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| **COURSE DETAILS** | |
| **Course Name** | **PETROLEUM GEOCHEMISTRY** |

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| **Language of Instruction** | Turkish |

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| **Level of Instruction** | Associate | Undergraduate | MSc(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** | |  |  | | --- | --- | |  | To teach petroleum source rocks, reservoir rocks, migration and changes of accumulation in trap, In Petroleum and natural gas exploration methods and techniques in petroleum research. | |

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| **Course Content** | |  |  | | --- | --- | |  | Petroleum spill, Petroleum and natural gas facilities, Petroleum in the subsurface geology maps, the origin of oil, The formation of oil, Petroleum geology, Migration of oil and gas, Petroleum traps, oil exploration methods, petroleum and natural gas deposits in Turkey, Natural gas formations in Turkey and in the world, since the use of reserves in the past, The presence of underground, underground behavior, Natural gas compression, and storage of reserve estimates, Gas-well deliverability tests. Natural gas properties; Migration of natural gas, petroleum and natural gas deposits in Turkey. | |

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| **Prerequisites** | * Petroleum and natural gas in source rocks * Understand migration in reservoir rocks * Traps * Petroleum and natural gas exploration and geological methods and techniques * understand the processes of accumulation, preservation, and diagenesis of the organic matter |

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| **Course Instructor** | Asist Prof. Derya KOCA |

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| **Assistant Instructor** |  |

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| **Text Book / Recommended Reading** | Sonel, N., 1985, Petrol Jeolojisi: A.Ü. Yayınları, No:141, 243 s. Köksoy, M., 1985  Hunt, J.M. 1996; Petroleum Geochemistry and Geology, W.H. Freeman&Company, 743 p., New York.  Tissot, B. P, Welte, D. H. 1984; Petroleum Formation and Occurrence, Springer Verlag, 699 p., New York.  Katz, D.L., and Lee, R.L., 1990, Natural Gas Engineering: Production and Storage, McGraw-Hill Pub. Co. |

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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 | Lecture, discussion, sampling. |
| 2 | General classification of hydrocarbons | Lecture, discussion, sampling. |
| 3 | General information about petroleum, physical and chemicl properties of petroleum | Lecture, discussion, sampling. |
| 4 | Physical and chemical properties of petroleum | Lecture, discussion, sampling. |
| 5 | Discussion on formation and origin of petroleum, | Lecture, discussion, sampling. |
| 6 | Petroleum forming environments, petroleum forming organic matters, Composition of organic matter, Petroleum formation stages | Lecture, discussion, sampling. |
| 7 | Source rocks, Investigation methods for geochemical analysis of source rocks. | Lecture, discussion, sampling. |
| 8 | Petroleum reservoir rocks, Porosity and permeabilty of reservoir rocks. | Lecture, discussion, sampling. |
| 9 | Analysis methods for petroleum reservoir rock | Lecture, discussion, sampling. |
| 10 | Petroleum cap rocks, migration and accumulation of petroleum | Lecture, discussion, sampling. |
| 11 | Petroleum traps: Structural traps, Stratigraphical traps, Combined traps. Methods of petroleum explorations. | Lecture, discussion, sampling. |
| 12 | Petroleum traps: Structural traps, Stratigraphical traps, Combined traps. Methods of petroleum explorations. | Lecture, discussion, sampling. |
| 13 | Petroleum basins | Lecture, discussion, sampling. |
| 14 | Petroleum basins | Lecture, discussion, sampling. |
| 15 | Petroleum and natural gas reserves of the world | Lecture, discussion, sampling. |
| 16 | Fossil fuels reserves of Turkey | Lecture, discussion, sampling. |
| 17 | Final exam | Written exam |

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| **Program Outcomes** | | 01 | 02 | 03 | 04 |
| PO 01 | Petroleum and natural gas in source rocks | 5 | 4 | 4 | 5 |
| PO 02 | Understand migration in reservoir rocks | 4 | 5 | 5 | 4 |
| PO 03 | Traps | 5 | 4 | 4 | 5 |
| PO 04 | Petroleum and natural gas exploration and geological methods and techniques | 5 | 5 | 5 | 5 |
| PO 05 | Understand the processes of accumulation, preservation, and diagenesis of the organic matter | 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** |
| Theoretical Course | 15 | - | 3 | 45 |
| Scientific homework | 2 | - | 15 | 30 |
| The library search | 5 | - | 15 | 75 |
| Presentation | 2 | - | 10 | 20 |
| Quiz | 1 | - | 2 | 2 |
| Semester Exam | 1 | - | 2 | 2 |
| Total Workload (Hour) | 23 |  |  | 174 |
| Roll [Total Workload (hours) / week work load (30)] = ECTS Credit | | | | 190/30=6,33 |