Course unit title:	Construction Methods		
Course unit code:	CEC380		
Type of course unit:	Required		
Level of course unit:	Bachelor (1st Cycle)		
Year of study:	3		
Semester when the unit is delivered:	6		
Number of ECTS credits allocated :	6		
Name of lecturer(s):	Dr Antonis Michael		
Learning outcomes of the course unit:	1. Capacity and in depth knowledge of available construction methods and techniques for selection 2. Capacity for evaluating the advantages and disadvantages of the different methods available 3. Skill to make a selection from the various methods available in the light of technical and legal suitability, cost, speed of construction and clients requirements 4. Ability to evaluate and incorporate the appropriate temporary works, plant and equipment, materials and health and safety issues required for the correct management of a project using construction methods 5. Explain the various forms of simple shallow foundations used and where each is most suitable 6. Explain the various forms of upper floors and roofs used, the types of material available and where each type is most suitable 7. Explain the various forms of external walls, the types of material used and where each wall type is most suitable 8. Describe the various types of internal partitioning systems available and the materials commonly used in their construction/composition		
Mode of delivery:	Face-to-face		
Prerequisites:	None	Co-requisites:	
Recommended optional program components:			
Course contents:	**Introduction:** Describe the building team members and their roles on a construction project and explain that buildings are constructed dependant on certain factors such as cost, time, quality and the clients' requirements. Emphasize the need to look at the various advanced construction methods and techniques available for selection and explain that the correct use of construction technology leads to efficient and effective management of projects. **Foundations:** Describe the reasons and the importance of ascertaining the load-bearing capacity and pressure soils and sub-soils have on a site and the relevance and necessity of undertaking soil investigations. Describe the different types of soils found such as rock, gravel, silt, clay, etc. Explain the importance of designing foundations and describe the various forms of foundations available for advanced and complex construction, such as basement rafts, deep piles and pads, combined foundations, cantilever beam foundations, asymmetrical combined base foundations, underpinning (with and without piling). Identify the respective advantages and disadvantages of each type of foundation and explain where each type is best used. **Concrete Framed Structures:** Explain the importance of designing concrete framed structures and describe the various forms available for advanced and complex construction, such as in-situ, pre-cast, waffle grid, lift slab, and composite structures. Identify the respective advantages and disadvantages of each type and		

	explain where each type is best used. **Steel Framed Structures:** Explain the importance of designing steel framed structures and describe the various forms available for advanced and complex construction. Identify the respective advantages and disadvantages of each type of structure and explain where each type is best used. Describe the steel sections and profiles that can be used, the types of fixings and connections necessary as well as the need for fire protection of the steelwork. **External Envelope:** Describe the various forms of finishes used in external facades such as curtain walling, glazing, marble and stone. Explain the various forms of external solid brick walls describing the methods of construction in terms of bonds used (English bond, Flemish bond, etc.). Describe the problems with such walls and the introduction of the cavity wall whereby a cavity separates two skins of wall, the outer and inner skin. Explain how the cavity wall system works and what are its advantages and disadvantages. Describe the various forms of thermal and sound insulation that can be used in external facade wall systems and external brick/block walls. **Floors:** Explain the various forms of timber and concrete ground floor construction. Explain the reasons for having raised floors in certain instances and describe the advantages and disadvantages of each type of ground floor systems used. Explain the various forms of timber and concrete upper floor construction and describe the advantages and disadvantages of each type of upper floor systems used. **Roofs:** Explain the importance of designing complicated roof structures and describe the various forms available for advanced and complex construction such as truss and girder roofs, portal frames, shell barrel vaults, double curvature shells, domes, folded slabs, grid structures, suspension structures and air stabilized structures. Identify the respective advantages and disadvantages of each type of roof structure and explain where each type is best used. Describe the materials that can be used for their construction, the types of finishes available, the types of fixings and connections required as well as the need for fire protection where necessary (e.g. for steelwork).
Recommended and/or required reading:	
Textbooks:	Structure and Fabric, Part 1 Stroud/Foster, Mitchell's Structure and Fabric, Part 2 Foster/Harrington, Mitchell's Components & Finishes, King/Everett, Mitchell's
References:	*R. Barry, The Construction of Buildings Volume 4*
Planned learning activities and teaching methods:	The course will be presented through formal theoretical lectures and tutorial sessions in class. Assignments will be given to students to further enhance their knowledge on the subject and for the instructor to ascertain progress made in learning by the students. The lectures will present to the student the course content and also allow time for examples, questions and discussion. Notes shall be taken by the students in class during lectures. In addition, all of the course material will be made available through the class website and also through the university's own e-learning platform. Finally, the instructor will be available to students during office hours or by appointment in order to provide any necessary tutoring.
Assessment methods and criteria:	• Coursework 50% • Final Exam 50%
Language of instruction:	English
Work placement(s):	No