

## **Course Syllabus**

### **COASTAL MODELING**

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Program: Oceanographic Engineering

#### **1. Course number and name**

OCEG1047 - COASTAL MODELING

#### **2. Credits and contact hours**

2 credits and 4 contact hours

#### **3. Instructor's course or coordinator's name**

JONATHAN MARCELO CEDEÑO OVIEDO

#### **4. Text book, tittle, author, and year**

- Roelvink, Dano & Ad Reniers. A guide to modelling coastal morphology (1st Edition) a. Other supplemental materials

- Winckler, Patricio. Modelado de procesos costeros (1era Edición)

#### **5. Specific course information**

a. Brief description of the content of the course (catalog description)

This professional training course covers the study of hydrodynamic and morphodynamic processes in coastal environment applying computational numerical models. To do this, first, its necessary to do a brief review the mechanisms that produce changes in the coastal area and secondly, the analysis of the equations that use numerical models to study processes as a function of time. The module also explores the strengths of computational numerical models.

b. Prerequisites

COASTAL OCEANOGRAPHY - OCEG1048

c. This course is: Required

#### **6. Specific goals for the course**

a. Specific outcomes of instruction

1. Understand processes that occur in the coastal environment through the study of the basic concepts to relate them with morphodynamic changes of the coastal zones.

2. Analyze the advantages and disadvantages of computational numerical models by the study of the equations that govern those hydrodynamic and morphodynamic processes that are solved into the models in order to investigate the uncertainty levels they have.

3. Evaluate possible scenarios through computational numerical models to undersrtand the study area, and then be able to desing engineering solutions to different problems that exist.

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b. Explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course

**7. Brief list of topics to be covered**

- 1.- Evaluation activities
- 2.- Morphodynamic
- 3.- Computational numerical models
- 4.- Wave propagation models
- 5.- Coastal zone models