



Course Code CVEE-371	Course Title Road and Highway Engineering	ECTS Credits 6
Department Engineering	Semester Fall, Spring	Prerequisites CVEE-330
Type of Course Required	Field Civil & Environmental Engineering	Language of Instruction English
Level of Course 1 st Cycle	Year of Study 3rd	Lecturer(s) Dr Loizos Papaloizou
Mode of Delivery Face-to-face	Work Placement N/A	Co-requisites None

Objectives of the Course:

The main objectives of the course are to:

- Develop an understanding of highway engineering principles and practice, as it refers to geometric design, structural design, construction and maintenance.
- Introduce basic concepts and characteristics of highways and city roads, including layout, traffic requirements, safety and control, drainage, sub-grade structure and surface pavements.
- Study the procedures and techniques needed for the planning, design and construction of a highway installation.
- Understand the development planning process and how highway engineers interact with this.
- Provide students with the necessary skills to be solve problems on geometric design, traffic volume, channelization, and hydrology.
- Understand the basic concepts of traffic analysis and management.

Learning Outcomes:

After completion of the course students are expected to:

- Demonstrate knowledge and understanding of highway Engineering, relating particularly to procedures and standards for geometric design, structural design and pavement maintenance.
- Demonstrate knowledge and understanding of the principles and practice of route location and geometric design of highways.
- Perform road pavement design and analysis, in relation to safety and driver comfort, focusing on horizontal and vertical alignment.
- Design the geometric curves of a road pavement.
- Be able to evaluate and select the appropriate materials for use in different road layers for flexible, rigid and composite road pavements.

- Be able to draw an appropriate road monitoring and maintenance plan.

Course Contents:

- The highway engineer and the development process.
- Pavement Maintenance.
- Structural Design of Pavement Thickness.
- Highway Pavement Materials and Design.
- Geometric Alignment and Design.
- The Design of Highway Intersections.
- Determining the capacity of a highway.
- Basic elements of highway traffic analysis.
- Scheme Appraisal for Highway Projects.
- Forecasting Future Traffic Flows.
- The Transportation Planning Process.

Learning Activities and Teaching Methods:

Lectures, in-class examples and exercises

Assessment Methods:

Homework, mid-term exam, final exam

Required Textbooks/Reading:

Authors	Title	Publisher	Year	ISBN
M. Rogers	Highway Engineering	Wiley-Blackwell	2008	978-1-4051-6358-3

Recommended Textbooks/Reading:

Authors	Title	Publisher	Year	ISBN
P. H. Wright, K. Dixon	Highway Engineering	Wiley	2003	978-0-471-26461-3