachelor of Environments consists of: # 100 points of Spatial Systems Core subjects; **PLUS** # **In first year**: 12.5 - 25 points of mathematics enabling subject required for the major 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)** **Double majors** are available for certain majors within the Bachelor of Environments. Further information on double majors can be found here: **http://edsc.unimelb.edu.au/double-majors (http://edsc.unimelb.edu.au/double-majors)** , if you are interested in any double majors, please check the sample course plan before selecting any elective subjects.
Subject Options:	The following description of the Spatial Systems major aligns with the Study Plan Structure viewable on the Portal for students who commenced the Bachelor of Environments in 2015 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. **PRE-2015 STUDENTS**: Students who commenced the Bachelor of Environments prior to 2015 should refer to the handbook entry for the year they commenced in conjunction with the 2015 handbook listings for Environments elective and Breadth subject listings. View 2014 Bachelor of Environments Handbook entry **here (../../view/2014/B-ENVS)**

Level 1 Environments & Enabling Electives (12.5 - 25 points)

Mathematics Background

The mathematics pre-requisite of the spatial systems major should be covered – in spirit and practice – as enabling subjects (calculus 1 or calculus 2, depending on the candidate's school math, and Linear Algebra)

In order to complete this major, enrol into the subjects below in your first year, based on your mathematics background:

VCE Mathematical Methods Units 1 and 2 only: Enrol in MAST10012 Introduction to Mathematics, followed by MAST10005 Calculus 1
VCE Mathematical Methods Units 3 and 4 with a study score of 25 or more: Enrol in MAST10005 Calculus 1
VCE Specialist Maths Units 3 and 4 with a study score of 30 or more: Enrol in MAST10006 Calculus 2

This requirement may be taken as breadth.

Subject	Study Period Commencement:	Credit Points:
MAST10005 Calculus 1	Semester 1, Semester 2	12.50
MAST10006 Calculus 2	Semester 1, Semester 2	12.50
MAST10007 Linear Algebra	Summer Term, Semester 1, Semester 2	12.5

IMPORTANT:

1. Students who completed VCE Mathematical Methods Units 1 and 2 only: Enrol in MAST10012 Introduction to Mathematics, followed by MAST10005 Calculus 1. This requirement may be taken as breadth

2. ENVS10005 Governing Environments and ENVS10006 Mapping Environments are recommended to be taken as Environments Electives.

Spatial Systems major - core subjects (100 points)

Subject	Study Period Commencement:	Credit Points:
GEOM20013 Applications of GIS	Semester 1	12.50
GEOM20015 Surveying and Mapping	Semester 2	12.50
COMP20005 Engineering Computation	Semester 1, Semester 2	12.50
INFO20003 Database Systems	Semester 2	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
CVEN30008 Engineering Risk Analysis	Semester 1	12.50

Environments Discipline subjects (37.5 points)

Choose the total of

1 37.5 points of Environments Discipline subjects

RULES:

Please note these rules when choosing the Environments Discipline subjects below

1 Must complete 12.5 points level 2 subjects
2 Must complete 12.5 points level 3 subjects

Select from this list: **Environments Discipline subjects (../../view/current/%21B-ENVS-SPC%2B1000)**

	Breadth subjects and restrictions for Spatial Systems major students 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. 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)**
Related Course(s):	Bachelor of Environments