

1.1.1 Highway Engineering I

GENERAL

SCHOOL	Engineering		
ACADEMIC UNIT	CIVIL ENGINEERING		
LEVEL OF STUDIES	Undergraduate		
COURSE CODE	ΣΥΓ004	SEMESTER	5th
COURSE TITLE	Highway Engineering I		
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>	Scientific Field		
PREREQUISITE COURSES:			
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	No		
COURSE WEBSITE (URL)	https://elearning.cm.ihu.gr/course/view.php?id=743		

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 this course students should be able to recognize basic principles of geometric design of roads, familiarize with road design guidelines and standards, to analyze, judge and synthesize different criteria of road design and to implement all the above through relative applications.</p>		
<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 style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;"> <i>Search for, analysis and synthesis of data and information, with the use of the necessary technology</i> <i>Adapting to new situations</i> <i>Decision-making</i> <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> </td> <td style="width: 50%; border: none;"> <i>Project planning and management</i> <i>Respect for difference and multiculturalism</i> <i>Respect for the natural environment</i> <i>Showing social, professional and ethical responsibility and 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> </td> </tr> </table>	<i>Search for, analysis and synthesis of data and information, with the use of the necessary technology</i> <i>Adapting to new situations</i> <i>Decision-making</i> <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>Project planning and management</i> <i>Respect for difference and multiculturalism</i> <i>Respect for the natural environment</i> <i>Showing social, professional and ethical responsibility and 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>Search for, analysis and synthesis of data and information, with the use of the necessary technology</i> <i>Adapting to new situations</i> <i>Decision-making</i> <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>Project planning and management</i> <i>Respect for difference and multiculturalism</i> <i>Respect for the natural environment</i> <i>Showing social, professional and ethical responsibility and 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>	

.....

The course contributes to the following skills:

- _ 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

Course presentations: • Introduction. Design and construction of road projects. • Regulations. Design procedure and methodology. • Basic concepts and definitions. • Road safety by design (criteria). • Start of road design. • Horizontal alignment. • Vertical alignment. Super elevation diagrams. • Cross sections. • Road widening study. • Visibility study

TEACHING and LEARNING METHODS - EVALUATION

DELIVERY <i>Face-to-face, Distance learning, etc.</i>	Face to face.	
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY <i>Use of ICT in teaching, laboratory education, communication with students</i>	Powerpoint presentations, E-learning platform for educational material.	
TEACHING METHODS <i>The manner and methods of teaching are described in detail. 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. 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>	Activity	Semester workload
	Lectures	52
	Individual study	52
	Project(s)	26
	Course total (26 hours workload per ECTS credit)	130
STUDENT PERFORMANCE EVALUATION <i>Description of the evaluation procedure Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</i>	<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>	

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] Κοφίτσας, Ι.Δ. (2009). Στοιχεία Οδοποιίας. Ίων, ΣΤΕΛΛΑ ΠΑΡΙΚΟΥ ΣΙΑ ΟΕ, ISBN: 978-960-411-185-5.

- [In Greek] Natzschka, H. (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 4: Κύριες Αστικές Οδοί (ΟΜΟΕ-ΚΑΟ), 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.