|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Course Code:** | | **Optic Code:** | **Consultation Hours:** | | **T-A-C:**  3 – 0 - 0 | | **ECTS:**  4 |
| **Course Title:** | | Advanced Well Log Analysis | | | | | |
| **Year/Semester** | | 1/2 | | | | | |
| **Status** | | Compulsory | | | | | |
| **Name of the Programme** | | Petroleum and Natural Gas Engineering | | | | | |
| **Prerequisites** | | No | | | | | |
| **Disable Students** | | Disabled students can give information to the lecturer about their own status and may request the provision of necessary convenience, if they need. | | | | | |
| **Student Responsibilities** | | At the beginning of the period to be supplied with course notes in advance to prepare for class, laboratory or field applications to participate in the course of the responsibilities fulfill (Research and development et.) | | | | | |
| **Lecturer** | | Assoc.Prof. Dr. Sema TETİKER, [sema.tetiker@batman.edu.tr](mailto:sema.tetiker@batman.edu.tr), Tel: +90 488 2174170 | | | | | |
| **Course Assistant** | |  | | | | | |
| **Language of instruction** | | Turkish | | | | | |
| **Course Objectives** | | Information on rock composition, texture and diagenesis. Rock physics and pore-space properties. Magnetic, radioactive, elastic, acoustic, thermal, electrical properties of rocks. Conventional and reconnaissance interpretation techniques. Crossplotting techniques. Interpretation in complex lithologies. Interpretation in shaly formations. Evaluation of gas-bearing formations. The cased-hole logging job and formation evaluation. Well integrity and cement evaluation surveys. Fluid movement logs and evaluation. | | | | | |
| **Learning Outcomes** | | * 1. Introducing the well logging as a formation evaluation technique in details, 2. Determining rock and fluid properties from well logs, 3. Introducing concepts of both old and modern tools, 4. Presenting the most common interpretation problems, 5. Addressing different interpretation approaches along with their limitations. | | | | | |
| **Contents, learning activities** | | | | | | | |
| **Week** | **Topic** | | | **Learning Activities** | | | |
| **1.** | Overview and Measurement environments | | | Lecture presentation | | | |
| **2.** | Rock and fluid properties | | | Lecture presentation | | | |
| **3.** | Open hole well logs | | | Lecture presentation | | | |
| **4.** | Conventional interpretation techniques | | | Lecture presentation | | | |
| **5.** | Reconnaissance interpretation techniques | | | Lecture presentation | | | |
| **6.** | Research study | | | Literature research, sample log evaluations | | | |
| **7.** | Interpretation in shaly formations | | | Lecture presentation/practice | | | |
| **8.** | Interpretation in complex lithologies | | | Lecture presentation/practice | | | |
| **9.** | Evaluation of gas-bearing formations | | | Lecture presentation/practice | | | |
| **10.** | Cased hole logging job and measurement environment | | | Lecture presentation/practice | | | |
| **11.** | Research study | | | Literature research, sample log evaluation | | | |
| **12.** | Well integrity and cement log evaluation | | | Lecture presentation | | | |
| **13.** | Formation evaluation of cased hole | | | Lecture presentation | | | |
| **14.** | Evaluation of production logs | | | Lecture presentation/practice | | | |
| **15.** | Fluid movement | | | Lecture presentation | | | |
| **16.** | Final exam | | | | | | |
| **Assessment criteria** |  | | | **If any, mark as (X)** | | **Percent (%)** | |
| **Midterm Exams** | | |  | |  | |
| **Quizzes** | | |  | |  | |
| **Homeworks** | | | X | | 30 | |
| **Projects** | | |  | |  | |
| **Term Paper** | | |  | |  | |
| **Lab Work** | | | X | | 20 | |
| **Other** | | |  | |  | |
| **Final Exam** | | | X | | 50 | |
| **Textbook / Material** | -Bassiouni, Z. (1994). Theory, Measurement and Interpretation of Well Logs, SPE Textbook Series, Vol.4, Richardson, TX, USA.  -Smolen, J. J. (1996). Cased Hole and Production Hole Log Evaluation, PenWell Books, Tulsa, Oklahama, USA  -Cased Hole Log Interpretation Principles/Applications, Schlumberger Educational Services, 3rd printing.  -Serra, O. (2008). The Well Logging Handbook, Editions Technip, Paris, France. | | | | | | |
| **Recommended Reading** | -Pertinent Technical Articles and Papers. | | | | | | |