



<b>Course Code</b> OGEE-550	<b>Course Title</b> Environmental Impact Assessment	<b>ECTS Credits</b> 7.5
<b>Prerequisites</b> None	<b>Department</b> Engineering	<b>Semester</b> Fall, Spring
<b>Type of Course</b> Elective	<b>Field</b> Oil, Gas and Energy Engineering	<b>Language of Instruction</b> English
<b>Level of Course</b> 2 <sup>nd</sup> Cycle	<b>Lecturer(s)</b> Dr Costas Papastavros	<b>Year of Study</b> 1 <sup>st</sup> /2 <sup>nd</sup>
<b>Mode of Delivery</b> Face-to-face	<b>Work Placement</b> N/A	<b>Co-requisites</b> None

### Objectives of the Course:

The main objectives of the course are to:

- Enable students to understand the nature of the Environmental Impact Assessment (EIA) process and to be able to select and use suitable techniques;
- Explain the basic concepts, approaches and technical components of an EIA;
- Record the state of the environment prior and after operations i.e., oil and gas or civil works;
- Discuss the sources of waste, environmental hazards and risks to flora and fauna;
- Describe the ways an EIA and a Strategic Environmental Assessment (SEA) are conducted within the framework of onshore and offshore exploration and production;
- Identify the environmental parameters involved throughout all stages of onshore and offshore oil and gas exploration and exploitation;
- Appreciate atmospheric, land and offshore impacts from man-made activities;
- Outline strategies for tackling solid and liquid waste, oil spills and containment of hazardous substances;
- Provide training in policies, methods and applications of EIA using case studies.

### Learning Outcomes:

After completion of the course students are expected to be able to:

1. Be familiar with the European, UK, and Cyprus legal basis on environmental assessment;
2. Describe all the activities that take place during prospecting, exploration and exploitation;
3. Identify and analyse the environmental issues with asset development, infrastructure, and oil exploration and production (E&P);
4. Be able to conduct a baseline study and evaluate the environmental impact of E&P activities;
5. Have a clear understanding of the operation of EIA and SEA within the planning process;
6. Critically review the EIA process explaining the different stages and types of activity involved;
7. Suggest effective ways for minimising and managing solid and liquid waste and confront oil spills;
8. Discuss the role of EIA in contributing to sustainable Development

**Course Contents:**

- Origins and development of EIA;
- Legislative background of EIA in the EU, UK, Cyprus;
- The EIA process and its stages;
- Impact prediction, evaluation and mitigation measures;
- Participation, presentation and review; monitoring and auditing; stakeholder involvement;
- Environmental impacts during prospecting (effects of airgun noise, vessel traffic and towed streamers, effluent discharges, air pollutant emissions, sea floor disturbance);
- Environmental impacts during exploration: effects of drilling installation and removal, of drilling rig presence, of drilling discharges, of effluent discharges, of marine debris, of air pollutant emissions, of well testing, and of support activities;
- Environmental impacts during exploitation (development and production): effects of facility installation, of the presence of structures, of drilling discharges, of operational discharges, of marine debris, of air pollutant emissions, of support activities and of structure removal;
- Causes of marine oil spills, impacts, causes frequency; booms, skimmers, sorbents, spill-treating agents;
- Lessons learned from onshore and offshore incidents e.g., Kuwait oil spills, Exxon Valdez, Deepwell Horizon, Canada's tar sands, gas flaring, etc.;
- Case studies of EIA in Cyprus and other countries.

**Learning Activities and Teaching Methods:**

Course is delivered by lectures and seminars and power point presentations, case studies, interactive group work and supervised self-study.

**Assessment Methods:**

Weekly exercises, assignment, final exam.

**Required Textbooks / Reading:**

Title	Author(s)	Publisher	Year	ISBN
Introduction to Environmental Impact Assessment (3 <sup>rd</sup> edition)	John Glasson, Riki Therivel, and Andrew Chadwick	Routledge	2005	978-0-415-33836-3
Environmental, Health, and Safety Guidelines: Offshore Oil And Gas Development	International Finance Corporation, World Bank Group		2007	

**Recommended Textbooks / Reading:**

<b>Title</b>	<b>Author(s)</b>	<b>Publisher</b>	<b>Year</b>	<b>ISBN</b>
Environmental Technology in the Oil Industry.	Orszulik T. Stefan	Springer	2008	978-1-4020-5472-3