7.10 CE0724 – Transportation Planning

(1) GENERAL

SCHOOL	ENGINEERING SCHOOL		
ACADEMIC UNIT	CIVIL ENGINEERING DEPARTMENT		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	**CE0724**	**SEMESTER**	**7**
COURSE TITLE	**Transportation Planning**		

INDEPENDENT TEACHING ACTIVITIES *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*	**WEEKLY TEACHING HOURS**	**CREDITS**
	4	5
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).		

COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Special Background Course
PREREQUISITE COURSES:	-
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek
IS THE COURSE OFFERED TO ERASMUS STUDENTS	Yes, for interested students
COURSE WEBSITE (URL)	https://eclass.uniwa.gr/courses/CIV192/

(2) LEARNING OUTCOMES

Learning outcomes

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.

Consult Appendix A

- *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*

Upon completion of the course, the students will be able to:

- Understand the basic principles of transportation systems planning
- Obtain knowledge for the planning of transportation and traffic infrastructures
- Collect, analyse and interpret traffic data necessary for the planning of transportation infrastructures
- Use the obtained knowledge for the study of transportation systems in the course of their professional life
- Participate in user groups in order to investigate the feasibility of development or construction of transportation infrastructures
- Obtain sufficient knowledge that can be used in their further specialization in the subject matter of the course (e.g. in MSc studies)

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?;.	
Search for, analysis and synthesis of data and information, with the use of the necessary technology *Adapting to new situations* *Decision-making* *Working independently* *Team work* *Working in an international environment* *Working in an interdisciplinary environment* *Production of new research ideas*	*Project planning and management* *Respect for difference and multiculturalism* *Respect for the natural environment* *Showing social, professional and ethical responsibility and sensitivity to gender issues* *Criticism and self-criticism* *Production of free, creative and inductive thinking* *……* *Others…*
The course aims at the following general competences: • Search, analysis and synthesis of data and information, using the necessary technologies • Adapting to new situations • Decision-making • Working independently • Team work • Working in an international environment • Project planning and management	

(3) SYLLABUS

The course contains only theoretical part with the following objectives:

- Introduction to transportation systems – activities
- Characteristics of mobility and traffic
- Basic concepts of traffic (land use, traffic zones etc.)
- Basic traffic flow theory: traffic variables (volume, density, speed) and their relationships (Fundamental traffic flow relationship)
- Stages of transportation planning and relation with the study and construction of transportation systems and infrastructures
- The 4-step model: a) Trip generation, b) Trip distribution, c) Modal split, d) Traffic assignment
- Methods and techniques for analyzing each step (growth factor, categorical analysis, linear)
- Analysis of traffic assignment – Calculation of travel time
- Network theory, scheduling and shortest path problem solving (algorithms)
- Analysis of transport demand: basic cost concepts, financial planning
- Introduction to sustainable urban mobility and to Sustainable Urban Mobility Plans (SUMP)

(4) TEACHING and LEARNING METHODS - EVALUATION

<table>
<tr><td>DELIVERY
Face-to-face, Distance learning, etc.</td><td>Face-to-face</td></tr>
<tr><td>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY
Use of ICT in teaching, laboratory education, communication with students</td><td>Communication with the students through email and the website of the course (Open eClass), and additional support of the learning process by providing more exercises and resolved examples uploaded on the website.</td></tr>
<tr><td>TEACHING METHODS
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</td><td>
<table>
<tr><th>Activity</th><th>Semester workload</th></tr>
<tr><td>Lectures</td><td>50</td></tr>
<tr><td>Classwork</td><td>40</td></tr>
<tr><td>Additional problems solving</td><td>30</td></tr>
<tr><td></td><td></td></tr>
<tr><td>Course total</td><td>120</td></tr>
</table>
</td></tr>
<tr><td>STUDENT PERFORMANCE EVALUATION
Description of the evaluation procedure</td><td>The final evaluation of the students is in writing (100%) containing problems' solving and oral exam or judgement questions, if</td></tr>
</table>

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.*	necessary. There is also the potential for written work in the middle of the semester. The evaluation criteria are presented to the students prior to the examination, the grading of all problems are shown and the final grades are available through the platform of the university. The students can review their written solving process, the grades assigned to each problems and explanations are given to them for their mistakes, if any. The evaluation language is Greek, expect for the Erasmus students, which is English.

(5) **ATTACHED BIBLIOGRAPHY**

Greek Bibliography:

1. Giannopoulos, G. (2005). Transportation Planning. Publications: Epikentro (in Greek).
2. Stathopoulos, A. & M. Karlaftis (2008). Transportation Systems Planning. Publications: A. Papasotiriou (in Greek).
3. Frantzeskakis J. & G. Giannopoulos (2005). Transportation Planning and Traffic Engineering. Publications: Epikentro (in Greek).
4. Ampakoumkin, K. (2000). Transportation Systems Planning. Publications: Symmetria (in Greek).
5. Samprakos, E. (2013). Introduction to Transportation Economics. Publications: Idiotiki (in Greek).
6. Chrisoulakis J. & D. Dimitriou (2004). Traffic Engineering Systems and Highways Engineering problems. Publications: Technological Educations Institute of Athens (in Greek).
7. Pitsiava-Latinopoulos M., G., Mintsis & S. Basbas (2006). Organization and Operation of Traffic Systems and Parking. Thessaloniki (in Greek).

Foreign Bibliography:

1. Banister, D. (2002). Transport Planning (2nd Edition). Publications: Routledge.
2. O'Flaherty, C. (1996). Transport Planning and Traffic Engineering. Publications: Taylor & Francis.
3. Tumlin, J. (2012). Sustainable Transportation Planning: Tools for Creating Vibrant, Healthy, and Resilient Communities. Publications: Wiley.
4. Rodrigue, J.P. (2020). The Geography of Transport Systems. Publications: Routledge, New York.

Related academic journals:

1. Transportation Research Record
2. Transport Policy
3. Journal of International Transportation
4. European Transportation Research Record
5. Journal of European Transport
6. Journal of Transportation Research Forum
7. Transportation Science
8. Transportation Research: Parts A: Policy and Practice
9. Transportation Research: Parts B: Methodological
10. Transportation Research: Parts C: Emerging Technologies
11. Transportation Research: Parts D: Transport and Environment
12. Transportation Research: Parts E: Logistics and Transportation Review
13. Transportation Research: Parts F: Traffic Psychology and Behaviour
14. International Journal of Sustainable Transportation
15. Transportation Planning and Technology
16. Transport Reviews
17. Transportation Journal
18. Research in Transportation Business and Management