Course Syllabus

MARINE POLLUTION

Program: Oceanographic Engineering

1. Course number and name
OCEG1032 - MARINE POLLUTION

2. Credits and contact hours
2 credits and 2 contact hours

3. Instructor's course or coordinator's name
JONATHAN MARCELO CEDEÑO OVIEDO

4. Text book, tittle, author, and year
• Clark, R. Thomas & Frid, Chris & Attrill, Martin. Marine pollution ((pbk.))

a.Other supplemental materials

• López Ruiz, José. Fundamentos de Química Oceanográfica (1era)

• Lavender Law, Kara. Plastics in the Marine Environment ()

• Vikas M. , Dwarakish G.S. Coastal Pollution: A review ()

• Tornero V., Hanke G.. 4.Chemical contaminants entering the marine environment from sea-based sources: A review with a focus on European seas. ()

• Eriksen M., Lebreton L., Carson H., Thiel M., Moore C. Borerro J., Galgani F., Ryan P., Reisser J.. Plastic Pollution in the World's Oceans: More than 5 Trillion Plastic Pieces Weighing over 250,000 Tons Afloat at Sea. ()

• Pérez-Ruzafa, A., Marcos, C. Salas, F. & Zamora, S.. Contaminación marina: Orígenes, Bases ecológicas, Evaluación de impactos y Medidas correctoras. ()

• Doneker R., Jirka G., Hinton S.. Cormix User Manual, A Hydrodynamic Mixing Zone Model and Decision Support System for Pollutant, Discharges into Surface Waters. ()

• FIMCM-ESPOL. Estudios complementarios en zona de descarga de emisario subfluvial del Guasmo, en el río Guayas, INTERAGUA. ()

• Tai H., Yang Y., Liu S., Li D.. A Review of Measurement Methods of Dissolved Oxygen in Water ()

• Gerrard Kiely & Kiely, Gerard. Ingenieria Ambiental (Hardcover; 1999-01-01)

• Bishop, Paul. Marine pollution and its control (1st edition)

• Streeter H. W., Phelps E. B. A Study of the pollution and natural purification of the Ohio river. III. Factors concerned in the phenomena of oxidation and reaeration (Public Health Bulletin no. 146)

5. Specific course information
a. Brief description of the content of the course (catalog description)

This course covers the major sources of marine pollution, particularly pollution caused by anthropogenic agents. It gives special importance to water pollution, ballast ships, plastics,

Guayaquil – Ecuador
Campus Gustavo Galindo Velasco – Km. 30.5 Vía Perimetral – Pbx: (593–4) 2269 269
www.espol.edu.ec   in espol   f @espol   @espol   @espol1

Course Syllabus
MARINE POLLUTION

Printed by: lualtam

Program: Oceanographic Engineering

hydrocarbons, heavy metals and domestic and industrial wastewater treated and untreated. In addition, it deals with the most common treatments for the containment and elimination of oil spills. It also includes general concepts of ballast water treatment, domestic and industrial urban waste and its evacuation to sewerage systems or natural water bodies as well as through underwater emissaries.

    b.   Prerequisites

      MARINE BIOGEOCHEMISTRY - OCEG1029

    c.   This course is: Required

6. Specific goals for the course

    a.   Specific outcomes of instruction

      1.- Evaluate different types of marine pollution to determine its importance in a body of water that has a social impact (for example: Salado Estuary).

      2.- Evaluate different chemical processes affected by ballast water, solids, heavy metals, plastics and hydrocarbons in the sea to determine their dispersion and physical, chemical and biological behavior marine water bodies.

      3.- Analyze water treatment methodologies by applying them to wastewater as a preliminary phase to their discharge into the sea. It includes comparison between empirical results and permissible values established by national regulations.

      4.- Propose possible solutions to remedy or avoid marine pollution.

    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.- Introduction to marine pollution. Main sources of pollution.

    2.- Oil pollution. Treatment of oil spills.

    3.- Pollution by plastics

    4.- Characteristics of wastewater in the marine-coastal zone

    5.- General concepts about wastewater treatment