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| **COURSE DETAILS** | |
| **Course Name** | Characterization of Carbonate Reservoirs |

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| **Language of Instruction** | Turkish |

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| **Level of Instruction** | Associate | Undergraduate | MA(X) | Ph.D. () |

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| **Education System** | | |
| Formal Education (X) | Distance Education () | Other |

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| **Type of Course** | | **Course Area Code** | **Course Optical Code** |
| Comp () | Elective (x) |  |  |

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| **Theory** | **Practice Time** | **Total Hours** | **Semester** | **National Credit** | **ECTS Credits** |
| 3 | 0 | 3 | Fall | 3 | 6 |

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| **Course Aim** | |  |  | | --- | --- | |  | Graduate students to have a sufficient level of knowledge about storage, formation and petrological, sedimentological and paleontological properties and stratigraphy of carbonate rocks that are commonly observed as reservoir rocks. | |

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| **Course Content** | |  |  | | --- | --- | |  | Description of carbonate components and textures, classification of carbonate rocks, definition of carbonate environments, reservoir properties and porosity of carbonates, permeability, thickness, diagenesis, carbonate reservoir types, natural cracking in carbonate reservoirs, sequence stratigraphy will be studied. | |

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| **Prerequisites** | • Formation, development and diagenesis of carbonate reservoirs  • Porosity and factors affecting porosity  • Gaining information regarding the sequence stratigraphy of oil field and interpreting these.  • The distribution of carbonate reservoirs in Turkey and Europe  • Natural fracturing in carbonated reservoirs |

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| **Course Instructor** | Assistant Professor Derya SİNANOĞLU |

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| **Assistant Instructor** |  |

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| **Text Book / Recommended Reading** | * H. Moore and William J. Wade (Eds.) - Carbonate Reservoirs\_ Porosity and Diagenesis in a Sequence Stratigraphic Framework-Academic Press, Elsevier (2013) * Schlager, W., 2005. Carbonate Sedimentology And Sequence Stratigraphy, ISBN 1-56576-116-2. * Carbonate Sedimentology,1990, Maurice E. Tucker, V. Paul Wright, Wiley-Blackwell,496 pages Tucker, M.E., Wilson, J.L., Crevello, P.D., Sarg J.R. and Read, J.F. (eds) (1990) Carbonate platforms: facies, sequence and evolution. Intern. Assoc. Sedimentologists, Spec. Publ. 9, 328 pp. |

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| **Grading Evaluation System** | | |
| (X) Direct Conversion System |  | () Curve |
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|  | **Tools** | **Number** | **Rate** |
|  | Attendance and Participation | 15 | 5 |
|  | Research homework | 1 | 15 |
|  | Quiz | 4 | 16 |
| **Measurement and Evaluation** | Presentations | 1 | 10 |
|  | Literature | 1 | 4 |
|  | Semester Exam | 1 | 50 |
|  | **Total** |  | **100%** |

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| **Subjects by Week** | | |
| **Week** | **Topics** | **Teaching Methods** |
| 1 | Introduction to Petroleum Engineering | Lecture, discussion, sampling. |
| 2 | Definition of carbonate components and tissues | Lecture, discussion, sampling. |
| 3 | Origin and Classification of carbonate rocks | Lecture, discussion, sampling. |
| 4 | Folk classification-Dunham classification | Lecture, discussion, sampling. |
| 5 | Dolomite-Limestone | Lecture, discussion, sampling. |
| 6 | Porosity and factors affecting porosity | Lecture, discussion, sampling. |
| 7 | Diagenetic processes affecting reservoir quality | Lecture, discussion, sampling. |
| 8 | Diagenetic processes affecting reservoir quality | Lecture, discussion, sampling. |
| 9 | Definition of carbonate environments | Lecture, discussion, sampling. |
| 10 | Definition of carbonate environments | Lecture, discussion, sampling. |
| 11 | Reservoir properties of carbonates | Lecture, discussion, sampling. |
| 12 | Reservoir properties of carbonates | Lecture, discussion, sampling. |
| 13 | Sequence stratigraphy and data interpretation used in petroleum exploration | Lecture, discussion, sampling. |
| 14. | Sequence stratigraphy and data interpretation used in petroleum exploration | Lecture, discussion, sampling. |
| 15 | General Evaluation | Lecture, discussion, sampling. |
| 16 | General Evaluation | Lecture, discussion, sampling. |
| 17 | Final | Written exam |

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| **Program Outcomes** | | 01 | 02 | | 03 | 04 |
| PO 01 | Evaluate the definition, properties and economic dimension of carbonate rocks | 5 | 4 | | 4 | 5 |
| PO 02 | Formation of carbonate rocks, evolution, distribution in Turkey and Europe | 4 | 5 | | 5 | 4 |
| PO 03 | Gaining information regarding the reservoir carbonate rocks. | 5 | 4 | | 4 | 5 |
| PO 04 | Gaining information regarding the origin, composition and properties of reservoir carbonate rocks. | 5 | 5 | | 5 | 5 |
| PO 05 | Interpret reservoir carbonate rocks in oil fields. | 5 | 5 | | 5 | 5 |
| PO 06 | Stratigraphy, biostratigraphy | 4 | 5 | | 5 | 4 |
| PO 07 | Gaining information regarding the sequence stratigraphy of oil field and to interpret. | 5 | 5 | | 5 | 5 |

\* 1: Very Low 2: Low 3: Medium 4: High 5: Very high

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| **Student workload / ECTS account** | | | | |
| **Activities** | **Number** | **Preparation** | **Duration of Activity** | **Total Workload** |
| Hours for off the classroom studies | 15 | - | 4 | 60 |
| Assignments | 10 | - | 5 | 50 |
| Presentation | 4 | - | 10 | 40 |
| Mid-terms | 0 | - | 0 | 0 |
| Projects | 0 | - | 0 | 0 |
| Final Examination | 0 | - | 0 | 0 |
| Hours for off the classroom studies | 1 | - | 30 | 30 |
| Total Workload (Hour) |  |  |  | 180 |
| Roll [Total Workload (hours) / week work load (30)] = ECTS Credit | | | | 180/30=6 |