

## Course Syllabus

### MARINE WAVES

Printed by: lualtam

Program: Oceanographic Engineering

#### 1. Course number and name

OCEG1049 – MARINE WAVES

#### 2. Credits and contact hours

3 credits and 4 contact hours

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

JONATHAN MARCELO CEDEÑO OVIEDO

#### 4. Text book, title, autor, and year

- Holthuijsen, Leo. Waves in Oceanic and Coastal Waters (1st Edition)
  - a. Other supplemental material
- Sorensen, Robert M.. Basic Coastal Engineering (3rd Edition)
- U.S. Coastal Engineering Research Center. Shore Protection Manual (SPM) (4th Edition)
  - Pugh, David; Philip Woodworth. Sea-Level Science: Understanding Tides, Surges, Tsunamis and Mean Sea-Level Changes (2nd Edition)

#### 5. Specific course information

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

This professional training course studies wave phenomena of the ocean which include capillary waves, seiches, tsunamis and tides, with special emphasis on waves generated by the wind whose restoring force is gravity. This approach is complemented with the analysis of local wave regime, as well as the exploration of practical applications of wave prediction and forecasting.

- b. Prerequisites

FLUID MECHANICS- MECG1049

CLIMATOLOGY AND METEOROLOGY - CEG1030

STATISTICS - ESTG1034

- c. This course is: Required

#### 6. Specific goals for the course

- a. Specific outcomes of instruction

1.- Identify the main wave phenomena in the ocean from the study of its energy spectrum.

2.- Solve the Laplace equation using the boundary condition separation variable method in order to determine kinematic and dynamic wave properties

## Course Syllabus

### MARINE WAVES

Printed by: lualtam

Program: Oceanographic Engineering

3.- Apply data analysis techniques to determine the record of a wave spectrum as well as tidal harmonics of a sea level time series.

4.- Integrate mechanics wave knowledge to describe extreme events and their impact on the marine-coastal activities.

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

#### **7. Lista resumida de los temas a cubrir**

- 1.- Evaluation activities
- 2.- Linear wave theory
- 3.- Description, espectrum and probability of wave
- 4.- Tides
- 5.- Tsunami