



Course Syllabus

Course Code	Course Title	ECTS Credits
CEE-260	Principals of Environmental Engineering	5
Prerequisites	Department	Semester
None	Engineering	Fall, Spring
Type of Course	Field	Language of Instruction
Required	Civil & Environmental Engineering	English
Level of Course	Lecturer(s)	Year of Study
1 st Cycle	Dr Paris Pittakaras	2 nd
Mode of Delivery	Work Placement	Corequisites
Face-to-face	N/A	None

Course Objectives:

The main objectives of the course are to:

- introduce population, economic growth, industrialization, urbanization and energy-use as causes of environmental pollution;
- provide students with standards and guidelines for sustainable development;
- teach students to relate environmental principles to the characteristics of particles, chemistry of solutions and gases, material balances, reaction kinetics, microbiology and ecology;
- provide students with experiences on the collection and analysis of environmental data;
- enhance students' knowledge of environmental quality objectives and standards.

Learning Outcomes:

After completion of the course students are expected to be able to:

- understand the principles of sustainable environmental engineering;
- identify, formulate, and solve environmental engineering problems;
- understand the impact of environmental engineering solutions in a global and societal context;
- develop skills and knowledge needed for water resource management, water and wastewater treatment, air pollution control, solid waste management, environmental impact assessment, and environmental ethics.

Course Content:

- Population, economic growth, industrialization, urbanization and energy-use as causes of environmental pollution.
- Mass and energy balance for environmental engineering systems under steady state and unsteady state conditions.
- Contaminant partitioning and transport in air, water and solids.
- Characteristics of particles, chemistry of solutions and gases, material balances, reaction kinetics, microbiology and ecology.
- Application of environmental principles to water resource management, water and wastewater treatment, air pollution control, solid waste management, environmental impact assessment, and environmental ethics.
- Thermal pollution, noise pollution, greenhouse effect, acid precipitation, ozone depletion, air toxics, and ground-level ozone and fine particulates (photochemical smog).
- Sustainable development, life cycle analysis, and principles of environmental quality objectives, standards and guidelines.

Learning Activities and Teaching Methods:

Lectures, in-class examples and exercises, projects and homework assignments.

Assessment Methods:

Homework assignments, projects, mid-term exam, and final exam.

Required Textbooks / Readings:

Title	Author(s)	Publisher	Year	ISBN
Environmental Engineering	Kiely G.	McGraw-Hill	1996	978-0077091279

Recommended Textbooks / Readings:

Title	Author(s)	Publisher	Year	ISBN
Principles of Environmental	Mackenzie Davis and Susan Masten	McGraw-Hill	2013	978-0073397900

Engineering and Science, 3 rd Edition				
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