

Course Syllabus

EQUATORIAL OCEANOGRAPHY

Printed by: jcedeno

Program: Oceanographic Engineering

1. Course number and name

OCEG1012 - EQUATORIAL OCEANOGRAPHY

2. Credits and contact hours

3 credits and 3 contact hours

3. Instructor's course or coordinator's name

JONATHAN MARCELO CEDEÑO OVIEDO

4. Text book, tittle, author, and year

- Sarachik, Edward S. & Mark A. Cane. El Niño-Southern Oscillation phenomenon (1st Edition)
 - a. Other supplemental materials
- Clarke, Allan J.. An introduction to the dynamics of El Niño & the Southern Oscillation (1st Edition)
- Stewart, Robert. Introduction to Physical Oceanography (Sept 2008 Edition)
- Mann, Keneth H.. Dynamics of marine ecosystems: biological-physical interactions in the oceans (Third Edition)

5. Specific course information

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

This course studies the processes that govern the distribution of oceanographic variables in the tropical zones of the oceans, with emphasis on the equatorial Pacific; as well as the main modes of variability in this region, standing out among them El Niño-Oscillation of the South (ENSO). In the end, the knowledge of these elements is put in perspective in front of the concept of risk management, to reduce the impact in the territory before this type of events (ENSO), which are part of the natural variability of the Earth.

- b. Prerequisites

OCEANOGRAPHIC INFORMATION ANALYSIS - OCEG1007

BIOLOGICAL OCEANOGRAPHY - OCEG1014

- c. This course is: Required

6. Specific goals for the course

- a. Specific outcomes of instruction

1.- Understand the global ocean-atmosphere and mesoscale processes that occur in the equatorial region, and how these influence the distribution of properties along the tropical oceans.

2.- Analyze the different systems of equatorial currents, integrating the concepts of dynamic balances and the forces that govern it.



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3.- Evaluate the variability associated with the El Niño-Southern Oscillation events and their impacts, for the establishment of mitigation strategies-disaster risk prevention.

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

- An ability to identify, formulate, and solve complex oceanographic engineering problems by applying principles of engineering, science, and mathematics.

- An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

7. Brief list of topics to be covered

- 1.- Heat Balance
- 2.- Equatorial processes
- 3.- El Niño-Southern Oscillation: dynamics
- 4.- El Niño-Southern Oscillation: impacts

