

## COURSE OUTLINE

### (1) GENERAL

<b>SCHOOL</b>	ENGINEERING		
<b>ACADEMIC UNIT</b>	MINERAL RESOURCES ENGINEERING		
<b>LEVEL OF STUDIES</b>	UNDERGRADUATE		
<b>COURSE CODE</b>	MRE821	<b>SEMESTER</b>	8
<b>COURSE TITLE</b>	HYDROCARBONS RESERVOIR ENGINEERING		
<b>INDEPENDENT TEACHING ACTIVITIES</b> <i>if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits</i>		<b>WEEKLY TEACHING HOURS</b>	<b>CREDITS</b>
TOTAL		4	5
<i>Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).</i>			
<b>COURSE TYPE</b> <i>general background, special background, specialised general knowledge, skills development</i>	SPECIAL BACKGROUND		
<b>PREREQUISITE COURSES:</b>			
<b>LANGUAGE OF INSTRUCTION and EXAMINATIONS:</b>	GREEK		
<b>IS THE COURSE OFFERED TO ERASMUS STUDENTS</b>	YES		
<b>COURSE WEBSITE (URL)</b>	<a href="https://eclass.uowm.gr/courses/MRE164/">https://eclass.uowm.gr/courses/MRE164/</a>		

### (2) LEARNING OUTCOMES

<p><b>Learning outcomes</b></p> <p><i>The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.</i></p> <p>Consult Appendix A</p> <ul style="list-style-type: none"> <li>• Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area</li> <li>• Descriptors for Levels 6, 7 &amp; 8 of the European Qualifications Framework for Lifelong Learning and Appendix B</li> <li>• Guidelines for writing Learning Outcomes</li> </ul>		
<p>Upon successful completion of the course, the student will be able to describe in detail the processes that take place in the hydrocarbon reservoirs.</p>		
<p><b>General Competences</b></p> <p><i>Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?</i></p> <table style="width: 100%; border: none;"> <tr> <td style="vertical-align: top; width: 50%;">                 Search for, analysis and synthesis of data and information, with the use of the necessary technology                  Adapting to new situations                  Decision-making                  Working independently                  Team work                  Working in an international environment                  Working in an interdisciplinary environment                  Production of new research ideas             </td> <td style="vertical-align: top; width: 50%;">                 Project planning and management                  Respect for difference and multiculturalism                  Respect for the natural environment                  Showing social, professional and ethical responsibility and sensitivity to gender issues                  Criticism and self-criticism                  Production of free, creative and inductive thinking                  .....                  Others...                  .....             </td> </tr> </table>	Search for, analysis and synthesis of data and information, with the use of the necessary technology Adapting to new situations Decision-making Working independently Team work Working in an international environment Working in an interdisciplinary environment Production of new research ideas	Project planning and management Respect for difference and multiculturalism Respect for the natural environment Showing social, professional and ethical responsibility and sensitivity to gender issues Criticism and self-criticism Production of free, creative and inductive thinking ..... Others... .....
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1. Independent work
2. Teamwork
3. Working in an interdisciplinary environment
4. Generating new research ideas

### (3) SYLLABUS

The course aims to provide the necessary knowledge on hydrocarbon reservoir engineering. More specifically, the following topics are covered:

- Formation of hydrocarbon reservoirs, properties of porous medium, porosity, permeability.
- Sampling and analysis of reservoir fluids.
- Phases balance and thermodynamic behavior of fluids in hydrocarbon reservoirs.
- Volumetric (PVT) parameters.
- Properties of oil mixtures.
- Configuration of cubic statutory equation based on the composition and characterization of an oil mixture.
- Prediction of volumetric based on laboratory PVT experiments and data analysis.
- Behavior of oil and its equilibrium with gas under the conditions of the reservoir.
- Description of oil behavior using simulation.
- Performance analysis of hydrocarbon reservoirs (gas and oil reservoirs).
- Presentation of relevant software.

#### (4) TEACHING and LEARNING METHODS - EVALUATION

<b>DELIVERY</b> <i>Face-to-face, Distance learning, etc.</i>	Face-to-face lectures.	
<b>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY</b> <i>Use of ICT in teaching, laboratory education, communication with students</i>	Use of a projection system and special software installed in the PCs of a laboratory, organization and scheduling of the course and the communication with students using the asynchronous e-learning platform 'open eclass'.	
<b>TEACHING METHODS</b> <i>The manner and methods of teaching are described in detail. Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc. The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS</i>	<b>Activity</b>	<b>Semester workload</b>
	Lectures	65
	Laboratory exercises	35
	Study on lectures and exercises	25
	<b>Total course</b>	<b>125</b>
<b>STUDENT PERFORMANCE EVALUATION</b> <i>Description of the evaluation procedure  Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other  Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</i>	<p>Language of evaluation: Greek</p> <p>Theory: Final written examination 50% (Short-answer questions, open-ended questions). Laboratory: Oral examination, written examination 50%</p> <p>The evaluation criteria are given on the relevant page of the course on the asynchronous e-learning platform 'open e-class' and are analyzed to the students at the beginning of the semester.</p>	

#### (5) SUGGESTED BIBLIOGRAPHY

<p><i>- Suggested bibliography:</i></p> <p><i>Energy</i> Book Code in Eudoxus: 32997829 Edition: 1st ed./2013 Authors: Moschatos E. Andreas ISBN: 978-960-531-312-8 Type: Textbook Testator (Publisher): DIAVLOS S.A. BOOK PUBLICATIONS</p> <p><i>ABOUT OIL AND GAS</i> Book Code in Eudoxus: 59360495 Version: 1/2015 Authors: Solon Kassinis ISBN: 978-9963-251-43-8 Type: Textbook Διαθέτης (Εκδότης): Kassinis International Consulting Ltd</p> <p><i>Energy, Environment and Sustainable Development</i></p>
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*Book Code in Eudoxus: 94645312*  
*Version: 1st/2020*  
*Authors: Polyzakis Apostolos*  
*ISBN: 978-618-83590-6-2*  
*Type: Textbook*  
*Testator (Publisher): Polyzakis Apostolos & Co. EE*

*Petroleum Geochemistry*  
*Book Code in Eudoxus: 41954964*  
*Version: 1st/2014*  
*Authors: Pasadakis Nikolaos*  
*ISBN: 978-960-418-461-3*  
*Type: Textbook*  
*Testator (Publisher): PUBLICATIONS A. TZIOLAS & SONS S.A.*

*Nuclear Energy and Fossil Fuels*  
*Book Code in Eudoxus: 33133237*  
*Version: A/2013*  
*Authors: Savvidis Elias*  
*ISBN: 978-960-9551-09-0*  
*Type: Textbook*  
*Testator (Publisher): COPY CITY I.K.E.*

*Climate change policy*  
*Book Code in Eudoxus: 24331*  
*Edition: 1st ed./2010*  
*Authors: Giddens Anthony*  
*ISBN: 978-960-455-807-0*  
*Type: Textbook*  
*Testator (Publisher): METAIXMIO PUBLISHING S.A.*

**- Related academic journals:**

*Journal of Natural Gas Science and Engineering*  
*Marine and Petroleum Geology*  
*Petroleum*  
*Journal of Petroleum Science and Engineering*  
*Petroleum Exploration and Development*  
*Petroleum Geoscience*  
*Journal of Petroleum Geology*  
*Petroleum Science*  
*Natural Gas Geoscience*  
*Petroleum Science and Technology*  
*Petroleum Chemistry*  
*Petroleum and Coal*  
*Developments in Petroleum Science*