

Course Title	Oil & Gas Upstream Technologies (Specialization in Oil & Gas Engineering)				
Course Code	OG400				
Course Type	Compulsory				
Level	B.Sc (Level 1)				
Year/ Semester	4 <sup>th</sup> Year / 7 <sup>th</sup> Semester (Fall)				
Teacher's Name	Nicolas Droushiotis, Prof. Christodoulos Christodoulou				
ECTS	6	Lectures / week	3	Laboratories/week	-
Course Purpose	<p>The upstream sector includes searching for potential underground or underwater crude oil and natural gas fields, drilling exploratory wells, and subsequently drilling and operating the wells that recover and bring the crude oil or raw natural gas to the surface</p> <p>The purpose of the course is to give the student an overall view of the drilling operations and methods, explain the drilling completion technologies and techniques, describe Oil &amp; Gas extraction and explain Oil &amp; Gas offshore processing and pipelining</p>				
Learning Outcomes	<ul style="list-style-type: none"> <li>• Describe and explain all about Oil &amp; Gas onshore and offshore drilling operations and methods</li> <li>• Explain Drilling and completion technologies and techniques</li> <li>• Explain Reservoir engineering and Enhanced Oil recovery (EOR) methods</li> <li>• Describe about Oil &amp; Gas onshore and offshore extraction</li> <li>• Describe Offshore processing and pipelining</li> </ul>				
Prerequisites	None		Corequisites	None	
Course Content	<ol style="list-style-type: none"> <li>1. Oil &amp; Gas Offshore and Onshore Drilling <ul style="list-style-type: none"> <li>• Drilling preparations</li> <li>• Oil &amp; Gas Rings</li> <li>• Drilling methods (conventional and new)</li> </ul> </li> <li>2. Reservoir Engineering</li> </ol>				

	<ul style="list-style-type: none"> <li>• Reservoir mapping</li> <li>• Reserves estimation</li> <li>• Enhanced Oil Recovery (EOR)</li> <li>• Water-flooding / gas injection to maximize hydrocarbon recovery</li> <li>• Cost effective reservoir depletion schemes</li> </ul> <p>3. Oil &amp; Gas extraction</p> <ul style="list-style-type: none"> <li>• Process Overview</li> <li>• Onshore Facilities</li> <li>• Offshore Facilities</li> <li>• Main Process Sections (Wellheads, Manifolds, Oil/Gas/Water Separation, Gas Compression)</li> <li>• Metering, Storage and Export</li> </ul> <p>4. Oil &amp; Gas Offshore Processing</p> <ul style="list-style-type: none"> <li>• Platform Oil Processing</li> <li>• Platform Gas Processing</li> <li>• Oil &amp; Gas Offshore Pipelining</li> </ul>
Teaching Methodology	<p>Power Point Presentation of Lectures, Questions, Discussion</p> <p>Explanations with examples, Reviews.</p> <ul style="list-style-type: none"> <li>• Lectures for learning the theory and fundamentals in oil and gas upstream technologies</li> <li>• Explain with specific examples Drilling preparations and methods in Oil &amp; Gas business</li> <li>• Give to the students assignments for independent study of different subjects related to Oil &amp; Gas extraction and processing</li> <li>• Tutorials, where the students ask further questions on the lectures for better comprehension</li> <li>• Frequent reviews and live discussions</li> </ul>

Bibliography	<p><b>Suggested Textbook:</b></p> <p>Fundamentals of Gas Lift Engineering, Ali Hernández, Gulf Professional Publishing, Elsevier B.V., 2016</p> <p>Fundamentals of Natural Gas Processing, Arthur Hidnay, Taylor &amp; Francis, 2007</p> <p><b>Reference Reference Books:</b></p> <p>“Oil &amp; Gas Production in Nontechnical Language” by Martin S. Raymond, PennWell Corp., October 2005</p> <p>“Operational Aspects of Oil and Gas Well Testing (Handbook of Petroleum Exploration and Production)”, S. McAleese, Elsevier Science, 1<sup>st</sup> edition, March 2000</p> <p>“BP Statistical review of world energy” June 2013</p>
Assessment	<ul style="list-style-type: none"> <li>• Assignments                      25%</li> <li>• Mid-Term Exam:                      25%</li> <li>• Final Exam                              60%</li> </ul>
Language	English