

TIMETABLE ARRANGEMENT: Annual; 2nd Semester

CREDITS: 6

COURSE TEACHER(S): TBC

ASSESSMENT:

EXAMINATION 40 %	COURSEWORK 60 %
<ul style="list-style-type: none"> • 1.5 hours 	<ul style="list-style-type: none"> • 2 individual laboratory practicals • 1 individual project assignment (in 3 practicals)

OBJECTIVES:

To stimulate interests in GIS activities that play a vital role in environmental applications.

COURSE SYNOPSIS:

This course introduces students to the methods of collecting and processing spatial data for environmental monitoring and assessment. The principles of such an approach will be discussed focusing on the nature of environmental data (particularly raster pictures and remote sensing images), data collection by mobile devices, coordinate transformation, 3D terrain modelling, and techniques for visualization. Students will gain GIS operational skills by completing two exercises and a project. An examination comprising short answer questions will be administered during the examination period.

LECTURE TOPICS:

- Introduction to information systems
- Geodata processing
- Environmental modelling and visualization
- Data reliability issues
- Systems implementation and organizational issues

RECOMMENDED READING LIST:

- ESRI. (2008). Essays on Geography and GIS – Volume I. Online version: <https://www.esri.com/content/dam/esrisites/sitecore-archive/Files/Pdfs/library/bestpractices/essays-on-geography-gis.pdf>
- ESRI. (2009). Essays on Geography and GIS – Volume II. Online version: <https://www.esri.com/content/dam/esrisites/sitecore-archive/Files/Pdfs/library/bestpractices/essays-on-geography-gis-vol2.pdf>
- Kraak M.J. and Ormeling, F. (2020). Cartography: Visualization of Geospatial Data, 4th Edition. CRC Press.
- de Smith, M.J., Goodchild, M.F., Longley, P.A. (2020). Geospatial Analysis: A Comprehensive Guide to Principles Techniques and Software Tools. 6th Edition, Online version: <https://spatialanalysisonline.com/HTML/index.html>

PRACTICALS:

- 5 laboratory practicals

Course Learning Outcomes (CLOs) After completing this course, students would be able to:		Alignment with Programme Learning Outcomes (PLOs)*						Course Assessment Methods
		1	2	3	4	5	6	
1	understand some concepts in GIS and database management				✓			Practicals 1, 3-5 & exam
2	know some GIS functions and limitations			✓				Practicals 2, 3-5 & exam
3	assess environmental data representation and reliability			✓				Practicals 3-5 & exam
4	recognise GIS requirements and environmental applications				✓			Practicals 3-5 & exam
5	acquire GIS operational skills						✓	Practicals 1, 3-5
6	gain database management skills						✓	Practicals 2, 3-5
7	apply environmental modelling and presentation skills			✓			✓	Practicals 3-5

***Geography Major Programme Learning Outcomes (PLOs)**

In order to meet the demands and challenges in this dynamic and ever-changing world, the Department has designed a series of well-structured and contemporary courses to cater to the different interests of students. Its courses are designed to align with the University's educational aims which hope to nurture future generations not only with a critical and intellectual mindset, but also with a passion to contribute to society in general.

After completing the programme, Geography Major students should be able to:

PLO1 critically analyse the geographical aspects of the relationship between people and the natural environment;

PLO2 demonstrate and develop an understanding of how these relationships have changed with space and over time;

PLO3 identify, collect and utilize primary and secondary data to investigate and analyse the issues and problems facing people, places and society;

PLO4 integrate, evaluate and communicate information from a variety of geographical and other sources;

PLO5 participate in promoting social, economic and environmental sustainability at the local, regional and global scales; and

PLO6 effectively apply a range of transferable skills in academic, professional and social settings.