

1.1.1 Special Topics in Highway Engineering

GENERAL

SCHOOL	Engineering		
ACADEMIC UNIT	CIVIL ENGINEERING		
LEVEL OF STUDIES	Undergraduate		
COURSE CODE	ΣΥΓ012	SEMESTER	8th
COURSE TITLE	Special Topics in Highway Engineering		
INDEPENDENT TEACHING ACTIVITIES <i>if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits</i>	WEEKLY TEACHING HOURS	CREDITS	
	4	5	
<i>Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).</i>			
COURSE TYPE <i>general background, special background, specialised general knowledge, skills development</i>	Specialization Course		
PREREQUISITE COURSES:			
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	No		
COURSE WEBSITE (URL)			

LEARNING OUTCOMES

<p>Learning outcomes</p> <p><i>The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.</i></p> <p>Consult Appendix A</p> <ul style="list-style-type: none"> • Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area • Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B • Guidelines for writing Learning Outcomes 								
<p>Upon completing the course students should be able to recognize basic principles for the design of intersections and interchanges</p> <ul style="list-style-type: none"> • Identify criteria for installing road restraint systems • Identify specifications and instructions for road work signs • Design driveways and implement the access management principles • Cite road safety audit procedures • Use of computers in road design. 								
<p>General Competences</p> <p><i>Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?</i></p> <table> <tr> <td>Search for, analysis and synthesis of data and information, with the use of the necessary technology</td> <td>Project planning and management</td> </tr> <tr> <td>Adapting to new situations</td> <td>Respect for difference and multiculturalism</td> </tr> <tr> <td>Decision-making</td> <td>Respect for the natural environment</td> </tr> <tr> <td></td> <td>Showing social, professional and ethical responsibility and</td> </tr> </table>	Search for, analysis and synthesis of data and information, with the use of the necessary technology	Project planning and management	Adapting to new situations	Respect for difference and multiculturalism	Decision-making	Respect for the natural environment		Showing social, professional and ethical responsibility and
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Decision-making	Respect for the natural environment							
	Showing social, professional and ethical responsibility and							

<i>Working independently</i> <i>Team work</i> <i>Working in an international environment</i> <i>Working in an interdisciplinary environment</i> <i>Production of new research ideas</i>	<i>sensitivity to gender issues</i> <i>Criticism and self-criticism</i> <i>Production of free, creative and inductive thinking</i> <i>.....</i> <i>Others...</i> <i>.....</i>
<p>The course contributes to the following skills:</p> <ul style="list-style-type: none"> _ Search for, analysis and synthesis of data and information, with the use of the necessary technology _ Adapting to new situations _ Decision-making _ Working independently _ Project planning and management _ Respect for the natural environment. 	

SYLLABUS

<p>The use of computers in road project design</p> <ul style="list-style-type: none"> • Digital terrain models • Road projects design software • Basics on junction design • Road restraint systems • Road work signs • Driveways and access management • Road safety audit procedures.
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TEACHING and LEARNING METHODS - EVALUATION

DELIVERY	Face to face.	
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY	Powerpoint presentations, e-learning platform for educational material	
TEACHING METHODS	Activity	Semester workload
<p><i>The manner and methods of teaching are described in detail.</i></p> <p><i>Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.</i></p> <p><i>The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS</i></p>	Lectures	52
	Individual study	48
	Practice/exercises	30
	Course total (26 hours workload per ECTS credit)	130
STUDENT PERFORMANCE EVALUATION	<p>Final written exam (100%) which includes:</p> <ul style="list-style-type: none"> - Open ended questions - Problem solving questions (exercises) <p>OR</p> <p>Final written exam (70%) + Optional individual assignment (30%).</p> <p>The evaluation criteria are presented in the 1st lecture of the semester to all students. Furthermore, each student can see his graded exam/ written assignment paper and talk on the analysis of his written performance with the professor.</p>	

<i>Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</i>	
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ATTACHED BIBLIOGRAPHY

- [in Greek] Αποστολέρης, Α.Κ. (2015). Οδοποιία Ι – Χαράξεις και Υπολογισμός Χωματισμός, Θεωρία και Πρακτική. Αναστάσιος Κ. Αποστολέρης, ΑΠΟΣΤΟΛΕΡΗΣ ΚΑΙ ΣΙΑ Ο.Ε., ISBN: 9789609371735.
- [in Greek] Μουρατίδης, Α.Κ. (2008). Οδοποιία, Η Διαχείριση των Οδικών Έργων. University Studio Press, ISBN: 978-960-12-1759-8.
- [in Greek] Natzschka, Η. (2014). Οδοποιία: Σχεδιασμός και Κατασκευή. ΕΚΔΟΣΕΙΣ ΚΛΕΙΔΑΡΙΘΜΟΣ ΕΠΕ, ISBN: 978-960-461-583-4.
- [in Greek] Οδηγίες Μελετών Οδικών Έργων, Τεύχος 1: Λειτουργική Κατάταξη Οδικού Δικτύου (ΟΜΟΕ-ΛΚΟΔ), ΥΠΕΧΩΔΕ, ΓΓΔΕ/ΔΜΕΟ, Έκδοση: 30/01/2001.
- [in Greek] Οδηγίες Μελετών Οδικών Έργων, Τεύχος 2: Διατομές (ΟΜΟΕ-Δ), ΥΠΕΧΩΔΕ, ΓΓΔΕ/ΔΜΕΟ, Έκδοση: 30/01/2001.
- [in Greek] Οδηγίες Μελετών Οδικών Έργων, Τεύχος 3: Χαράξεις (ΟΜΟΕ-Χ), ΥΠΕΧΩΔΕ, ΓΓΔΕ/ΔΜΕΟ, Έκδοση: 30/01/2001.
- [in Greek] Οδηγίες Μελετών Οδικών Έργων, Τεύχος 5: Πρόσθετες Λωρίδες Κυκλοφορίας (ΟΜΟΕ-ΠΛΚ), ΥΠΕΧΩΔΕ, ΓΓΔΕ/ΔΜΕΟ, Έκδοση: 30/01/2001.
- [in Greek] Οδηγίες Μελετών Οδικών Έργων, Τεύχος 7: Σήμανση Εκτελούμενων Έργων σε Οδούς (ΟΜΟΕ – ΣΕΕΟ), Υπουργείο Υποδομών, Μεταφορών και Δικτύων, 2010.
- [in Greek] Οδηγίες Μελετών Οδικών Έργων, Συστήματα Αναχαίτισης Οχημάτων (ΟΜΟΕ – ΣΑΟ), Υπουργείο Υποδομών Μεταφορών, 2019.
- American Association of State Highway and Transportation Officials (AASHTO) (2018). A Policy on Geometric Design of Highways and Streets. 7th Edition, AASHTO, ISBN-13: 978- 1560516767.
- CALTRANS (2020). Highway Design Manual. 7th Edition, California Department of Transportation.
- U.S. Department of Transportation, Federal Highway Administration (2006). FHWA Road Safety Audit Guidelines. FHWA-SA-06-06.
- U.S. Department of Transportation, Federal Highway Administration (2000). ROUNDABOUTS: An Informational Guide. FHWA-RD-00-067.