

COURSE OUTLINE

(1) GENERAL

SCHOOL	UNIVERSITY OF THESSALY		
ACADEMIC UNIT	DEPARTMENT OF CIVIL ENGINEERING		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	SYO910	SEMESTER	8 th
COURSE TITLE	Road network Management and Traffic Operation		
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
<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, specialized general knowledge, skills development</i>	<i>specialized general knowledge,</i>		
PREREQUISITE COURSES:	•Traffic Engineering •Design, Analysis and Evaluation of Transport System, Highway Desing		
LANGUAGE OF INSTRUCTION and EXAMINATIONS:			
IS THE COURSE OFFERED TO ERASMUS STUDENTS			
COURSE WEBSITE (URL)	https://eclass.uth.gr/courses/CULT_U_142/		

(2) LEARNING OUTCOMES

Learning outcomes <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> <i>Consult Appendix A</i> • <i>Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area</i> • <i>Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B</i> • <i>Guidelines for writing Learning Outcomes</i>
Understanding issues of Operation and Maintenance of Road Infrastructure. Understanding and Solving Traffic Management, Incidents/Accidents Problems. Economic Evaluation. Decision Making, Resource Management and Organization of Personnel, Tasks and Schedules. Evaluation and Indicators of Operation and Maintenance. Ability to design urban environment based on specifications and guidelines. Knowledge of modern technologies and their use in Road Operation and Maintenance.

General Competences

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>Search for, analysis and synthesis of data and information, with the use of the necessary technology</i>	<i>Project planning and management</i>
<i>Adapting to new situations</i>	<i>Respect for difference and multiculturalism</i>
<i>Decision-making</i>	<i>Respect for the natural environment</i>
<i>Working independently</i>	<i>Showing social, professional and ethical responsibility and sensitivity to gender issues</i>
<i>Team work</i>	<i>Criticism and self-criticism</i>
<i>Working in an international environment</i>	<i>Production of free, creative and inductive</i>
<i>thinking Working in an interdisciplinary environment</i>	<i>.....</i>
<i>Production of new research ideas</i>	<i>Others...</i>
	<i>*****</i>

Search, analysis and synthesis of data and information, also using the necessary technologies
 Adapting to new situations Making decisions Work in an international environment - Direct application of knowledge at a professional level Project management.
 Respect for diversity and multiculturalism (e.g. disabled people) Respect for the natural environment

(3) SYLLABUS

A/A week of instruction	Course contents	Hours	
		lecture	Out-of-hours preparation
1	Traffic studies. Legislation. Types of studies. Content	4	3
2	Measurements of traffic quantities. Methods and equipment.	4	3
3	Statistics and Probabilities in Traffic Analysis	4	4
4	Traffic flow. Queue theory. Shock waves	4	4
5	Operating framework. Concessions. Management and operation. The role of ITS. TMCs . Traffic management strategies	4	3
6	Incident Management	4	4
7	Congestion Management	4	4
8	Calculation of queues and delays, Costs. Operational performance indicators	4	4
9	Inspections-Maintenance. Economic evaluation..	4	3
10	The traffic problem. Land use and transportation. Demand Management - Basic Principles Urban Rings	4	3
11	Roundabout functional analysis	4	4
12	Parking Management. Legislation. Policies. Design	4	3
13	Laboratory course.	4	1
14	Laboratory course.	4	1

(4) 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>		
TEACHING METHODS <i>The manner and methods of teaching are described in detail.</i> <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> <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>	<i>Activity</i>	<i>Semester workload</i>
	Lectures	56
	Study	44
	Project	12
	Exam preparation	16
	Exam	2
	Course total	130
STUDENT PERFORMANCE EVALUATION Description of the evaluation procedure <i>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</i> <i>Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</i>	Visit to Road Works and Maintenance Operation Agency or lecture by an invited speaker, depending on the program and alternatively to lecture 13 or 14 Written exams: 80% (8/10). Semester Project: 20% (2/10) As an alternative to the semester project: midterm exam in the 7th-9th week . participation in the final grade of 20%. The semester subject or its alternative is mandatory. The semester subject is delivered in the last week of courses by oral examination. Exams written. The formula will be announced to students before the exam. If there is a theory-exercise distinction: Theory 50% - Exercises 50%. It is mandatory to cover 50% of the grade in each part of the examination (theory: 2.5/5 - exercises: 2.5/5).	

(5) ATTACHED BIBLIOGRAPHY

-Suggested bibliography:

- o Η Διαχείριση Οδών και Οδικών έργων . Μουρατίδης Α. (2023) University Studio Press
- o Κοπελιάς Παντελής (2025) θέματα από την Κυκλοφοριακή Μηχανική (Κυκλοφοριακή Τεχνική) Εκδόσεις Κριτική
- o Αντωνίου, Κ., Σπυροπούλου, Ι., (2015). Αρχές κυκλοφοριακής τεχνικής και προσομοίωσης. [ηλεκτρ. βιβλ.] Αθήνα: Σύνδεσμος Ελληνικών Ακαδημαϊκών Βιβλιοθηκών.
- o ΟΜΟΕ. Διαθέσιμες στην ιστοσελίδα του Υπουργείου Υποδομών και Μεταφορών, <https://www.ggde.gr>
- o Κώδικας Οδικής Κυκλοφορίας (ΚΟΚ) Ν. 2696/23.03.1999 ΦΕΚ Α' 57 και τροποποιήσεις αυτού έως και τη δημοσίευση του Ν. 5039/2023 (Α'170), «Άτυπη Κωδικοποίηση έως και Ν. 5039/23 (Α'83/03.04.23)». Διαθέσιμο στον ιστότοπο του Υπουργείου Υποδομών και Μεταφορών.
- o Institute of Transportation Engineers (ITE), Traffic Engineering Handbook, 2009 και 2016
- o Freeway Management and Operations Handbook (2006) US DoT FHWA
- o National Academies of Sciences, Engineering, and Medicine. 2022. *Highway Capacity Manual 7th Edition: A Guide for Multimodal Mobility Analysis*. Washington,

DC: The National Academies Press. <https://doi.org/10.17226/26432>.

- *Related academic journals:*