

Course unit title:	Hydrology and Water Resources Engineering		
Course unit code:	CE325		
Type of course unit:	Compulsory		
Level of course unit:	Bachelor (1st Cycle)		
Year of study:	3		
Semester when the unit is delivered:	5 (Fall)		
Number of ECTS credits allocated :	6		
Name of lecturer(s):	Dr. George Michaelides		
Learning outcomes of the course unit:	<ol style="list-style-type: none"> 1. Understand the hydrological processes and techniques applied to understanding the requirements for the provision of stable, high quality and sustainable water resources. 2. Appreciate the most significant hydrological issues for society and the role of hydrological knowledge in securing safe and sustainable water supplies 3. Develop quantitative approaches for answering questions in engineering hydrology, as well as creative thinking and basic research skills through independent and team assignments and projects 4. Understand the hazard associated with spatially / temporally uneven water inputs, in a wide range of environments where hydrology and water resources become important environmental issues, understand the hydrological processes and techniques applied to understanding the requirements for the provision of stable, high quality and sustainable water resources. 5. Estimate flows for a variety of civil engineering design problems, including, 1) urban storm-water analysis, 2) floodplain mapping, and 3) groundwater aquifer characterization. 		
Mode of delivery:	Face-to-face		
Prerequisites:	CE210, CE230	Co-requisites:	
Recommended optional program components:	None		
Course contents:	<ul style="list-style-type: none"> • Introduction to Hydrology <ul style="list-style-type: none"> ○ Definition ○ Hydrological cycle ○ Water balance ○ Inventory of Earth' s water ○ Hydrology as applied in engineering. • Water data in Cyprus • Meteorological data <ul style="list-style-type: none"> ○ Weather and climate ○ Humidity ○ Temperature ○ Radiation ○ Wind ○ Precipitation ○ Data ○ Applications • Evaporation and transpiration <ul style="list-style-type: none"> ○ Meteorological factors ○ Transpiration ○ Applications • Infiltration and percolation <ul style="list-style-type: none"> ○ Infiltration capacity of soil ○ Factors influencing ○ Methods of determination 		

	<ul style="list-style-type: none"> ○ Applications ● Groundwater <ul style="list-style-type: none"> ○ Occurrence ○ Groundwater flow ○ Exercise ○ Applications ● Surface flow <ul style="list-style-type: none"> ○ The engineering problem ○ Exercises ○ Hydrograph analysis
Recommended and/or required reading:	
Textbooks:	<ul style="list-style-type: none"> ● Davie, T. 2008. <i>Fundamentals of Hydrology</i>. Routledge Pub.
References:	<ul style="list-style-type: none"> ● Viessman, W., G.L. Lewis, and J.W. Knapp. 1996. <i>Introduction to Hydrology</i>. Harper & Row Book Co. ● Wilson, E.M. <i>Engineering Hydrology</i>. MacMillan. ● Ward A.D. and S.W. Trimble. 2003. <i>Environmental Hydrology</i>. CRC ● Bedient, P.B., W.C. Huber, and B.E. Vieux. 2007. <i>Hydrology and Floodplain Analysis</i>, Prentice Hall.
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. In-class problem-solving as well as homework exercises (mostly numerical) will allow students to practice their design skills in a controlled setting. An assignment, 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.</p>
Assessment methods and criteria:	<ul style="list-style-type: none"> ● Coursework: 50% ● Final Examination: 50%
Language of instruction:	English
Work placement(s):	No