



## Course Syllabus

<b>Course Code</b>	<b>Course Title</b>	<b>ECTS Credits</b>
CEE-491	Capstone Design Project I	4
<b>Prerequisites</b>	<b>Department</b>	<b>Semester</b>
Approval by the Department	Engineering	Fall
<b>Type of Course</b>	<b>Field</b>	<b>Language of Instruction</b>
Required	Civil & Environmental Engineering	English
<b>Level of Course</b>	<b>Lecturer(s)</b>	<b>Year of Study</b>
1 <sup>st</sup> Cycle	Dr Panayiotis Polycarpou and Thesis advisor (staff)	4 <sup>th</sup>
<b>Mode of Delivery</b>	<b>Work Placement</b>	<b>Corequisites</b>
Face-to-face	N/A	None

### Course Objectives:

This course is the first part of the Capstone Design Project, which is divided into two semesters in the 4th year of studies.

The main objectives of the course are to:

- Undertake a specific piece of independent research in the form of a critical review, a numerical analysis, a laboratory experimental investigation, or a field-based experimental investigation.
- Demonstrate technical understanding of the research project and ability to communicate the results to a wider audience by means of an oral presentation.
- Teach students important research techniques and practices.
- Create the foundation where the students will have the opportunity to utilize theoretical knowledge and engineering tools/techniques acquired throughout the years in order to design, build, and test their ideas.
- Teach students how to write reports and how to present their work in front of their colleagues.
- Ensure that students know how to properly set up appropriate measurement and troubleshooting procedures including proper use of laboratory equipment.
- Teach students how to correctly plan their activities in order to successfully achieve their design goals and, more importantly, how to meet their own deadlines.

**Learning Outcomes:**

Upon completion of the course students are expected to:

- Deliver a unique project in an area of research interest.
- Develop effective communication, writing and presentation skills.
- Acquire skills in time management as well as management of expectations in delivery.
- Defend research outputs through an oral presentation.
- Use research skills on an engineering topic in order to reach a successful design for their project idea.
- Operate specialized laboratory equipment
- Use computational simulation tools.
- Acquire creativity, critical analysis, investigation ability and understanding.

**Course Content:**

- Students may either propose their own topic for research or choose from a list of topics provided by staff.
- Students should complete an independent piece of research under the direct supervision of a member of academic staff.
- Oral presentation of the research and defence of the research findings.

**Learning Activities and Teaching Methods:**

- The module will be delivered through a suite of introductory lectures on research methods and related material of importance to undertaking a research project.
- Where appropriate, students will be trained in experimental methods, use of analytical techniques, specialized software and computational tools.
- Project supervision from a member of academic staff.

**Assessment Methods:**

Project design proposal, progress reports, oral presentation.

**Required Textbooks / Readings:**

Relevant to the subject journal publications.

**Recommended Textbooks / Readings:**

<b>Title</b>	<b>Author(s)</b>	<b>Publisher</b>	<b>Year</b>	<b>ISBN</b>
How to write a thesis, 3 <sup>rd</sup> edition	Murray, Rowena	McGraw-Hill- OUP	2011	978-0335244294