

Course unit title:	<b>Chemistry of Hydrocarbons</b>		
Course unit code:	OG100		
Type of course unit:	Compulsory		
Level of course unit:	B.Sc		
Year of study:	1 <sup>st</sup>		
Semester when the unit is delivered:	2 <sup>nd</sup>		
Number of ECTS credits allocated :	5		
Name of tentative lecturer(s):	Dr. Kyriakos Kyriakou, Prof. Christodoulos Chistodoulou		
Learning outcomes of the course unit:	<ol style="list-style-type: none"> <li>1. Understand what Hydrocarbons are.</li> <li>2. Understand the processes involved in the formation of oil and natural gas and their uses</li> <li>3. Understand the structure of hydrocarbons, the chemical reactions of hydrocarbons to produce other products such as Hydrogen, Methanol, Ethylene, Ammonia and GTL</li> <li>4. Know the steps involved in the refining of oil as well as the use of fractional distillation products</li> <li>5. Understand the production of synthetic polymers and other industrial products of the petrochemical industry</li> </ol>		
Mode of delivery:	Face-to-face		
Prerequisites:	None	Co-requisites:	None
Recommended optional program components:			
Course contents:	<ul style="list-style-type: none"> <li>• Introduction (organic, inorganic materials)</li> <li>• Atomic Orbitals – Hybrid Orbitals</li> <li>• Hydrocarbons (Aliphatic, Aromatic, Naming of Hydrocarbons)</li> <li>• Detection of C, H, N, S in organic compounds</li> <li>• Weight% composition of organic compounds, Empirical formula, Molecular formula</li> <li>• Properties and chemical reactions of hydrocarbons. Part 1: Aliphatic Hydrocarbons, Aromatic Hydrocarbons), etc</li> <li>• Properties and chemical reactions of hydrocarbons. Part 2: Hydrogenation, Halogenation, Oxidation Reactions , etc</li> <li>• Properties and chemical reactions of hydrocarbons. Part 3: Hydrocarbon cracking and polymerization Reactions, Production of Hydrogen, Methanol, Ammonia, Ethylene, Natural Gas to Liquid (GTL) fuels and other products</li> <li>• Origin and formation of oil and natural gas</li> <li>• Classification of petroleum and crude oil refinery processes</li> <li>• Fractional distillation and composition of crude oil</li> <li>• Petrochemical industry and polymers</li> <li>• Synthetic polymers and polymerization processes</li> </ul>		
Recommended and/or required reading:	Petroleum refinery engineering. Nelson WL		
Textbooks:	<ul style="list-style-type: none"> <li>• Morrison R.T and Boyd R. N., "Organic Chemistry" Prentice Hall, Sixth Edition, 1992</li> <li>• Leffler W. L., "Petroleum Refining in a Non Technical Language", PennWell, Fourth Edition 2008</li> <li>• Atkins R.C and Carey F.A, "Organic Chemistry; a brief course", 3rd edition 2002</li> </ul>		

<b>Software:</b>	
References:	Petroleum production systems. Economides M. et al
Planned learning activities and teaching methods:	The taught part of course is delivered to the students by means of lectures and video presentations, conducted with the help of computer. Lecture notes and presentations will be available through the web for students to use in combination with the textbooks. Lectures will be supplemented by homework assignments and readings.
Assessment methods and criteria:	<ul style="list-style-type: none"> <li>• Quizzes 20%</li> <li>• Mid-Term Exam: 20%</li> <li>• Final Exam 60%</li> </ul>
Language of instruction:	English
Work placement(s):	No