UNIVERSITY of NICOSIA

Course Code	Course Title	ECTS Credits
CVEE-444	Coastal Engineering	6
Department	**Semester**	**Prerequisites**
Engineering	Fall, Spring	CVEE-341
Type of Course	**Field**	**Language of Instruction**
Elective	Civil and Environmental Engineering	English
Level of Course	**Year of Study**	**Lecturer(s)**
1st Cycle	4th	Dr Panayiotis Polycarpou
Mode of Delivery	**Work Placement**	**Co-requisites**
Face-to-face	N/A	None

Objectives of the Course:

The main objectives of the course are to:

1. Introduce fundamental ocean wave theories and to apply them to coastal engineering problems
2. Introduce the various analysis and design techniques used in the field of coastal engineering
3. Analyze the physical processes affecting the coastal environment
4. Explain the coastal water level fluctuations, the wave processes and the design procedures of important coastal structures
5. Apply engineering principles to solve coastal engineering issues (flooding, erosion etc)

Learning Outcomes:

After completion of the course students are expected to:

- Acquire the basic knowledge of wave mechanics and coastal processes along with the fundamentals that underline the practice of coastal engineering
- Understand the relationship between the important factors affecting the coastal environment
- Be able to solve simple two-dimensional analytical problems of wave propagation theory, associated with coastal engineering problems.
- Learn how to formulate engineering problems to common coastal issues
- Examine solutions and evaluate how these affect the coastal environment

Course Contents:

- Introduction: coastal environment, problems, challenges, the scope of the field of coastal engineering.
- Basics of two-dimensional ocean wave theory
- Linear water waves and kinematics, pressure, wave energy and power, group celerity

- Coastal water level fluctuations: storm surge, tides, tsunamis, seasonal and long-term fluctuations
- Wind-generated waves, wave hind casting and forecasting
- Wave transformations, shoaling, refraction, diffraction, breaking, reflection, wave run-up
- Coastal structures and hydrodynamic forces: revetments, bulkheads/seawalls, groins, and breakwaters
- Coastal processes; Cross-shore and long-shore currents, sediment transport, beach response and profiles
- Engineering design and risk analysis
- Coastal management issues

Learning Activities and Teaching Methods:

Lectures, projects, exams, discussion

Assessment Methods:

Homework, Computer Projects, Mid-Term(s), Final Exam.

Required Textbooks/Reading:

Authors	Title	Publisher	Year	ISBN
Sorensen, RM	Basic Coastal Engineering	Springer	2006	978-0387233321

Recommended Textbooks/Reading:

Authors	Title	Publisher	Year	ISBN
Kamphuis, JW	Introduction to Coastal Engineering and Management	World Scientific Publishing	2000	9810244177