# COURSE OUTLINE

## (1) GENERAL

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|---|---|---|---|
| **SCHOOL** | School of Environment | | |
| **ACADEMIC UNIT** | Department of Environment | | |
| **LEVEL OF STUDIES** | Undergraduate | | |
| **COURSE CODE** | 329Y | **SEMESTER** | 3 |
| **COURSE TITLE** | Introduction to Cartography and GIS | | |

| **INDEPENDENT TEACHING ACTIVITIES** | **WEEKLY TEACHING HOURS** | **CREDITS** |
|---|---|---|
| Theory | 1 | |
| Laboratory | 2 | |
| **Total** | 3 | **5** |

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| **COURSE TYPE** | General background |
| **PREREQUISITE COURSES:** | None |
| **LANGUAGE OF INSTRUCTION and EXAMINATIONS:** | Greek |
| **IS THE COURSE OFFERED TO ERASMUS STUDENTS** | No |
| **COURSE WEBSITE (URL)** | http://www.env.aegean.gr/studies/undergraduate-degree/curriculum/introduction-to-topographic-mapping-and-gis/ |

## (2) LEARNING OUTCOMES

| **Learning outcomes** |
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| • The undergraduate students will be taught the basic principles of Cartography and Geographic Information Systems<br>• The students will learn how to estimate the geographic position of any point using measuring techniques<br>• The students will learn how to read and create topographic maps<br>• Using Geographic Information Systems the students will learn how to use automated processes for the creation and analysis of geographic position of any phenomenon. In addition they will learn how to create thematic maps in order to visualize them |
| **General Competences** |
| Search for, analysis and synthesis of data and information, with the use of the necessary technology<br><br>Working independently<br><br>Team work |

**(3) SYLLABUS**

**Introduction to Cartography:**

Theory:

- Coordinate Systems: Geographic and Projected Coordinate Systems, Polar Coordinates, Cartesian Coordinates, 1st and 2nd Fundamental Problems of Topography, Map Accuracy Standards Map Scale

- Coordinate Transformation from Geographic to Projected Coordinate System, Principles of Thematic Map Creation, Classification Methods of Map Symbology

Laboratory Exercises:

- Measurements using Compass and Measure Tape – Design of a Topographic Diagram

- Measurements using GPS – Design of a Topographic Diagram

- Coordinates Transformation – Sliding Vulnerability Thematic Map

**Introduction to Geographic Information Systems:**

Theory:

- Geographic Data Structures, Introduction to ArcGIS, Thematic Map creation using ArcGIS

- Rectification and Georegistration, Vector Data Digitization, TIN Creation, Slope, Aspect and Hillshade Creation

Laboratory Exercises:

- Introduction to GIS – Thematic Map Creation

- Morphological Map creation

## (4) TEACHING and LEARNING METHODS - EVALUATION

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|---|---|
| **DELIVERY** | Face-to-face |
| **USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY** | Use of ICT in teaching |
| **TEACHING METHODS** | |

| *Activity* | *Semester workload* |
|---|---|
| Lectures | 39 |
| Study and Analysis of Bibliography | 20 |
| Laboratory Exercises | 40 |
| Final Project | 40 |
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| Course Total | **139** |

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| **STUDENT PERFORMANCE EVALUATION** | Language of Evaluation: Greek<br><br>Methods of Evaluation:<br>A) Laboratory Exercises 40%<br>B) Interim Test 30%<br>C) Final Project 30% |

## (5) ATTACHED BIBLIOGRAPHY


Κουτσόπουλος Κ., (2002), «Γεωγραφικά Συστήματα Πληροφοριών και Ανάλυση Χώρου», Εκδόσεις Παπασωτηρίου, σελ. 400

Χατζόπουλος, Ι. Ν., (2012), Γεωχωροπληροφορική Τοπογραφία, Εκδόσεις ΤΖΙΟΛΑ, Θεσ/νίκη, 950 σελ

Charles D. Ghilani, Paul R. Wolf, 2008, "Elementary surveying: an introduction to geomatics", Prentice Hall

Goodchild M. F., B. O. Parks, L. T. Steyaert, (1993), «Environmental Modeling with GIS», Oxford University Press, p.488