

## COURSE OUTLINE

### (1) GENERAL

<b>SCHOOL</b>	Economics and Public Administration		
<b>DEPARTMENT</b>	ECONOMIC AND REGIONAL DEVELOPMENT		
<b>LEVEL OF STUDY</b>	Undergraduate		
<b>COURSE CODE</b>	80101	<b>SEMESTER OF STUDY</b>	E'
<b>COURSE TITLE</b>	<b>GEOGRAPHICAL INFORMATION SYSTEMS</b>		
<b>SELF-ENDED TEACHING ACTIVITIES</b> In case the credits are awarded in separate parts of the course, e.g. Lectures, Laboratory Exercises, etc. If the credits are awarded uniformly for the entire period, enter the weekly teaching hours and total credits.	<b>WEEKLY TEACHING HOURS</b>	<b>CREDIT UNITS</b>	
	4	6	
Add rows if necessary. The teaching organization and methods are described in detail in (d).			
<b>COURSE TYPE</b> <i>general knowledge, special knowledge, skill development</i>	skill development		
<b>PREREQUISITE COURSES:</b>	Introduction to Information Systems		
<b>TEACHING and EXAMINATION LANGUAGE:</b>	Greek		
<b>THE COURSE IS OFFERED TO ERASMUS STUDENTS</b>	No		
<b>COURSE WEBSITE (URL)</b>	<a href="https://openeclass.panteion.gr/courses/TMI133/">https://openeclass.panteion.gr/courses/TMI133/</a>		

### (2) LEARNING OUTCOMES

<p><b>Learning outcomes</b></p> <p>The course's learning outcomes are described as the specific knowledge, skills and abilities of an appropriate level that the students will acquire after successfully completing the course.</p> <p>Consult Appendix A</p> <ul style="list-style-type: none"> <li>• Description of the Level of Learning Outcomes for each course of study according to the Qualifications Framework of the European Higher Education Area</li> <li>• Descriptive Indicators for Levels 6, 7 &amp; 8 of the European Qualifications Framework for Lifelong Learning and Annex B</li> <li>• Comprehensive Guide to Writing Learning Outcomes</li> </ul>		
<p>After successful completion of the course, students are expected to have the basic knowledge of Geographic Information Systems (GIS) and their applications. They will be able to search for the spatial information required as well as the appropriate background for the given problem, enter the data into the GIS, perform data processing and analysis functions and finally construct maps that will describe the results of their analysis.</p>		
<p><b>General Competences</b></p> <p><i>They are considering the general skills that the graduate must have acquired (as stated in the Diploma Appendix and listed below); which / which of them is the course aimed at?</i></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <i>Search, analysis and synthesis of data and information using the necessary technologies.</i>  <i>Adaptation to new situations</i>  <i>Decision making</i>  <i>Autonomous work</i>  <i>Teamwork</i>  <i>Work in an international environment.</i>  <i>Work in an interdisciplinary environment.</i>  <i>Generating new research ideas</i> </td> <td style="width: 50%; vertical-align: top;"> <i>Project planning and management</i>  <i>Respect for diversity and multiculturalism</i>  <i>Respect for the natural environment</i>  <i>Demonstrating social, professional and ethical responsibility and sensitivity to gender issues</i>  <i>Exercise criticism and self-criticism.</i>  <i>Promotion of free, creative and inductive thinking</i>  <i>Others</i> </td> </tr> </table>	<i>Search, analysis and synthesis of data and information using the necessary technologies.</i> <i>Adaptation to new situations</i> <i>Decision making</i> <i>Autonomous work</i> <i>Teamwork</i> <i>Work in an international environment.</i> <i>Work in an interdisciplinary environment.</i> <i>Generating new research ideas</i>	<i>Project planning and management</i> <i>Respect for diversity and multiculturalism</i> <i>Respect for the natural environment</i> <i>Demonstrating social, professional and ethical responsibility and sensitivity to gender issues</i> <i>Exercise criticism and self-criticism.</i> <i>Promotion of free, creative and inductive thinking</i> <i>Others</i>
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<p>The course aims to solve spatial problems using Geographical Information Systems. So, the lectures are aimed at</p> <ul style="list-style-type: none"> <li>• Creative thinking using the GIS environment in solving spatial problems</li> <li>• Spatial data search, processing and analysis.</li> <li>• Critical ability with the aim of illustrating the solution of the problem through cartography.</li> </ul>		

### (3) COURSE CONTENT

<p>This introductory course in Geographic Information Systems (GIS) provides basic knowledge at both a theoretical and practical level. The thematic areas that are developed in the course are the</p>
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following:

- Basic definitions and spatial data. History. Components of a GIS.
- Projective coordinate systems.
- Spatial data models.
- Database management systems.
- Spatial data import and processing.
- Spatial analysis functions.
- Mathematical modeling in GIS
- Export map and use it in decision making.
- Applications.

#### (4) TEACHING AND LEARNING METHODS – EVALUATION

<b>TEACHING METHOD</b> <i>Face-to-face, Distance learning etc.</i>	Face to face	
<b>USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES</b> <i>Use of I.C.T. in Teaching, Laboratory Education, in Communication with students Χρήση Τ.Π.Ε. στη Διδασκαλία, στην Εργαστηριακή Εκπαίδευση, στην Επικοινωνία με τους φοιτητές</i>	<p><i>Use of the open-source GI System QGIS.</i></p> <p><i>Use of I.C.T. in Teaching, in weekly progress and the final written exam, in teaching support, as well as in Communication with students</i></p> <p><a href="https://openeclass.panteion.gr/courses/TMI133/">https://openeclass.panteion.gr/courses/TMI133/</a></p>	
<b>TEACHING ORGANIZATION</b> <i>The way and methods of teaching are described in detail. Lectures, Seminars, Laboratory Exercises, Field Exercises, Literature Study &amp; Analysis, Tutorials, Internships (Placement), Clinical Exercises, Art Workshops, Interactive Teaching, Educational Visits, Study Preparation (Projects), Writing Papers / Assignments, Artistic Creation, etc. The student's study hours are listed for each learning activity, and the hours of unguided study according to ECTS principles Activity Semester Workload.</i>	<b>ACTIVITY</b>	<b>SEMESTER WORKLOAD</b>
	Lectures	52
	Homework	40
	Unguided Study	88
	<b>Total Course (30 hours per ECTS)</b>	<b>180</b>
<b>STUDENT EVALUATION</b> <i>Description of the evaluation process Assessment Language, Assessment Methods, Formative or Deductive, Multiple Choice Tests, Short Answer Questions, Essay Development Questions, Problem Solving, Written Assignments, Report / Report, Oral Examination, Public Presentation, Laboratory Work, Clinical Patient Examination, Artistic Interpretation, Other / Others Explicitly defined evaluation criteria are mentioned, and if and where they are accessible to students.</i>	<p><u>Description of the evaluation process</u></p> <ul style="list-style-type: none"> <li>- Homework (50%)</li> <li>- Written exam at the end of the semester: 50%</li> </ul> <p><u>Student Assessment Methods</u></p> <ul style="list-style-type: none"> <li>- Homework and</li> <li>- Written Examination</li> </ul> <p><u>Communication of the explicitly defined evaluation criteria for students</u></p> <ul style="list-style-type: none"> <li>- In the study guide</li> <li>- On the course website: <a href="https://openeclass.panteion.gr/courses/TMI133/">https://openeclass.panteion.gr/courses/TMI133/</a></li> </ul>	

#### (5) RECOMMENDED BOOKS AND JOURNALS

- Suggested Literature:

- Burrough P.A., McDonnel R.A. and Lloyd C.D., (2015). *Principles of Geographical Information Systems*, 3rd edn., Oxford Press.
- Heywood I., Cornelius S, Carver S. (2006). *An Introduction to Geographical Information*

*Systems*, 3rd edn., Pearson, Harlow.

- Kennedy M. (2006). *Introducing Geographical Information Systems with ArcGIS*, Wiley.
  - Lloyd C.D. (2010). *Spatial Data Analysis, An introduction for GIS Users*, Oxford, New York.
  - Longley P., Goodchild M.F., Maguire D.J. and Rhind D.W. (2010), *Συστήματα και Επιστήμη Γεωγραφικών Πληροφοριών (GIS)*. 2η έκδοση, Κλειδάριθμος.
  - O'Sullivan D., Unwine D. (2010). *Geographic Information Analysis*, 2nd edition, Wiley, New Jersey.
  - Κόλλια Β., Καλύβας Δ. και Τριαντακωνσταντής Δ. (2012), *Γεωγραφικά Πληροφορικά Συστήματα*, Εκδόσεις ΒΑΣΙΛΕΙΑΔΗΣ.
  - Κουτσόπουλος Κώστας (2002), *Γεωγραφικά Συστήματα Πληροφοριών και Ανάλυση Χώρου*, Δίσιγμα.
  - Τσουγλαράκη Α. και Αχιλλέως Γ. (2015). *Μαθαίνοντας τα GIS στην πράξη - Το ArcGIS 9.3*, Εκδόσεις Δίσιγμα.
  - Φώτης Γ. (2010), *Γεωγραφικά Συστήματα Πληροφοριών*, Γκοβόστη.
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