

Course unit title:	Environmental Pollution Control		
Course unit code:	CE455		
Type of course unit:	Technical Elective		
Level of course unit:	Bachelor (1st Cycle)		
Year of study:	4		
Semester when the unit is delivered:	N/A		
Number of ECTS credits allocated :	6		
Name of lecturer(s):	Dr. Christos Anastasiou		
Learning outcomes of the course unit:	<ol style="list-style-type: none"> 1. Define key terms and concepts relating to: municipal solid waste production, transport, selection and final disposal, as well as key terms and concepts relating to air pollution engineering (sources, characteristics, and control methods) 2. Calculate municipal solid waste quantities and characteristics 3. Describe the key features of a municipal solid waste sanitary landfill 4. Identify alternative final disposal methods for municipal solid waste (i.e. incineration, composting, recycling) 5. Discuss key global issues pertaining to air pollution (climate change, acid rain, photochemical smog) 6. Identify air pollution control methods (i.e. cyclones, baghouse filters, wet scrubbers, etc.) 7. Propose options for Green Technologies as these apply in the field of Environmental and Civil Engineering. 		
Mode of delivery:	Face-to-face		
Prerequisites:	CE330	Co-requisites:	None
Recommended optional program components:	None		
Course contents:	<p><u>Environmental Pollution and Public Health:</u> Basic terms and concepts relating to Environmental pollution and engineering. Important issues that relate to environmental pollution. Important sources of environmental pollution. Relationship between pollutants and the corresponding contributing sources. Possible scenarios of public health manifestations of environmental pollution sources and events.</p> <p><u>Solid Waste Management:</u> Key terms and concepts relating to municipal solid waste production, transport, selection and final disposal. Calculation of municipal solid waste quantities and characteristics. Key features of a municipal solid waste sanitary landfill. Alternative final disposal methods for municipal solid waste (i.e. incineration, composting, recycling).</p> <p><u>Air Pollution:</u> Key terms and concepts relating to air pollution engineering (sources, characteristics, and control methods). Key global issues pertaining to air pollution (climate change, acid rain, photochemical smog). Air pollution control methods (i.e. cyclones, baghouse filters, wet scrubbers, etc.)</p> <p><u>Ecological Engineering:</u> Key terms and concepts relating to Ecological Engineering and Sustainable Development & Technologies in environmental engineering (i.e. treatment methods). Introduction to "green technologies" such as constructed wetlands for wastewater treatment.</p>		
Recommended and/or required reading:			
Textbooks:	<ul style="list-style-type: none"> • George Tchobanoglous, Hilary Theisen, Samuel Vigil. 1993. <i>Integrated solid waste management : engineering principles and management issues</i>. McGraw 		

	<p>Hill, ISBN 0070632375 (1993)</p> <ul style="list-style-type: none"> • C. David Cooper and F. C. Alley. 2002. <i>Air Pollution Control; A Design Approach</i>, 3rd Edition. Waveland Press Inc, ISBN 1-57766-218-0 (2002)
References:	<ul style="list-style-type: none"> • Air & Waste Management Association (Author), Wayne R. Davis (Editor). 2000. <i>Air Pollution Engineering Manual (2nd Edition)</i>. Wiley-Interscience, ISBN 0471333336 (2000) • George Tchobanoglous, Frank Kreith. 2002. <i>Handbook of Solid Waste Management</i>. McGraw Hill, ISBN 0071356231 (2002) • Journal Papers • World Wide Web Sites (i.e. EU Environmental Commission, USEPA, USDA, UN-IPCC, etc.)
Planned learning activities and teaching methods:	<p>The course will be presented through theoretical lectures in class. The lectures will present to the student the course content and allow for questions. The material will be presented using visual aids (i.e. PowerPoint presentation slides, documentaries, etc.). The aim is to familiarize the student with the different and faster pace of presentation and also allow the instructor to present related material that would otherwise be very difficult to do. The learning process will be enhanced with the requirement from the student to carry in-class discussions and tackling of hypothetical scenarios in small-group exercises. A final project, which will be required as part of the students assessment for the course, will allow students the opportunity to carry out independent research, synthesize basic concepts presented in class, as well as hone their writing and presentation skills. Besides from the notes taken by students in class, all of the course material will be made available through the class website which will be available through the University's E-learning platform ("Moodle"). The instructor will be available to students during office hours or by appointment in order to provide necessary guidance.</p>
Assessment methods and criteria:	<ul style="list-style-type: none"> • Assignments 20% • Tests: 30% • Final Exam 50%
Language of instruction:	English
Work placement(s):	No