## ANALYSIS AND PLANNING OF DISTRIBUTION & TRANSPORTATION SYSTEMS

- **Course code**

8133

- **Type of course (compulsory, optional)**

Compulsory or optional depending on the specialization

- **Level of course**

First Cycle

- **Year of study**

2013-2014

- **Semester**

7th Semester

- **Number of credits allocated**

6 ECTS Credits

- **Name of lecturer**

Androutsopoulos Konstantinos, Lecturer

- **Learning outcomes**

This course deals with the analysis and planning of transport and distribution systems. The course consists of two parts. The first part is focused on the major operational features of transport systems, the relevant institutional environment, and methods for forecasting transport demand. The second part provides operational and tactical planning problems arising in designing and managing freight transport and distribution systems. After completing the course the students will be able to:

- understand the structure, the operations and the broader Political, Economic, Ecological, Societal, and Technological environment of the transportation system,
- develop and apply transport demand forecasting models,
- understand the characteristics of major decision making problems for transportation and distribution systems,
- develop and solve mathematical models for optimizing transportation and distribution decisions,
- understand the role and capabilities of advanced technologies, and will be able to assess the impacts of advanced technologies on the management of freight transportation systems.

- **Mode of delivery (face-to-face, distance learning)**

Face-to-face

- **Prerequisites and co-requisites**

  - Decision Making (3rd Semester)

- **Recommended optional programme components**

-

- **Course contents**

The course includes the following sections:

- Transportation Systems Analysis: Transportation systems structure, operations, and the political, ecological, economical, social, and technological environment, characteristics of transport demand and supply, performance measures of transportation system and externalities (energy, environment, safety).
- Transport Demand Forecasting: categorization of transport demand forecasting methods, development and application of transport demand forecasting models, cases of transport demand forecasting applications.
- Transportation and Distribution Systems Planning: Introduction to Transport and Distribution Systems planning decisions, classification of mathematical models and algorithms for addressing transport and distribution planning and facility location decisions, case studies addressing real-world transportation, distribution and location problems.
- Telematics and Geographical Information Systems Applications in Freight Transportation problems.

- **Recommended or required reading**

📖 Lectures' presentation material (uploaded to Eduportal)

📖 Gianpaolo Ghiani, Gilbert Laporte, and Roberto Musmanno, "Introduction to Logistics Systems Planning and Control", John Wiley & Sons, Inc., 2004.

📖 Odoni, A., R.C. Larson, "Urban Operations Research", Prentice Hall, 1981.

- **Planned learning activities and teaching methods**
  - Course Lectures
  - Tutorial lessons on TRASNCAD (GIS software)
- **Assessment methods assessment methods and criteria**
  - Exam
  - Homework
  - Team project
- **Language of instruction**

Greek

- **Work placement(s)**

To increase the students' exposure to practical issues, homework and a team project will be assigned to students. The objective of these assignments is to provide the students with the opportunity to apply quantitative techniques and methods for addressing real-world transportation and distribution planning problems.