

Course unit title:	Sustainable Construction Technology		
Course unit code:	CE235		
Type of course unit:	Compulsory		
Level of course unit:	Bachelor (1st Cycle)		
Year of study:	2		
Semester when the unit is delivered:	4 (Spring)		
Number of ECTS credits allocated :	5		
Name of lecturer(s):	Dr. Christos Anastasiou		
Learning outcomes of the course unit:	<ol style="list-style-type: none"> 1. Identify major problems facing the planet earth and human society. 2. Explain the concept of Sustainability, and how building green is good for Cyprus and the World. 3. Describe primary components of a sustainable engineering system. 4. Explain design and construction principles for developing green structures 5. List roles that a civil engineer has in implementing a sustainable construction/development project 6. Perform detailed evaluation of new and existing buildings based on LEED standards 7. Classify various technologies aimed at achieving global sustainability 		
Mode of delivery:	Face-to-face		
Prerequisites:	None	Co-requisites:	None
Recommended optional program components:	None		
Course contents:	<p><u>MODULE 1 (Introduction to Sustainable Development):</u></p> <ul style="list-style-type: none"> • <i>Basic Concepts and Vocabulary (Definitions of Sustainability, Quantification Methods of Sustainability)</i> • <i>Ethics and Sustainability</i> • <i>Major Environmental and Resource Concerns</i> • <i>Defining Sustainable Construction (The Green Building Movement)</i> <p><u>MODULE 2 (Sustainable Sites):</u></p> <ul style="list-style-type: none"> • <i>Site Selection</i> • <i>Development Density & Community Connectivity</i> • <i>Alternative Transportation: Public Transportation Access & facilities</i> • <i>Site Development: Open Space</i> • <i>Stormwater Design: Quantity & Quality Control</i> <p><u>MODULE 3 (Water Efficiency):</u></p> <ul style="list-style-type: none"> • <i>Water Efficient Landscaping</i> • <i>Water Efficient Landscaping: No Potable Water Use or No Irrigation</i> • <i>Innovative Wastewater Technologies</i> • <i>Water Use Reduction</i> <p><u>MODULE 4 (Energy & Atmosphere):</u></p> <ul style="list-style-type: none"> • <i>Optimize Energy Performance</i> • <i>On-Site Renewable Energy</i> <p><u>MODULE 5 (Materials & Resources):</u></p> <ul style="list-style-type: none"> • <i>Storage & Collection of Recyclables</i> • <i>Building Reuse</i> • <i>Construction Waste Management</i> • <i>Materials Reuse</i> 		

	<ul style="list-style-type: none"> • <i>Recycled Content</i> • <i>Regional Materials</i> <p><u>MODULE 6 (Indoor Environmental Quality):</u></p> <ul style="list-style-type: none"> • <i>Ventilation</i> • <i>Low-Emitting Materials (e.g. Adhesives, Sealants, Paints, Coatings, Carpet Systems)</i> • <i>Indoor Chemical & Pollutant Source Control</i> • <i>Controllability of Systems: Lighting & Thermal Comfort</i> • <i>Daylight & Views</i>
Recommended and/or required reading:	
Textbooks:	Charles J. Kibert. 2007. <i>Sustainable Construction: Green Building Design and Delivery, 2nd Edition</i> . John Wiley & Sons, ISBN 978-0-470-11421-6
References:	<ul style="list-style-type: none"> • US Green Building Council. 2005. <i>LEED® for New Construction & Major Renovations</i> • ASHRAE Press. 2006. <i>ASHRAE Greenguide: The Design, Construction, and Operation Of Sustainable Buildings, 2nd Edition</i>. ISBN: 978-1933742076
Planned learning activities and teaching methods:	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. In-class problem-solving as well as homework exercises (mostly numerical) will allow students to practice their design skills in a controlled setting. 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. The instructor will be available to students during office hours or by appointment in order to provide necessary guidance.
Assessment methods and criteria:	<ul style="list-style-type: none"> • Term Project 15% • Tests 35% • Final Exam 50%
Language of instruction:	English
Work placement(s):	No