10.4 CE1014 – Intelligent Transport Systems and Road Safety

(1) GENERAL

SCHOOL	ENGINEERING SCHOOL
ACADEMIC UNIT	CIVIL ENGINEERING DEPARTMENT
LEVEL OF STUDIES	UNDERGRADUATE
COURSE CODE	CE1014 **SEMESTER** 10
COURSE TITLE	Intelligent Transport Systems and Road Safety

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
	3	6
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*	Specialisation Course
PREREQUISITE COURSES:	
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek
IS THE COURSE OFFERED TO ERASMUS STUDENTS	Yes, If requested.
COURSE WEBSITE (URL)	https://eclass.uniwa.gr/courses/CIV189/

(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, students will be able:

- To understand the role and the impact of Intelligent Transport Systems (ITS) in the development and operation of transport systems and services
- To learn the main categories, characteristics and applications of Intelligent Transport Systems
- To learn the basic definitions of road safety and understand the effect of several factors (driver, road infrastructure, vehicle) on road accidents
- To conduct studies in order to identify and analyse high risk sites
- To access countermeasures aiming at imroving road safety
- To obtain adequate knowledge in the field that will allow them to continue their studies at the post graduated level

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?;.

Specifically, students will be able to perform:

- Search, analysis and synthesis of data and information, using the necessary technologies.
- Adapting to new situations
- Decision Making
- Autonomous work
- Team work
- Working in an international environment
- Project planning and management

(3) SYLLABUS

Intelligent Transport Systems

- Introduction to Information and Communication Technologies (ICT)
- Intelligent Transport Systems. Definition, Classification and main characteristics.
- Application of ICT to transport systems. (examples from different transport sectors: airtrasnport, railway, shipping and public transport systems)
- Smart cities.
- Technological advances of vehicles for improving road safety (indroduction to the next section). Advanced driver-assistance systems. Autonomous vehicles.

Road safety

- The effect of several factors on road safety
- Correlation of accidents with road user characteristics
- Correlation of accidents with road environment
- Correlation of accidents with vehicle characteristics
- Identification of high risk sites
- Analysis of high risk sites location and computation of high risk indicators
- Evaluation of countermeasures

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY *Face-to-face, Distance learning, etc.*	Face-to-face
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY *Use of ICT in teaching, laboratory education, communication with students*	Teaching using ICT. Communication with students through email and eclass platform. The course's notes, the project, the exercises, as well as resolved examples are uploaded on the course website.

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

Activity	Semester workload
Lectures	39
Study and analysis of bibliography	40
Project	35
Problem Solving	26
Educational/Technical Visit	10

	Course total	**150**	

STUDENT PERFORMANCE EVALUATION *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.*	Final written examination (100%) which includes problem-solving, short answer questions, multiple and open-ended questions. In particular cases the examination is oral. Students may also submit written projects during the semester which are assessed for deriving the final grade in the course. The evaluation criteria are presented to the students prior to the examination. The partial score of each question of the written exam is included in the exam questions paper and the final grade is available to the students through the platform of the university. Students reserve the right to ask the examiner to provide comments on the assessment of their written exam concerning the score of each question and may also ask the examiner to explain their mistakes, if any. The evaluation language is Greek. For Erasmus students, English is the evaluation language.

(5) ATTACHED BIBLIOGRAPHY

Greek Bibliography:

1. Frantzeskakis I and Golias, Road safety, Papasotiriou Eds, 1994.

Foreign Bibliography:

1. Tyrinopoulos, Y., Kortsari, A., & Chatziathanasiou, M. Chapter 11 A critical overview of ICT deployment in transport in Europe. ICT for Transport, "Information and Communication Technology for transport: opportunities, threats and ethics/equity" (pp. 249-294). Edward Elgar Publishing, 2014.

Related academic journals:

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