

Physical (Environmental Engineering) Systems

Year and Campus:	2010													
Coordinator:	Dr Graham Moore													
Contact:	Environments and Design Student Centre T:+ 61 3 8344 6417/9862 F: + 61 3 8344 5532 Email: envs-courseadvice@unimelb.edu.au (mailto:envs-courseadvice@unimelb.edu.au)													
Overview:	Physical Systems (Environmental Engineering) involves the planning, design and management of the natural environment. Environmental Engineers require an understanding of the complexity and variability of natural systems. They focus on land and water engineering, examining issues such as land use and management, water quality, and soil rehabilitation. Careers and further study Students pursuing a career in Environmental Engineering will complete the Bachelor of Environments with a major in Physical systems, followed by the two-year Master of Engineering (Environmental). The five-year Bachelor-Master combination leads to professional accreditation by Engineers Australia, the Institute of Engineers. For more information on the Masters of Engineering and graduate careers, please visit the Melbourne School of Engineering web site: www.eng.unimelb.edu.au (http://www.eng.unimelb.edu.au)													
Objectives:	By the end of a three year Bachelor of Environments degree with a Physical Systems major, you will have developed a deep understanding of the interaction between the built and natural environments, and problem solving skills with regard to ecologically sustainable development. For more information visit: www.benvs.unimelb.edu.au (http://www.benvs.unimelb.edu.au)													
Structure & Available Subjects:	See details below.													
Majors/Minors/Specialisations	Course Planning for a Physical Systems Major A major in Physical Systems in the Bachelor of Environments consists of: <ul style="list-style-type: none"> # 112.5 points (9 subjects) of Physical Systems subjects; # 25 points (2 subjects) of core first year subjects (Natural Environments and Reshaping Environments); # 12.5 points (1 subject) of first year subjects that are core to the major (Constructing Environments); # 25-37.5 points (2-3 subjects) of maths breadth subjects required for the major (see below under 1st year breadth subjects). This is in addition to elective subjects and breadth subjects to make up the 300 points required for the degree. Specific details of the Bachelor of Environments course structure can be found at: https://app.portal.unimelb.edu.au/view/2010/A04-AA (/view/2010/A04-AA)													
Subject Options:	In order to complete a major in Physical Systems, you will undertake the following subjects:													
	1st year level subjects <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;">Subject</th> <th style="width: 20%;">Study Period Commencement:</th> <th style="width: 20%;">Credit Points:</th> </tr> </thead> <tbody> <tr> <td>ENVS10001 Natural Environments</td> <td>Semester 1, Semester 2</td> <td>12.50</td> </tr> <tr> <td>ENVS10002 Reshaping Environments</td> <td>Semester 1, Semester 2</td> <td>12.50</td> </tr> <tr> <td>ENVS10003 Constructing Environments</td> <td>Semester 1, Semester 2</td> <td>12.50</td> </tr> </tbody> </table>		Subject	Study Period Commencement:	Credit Points:	ENVS10001 Natural Environments	Semester 1, Semester 2	12.50	ENVS10002 Reshaping Environments	Semester 1, Semester 2	12.50	ENVS10003 Constructing Environments	Semester 1, Semester 2	12.50
Subject	Study Period Commencement:	Credit Points:												
ENVS10001 Natural Environments	Semester 1, Semester 2	12.50												
ENVS10002 Reshaping Environments	Semester 1, Semester 2	12.50												
ENVS10003 Constructing Environments	Semester 1, Semester 2	12.50												
	Required 1st year breadth subjects Please note the following regarding the Mathematical stream of subjects that are essential to the Civil Systems Major (students must check the prerequisite requirements of subjects before enrolling to ensure it is appropriate and should consult a course advisor if they are unsure):													

- # Students who have completed VCE Mathematical Methods 1 and 2 only, should enrol in 620-173 (MAST10012) Introduction to Maths, followed by 620-154 (MAST10005) Calculus 1, 620-155 (MAST10006) Calculus 2, and 620-156 (MAST10007) Linear Algebra.
- # Students who have completed VCE Mathematical Methods 3 and 4 with a study score of 25 or more should enrol in 620-154 (MAST10005) Calculus 1, 620-155 (MAST10006) Calculus 2, and 620-156 (MAST10007) Linear Algebra.
- # Students who have completed VCE Specialist Maths with a study score of at least 27 are not permitted to enrol in Calculus 1 but should enrol in 620-155 (MAST10006) Calculus 2, and 620-156 (MAST10007) Linear Algebra.

For more details on the most appropriate maths subjects please view the subject pages by clicking on the links below. You can also view sample course plans to help you determine the most appropriate maths subjects for you at: <http://www.benvs.unimelb.edu.au/current-students/course-info/physical-systems.html> (<http://www.benvs.unimelb.edu.au/current-students/course-info/physical-systems.html>)

Subject	Study Period Commencement:	Credit Points:
MAST10012 Introduction to Mathematics	Semester 1	12.50
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	12.50

2nd year level subjects

Subject	Study Period Commencement:	Credit Points:
MAST20029 Engineering Mathematics	Summer Term, Semester 1, Semester 2	12.50
ENGR20004 Engineering Mechanics	January, Semester 1, Semester 2	12.50
ENEN20002 Earth Processes for Engineering	Semester 2	12.50
ENGR20003 Engineering Materials	Semester 2	12.50

3rd year level subjects

Subject	Study Period Commencement:	Credit Points:
ENGR30001 Fluid Mechanics	Semester 1, Semester 2	12.50
CVEN30008 Risk Analysis	Semester 1	12.50
CVEN30010 Systems Modelling and Design	Semester 2	12.50

AND two 2nd or 3rd year level subjects chosen from the following disciplines

Geomatics

Subject	Study Period Commencement:	Credit Points:
GEOM20013 Applications of GIS	Semester 1	12.50
GEOM30009 Imaging the Environment	Semester 1	12.50
GEOM30010 Programming Geomatics Applications	Semester 1	12.50
GEOM30011 Computational Methods in Geomatics	Semester 2	12.50
GEOM30012 Integrated Spatial Systems	Semester 2	12.50

GEOM30008 Land, People and Sustainability	Semester 2	12.50
GEOM20014 Residential Field Course	November	12.50
GEOM20015 Surveying and Mapping	Semester 2	12.50

Biology

Subject	Study Period Commencement:	Credit Points:
GEOG20002 Geomorphology	Semester 1	12.50
ATOC30005 Global Climates of the Past	March	12.50
ECOL30006 Ecology in Changing Environments	Semester 1	12.50
ECOL20003 Ecology	Semester 2	12.50
HORT20027 Greening Landscapes	Semester 2	12.50

Environmental Economics and Management

Subject	Study Period Commencement:	Credit Points:
IBUS20002 Business in the Global Economy	Semester 1	12.50
MGMT20001 Organisational Behaviour	Semester 1, Semester 2	12.50
MGMT20007 Cross Cultural Management	Semester 2	12.50
ABPL20035 Cities: From Local to Global	Semester 1	12.50

Chemistry

Students interested in undertaking either of the following subjects must consult with a student advisor in the Student Centre.

Subject	Study Period Commencement:	Credit Points:
CHEM10004 Chemistry 2	January, Semester 2	12.50
CHEM20011 Environmental Chemistry	Semester 2	12.50

Bachelor of Environments elective subjects

All Bachelor of Environments students must complete **37.5 points** of Bachelor of Environments electives.

For a complete listing of available subjects please see:

<http://www.benvs.unimelb.edu.au/breadth/elective-subjects.html> (<http://www.benvs.unimelb.edu.au/breadth/elective-subjects.html>)

Breadth subjects

All Bachelor of Environments Students must complete **75 credit points** (which includes required maths breadth subjects) of subjects selected from those available as breadth for Bachelor of Environments students, including at least one subject at 300-level. For a complete listing of available subjects please see:

<http://handbook.unimelb.edu.au/breadth/info/index.html> (<http://handbook.unimelb.edu.au/breadth/info/index.html>)

For more information on this major and to view a sample course plan please visit:

<http://www.benvs.unimelb.edu.au/current-students/course-info/physical-systems.html>
(<http://www.benvs.unimelb.edu.au/current-students/course-info/physical-systems.html>)