



<b>Course Code</b> CVEE-260	<b>Course Title</b> Principles of Environmental Engineering	<b>ECTS Credits</b> 5
<b>Department</b> Engineering	<b>Semester</b> Fall, Spring	<b>Prerequisites</b> None
<b>Type of Course</b> Required	<b>Field</b> Civil and Environmental Engineering	<b>Language of Instruction</b> English
<b>Level of Course</b> 1 <sup>st</sup> Cycle	<b>Year of Study</b> 2 <sup>nd</sup> Year	<b>Lecturer(s)</b> Dr Michalis Loizides
<b>Mode of Delivery</b> Face-to-face	<b>Work Placement</b> N/A	<b>Co-requisites</b> None

### **Objectives of the Course:**

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 experiences with the collection and analysis of environmental data
- Improve students' knowledge of environmental quality objectives, and standards.

### **Learning Outcomes:**

After completion of the course students are expected 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 Contents:**

- 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, Projects, Discussion

**Assessment Methods:**

Homework, Project assignments, exams, final exam.

**Required Textbooks/Reading:**

Authors	Title	Publisher	Year	ISBN
Kiely G.	Environmental Engineering	McGraw Hill	1996	007091272

**Recommended Textbooks/Reading:**

Authors	Title	Publisher	Year	ISBN