MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

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| **Module Information**  **معلومات المادة الدراسية** | | | | | | | |
| **Module Title** | Petroleum and Subsurface geology | | | | **Module Delivery** | | |
| **Module Type** | Core | | | | * **☒ Theory** * **☒ Lecture** * **☒ Lab** * **☐ Tutorial** * **☐ Practical** * **☐ Seminar** | | |
| **Module Code** | GEO31118 | | | |
| **ECTS Credits** | 5 | | | |
| **SWL (hr/sem)** | 125 | | | |
| **Module Level** | | Third | **Semester of Delivery** | | | | Sixth |
| **Administering Department** | | Geophysics | **College** | Remote sensing and geophysics | | | |
| **Module Leader** | Furat A. Saleh | | **e-mail** | Furat.almusawi@kus.edu.iq | | | |
| **Module Leader’s Acad. Title** | | Lecturer | **Module Leader’s Qualification** | | | | Petroleum Geology |
| **Module Tutor** | none | | **e-mail** |  | | | |
| **Peer Reviewer Name** | | none | **e-mail** |  | | | |
| **Scientific Committee Approval Date** | | 16/6/2023 | **Version Number** | | | 2 | |

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| **Relation with other Modules**  **العلاقة مع المواد الدراسية الأخرى** | | | |
| **Prerequisite module** | General Geology | **Semester** | 1 |
| **Co-requisites module** | None | **Semester** |  |

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| **Module Aims, Learning Outcomes and Indicative Contents**  **أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية** | |
| **Module Aims**  **أهداف المادة الدراسية** | The aims of a Petroleum Geology module are to provide students with a comprehensive understanding of the geological processes and factors involved in the formation, accumulation, and extraction of oil and gas resources. The module aims to develop skills in interpreting geological data, assessing reservoir potential, and making informed decisions in exploration and production activities within the petroleum industry. |
| **Module Learning Outcomes**  **مخرجات التعلم للمادة الدراسية** | A syllabus of Petroleum Geology focuses on the exploration and production of oil and gas resources. It covers topics such as sedimentary basin analysis, petroleum systems, reservoir characterization, drilling techniques, and reservoir engineering. Students learn about the geologic processes involved in hydrocarbon formation, migration, and accumulation, as well as the economic aspects of the petroleum industry. |
| **Indicative Contents**  **المحتويات الإرشادية** | Through explanations and Marathi applications, the use of display screens, and the presentation of scientific films, which explain the reality of what is happening in nature in terms of events related to energy, oil and gas paths in Iraq and the world.  And also, by establishing scientific trips to the Iraqi oil fields to match the theoretical material with the field applied side. |

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| **Learning and Teaching Strategies**  **استراتيجيات التعلم والتعليم** | |
| **Strategies** | Conducting monthly field trips for students to develop their scientific observations and to interact with foreign oil companies. |

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| **Student Workload (SWL)**  **الحمل الدراسي للطالب** | | | |
| **Structured SWL (h/sem)**  **الحمل الدراسي المنتظم للطالب خلال الفصل** | 86 |  |  |
| **Unstructured SWL (h/sem)**  **الحمل الدراسي غير المنتظم للطالب خلال الفصل** | 39 |  |  |
| **Total SWL (h/sem)**  **الحمل الدراسي الكلي للطالب خلال الفصل** | 125 | | |

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| **Module Evaluation**  **تقييم المادة الدراسية** | | | | | |
| **As** | | **Time/Number** | **Weight (Marks)** | **Week Due** | **Relevant Learning Outcome** |
| **Formative assessment** | **Quizzes** | 2 | 10% (10) |  |  |
| **Assignments** | 2 | 10% (10) |  |  |
| **Projects / Lab.** | 1 | 10% (10) |  |  |
| **Report** | 1 | 10% (10) |  |  |
| **Summative assessment** | **Midterm Exam** | 2 hr | 10% (10) |  |  |
| **Final Exam** | 2hr | 50% (50) |  |  |
| **Total assessment** | | | 100% (100 Marks) |  |  |

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| **Delivery Plan (Weekly Syllabus)**  **المنهاج الاسبوعي النظري** | |
| **Week** | **Material Covered** |
| **Week 1** | Introduction to petroleum geology |
| **Week 2** | Generation of hydrocarbon. |
| **Week 3** | Source rock evaluation. |
| **Week 4** | Organic matter maturation pathway. |
| **Week 5** | Petroleum migration. |
| **Week 6** | Migration path & Source of energy. |
| **Week 7** | Petroleum traps. |
| **Week 8** | Exam |
| **Week 9** | Seals & Cap rock. |
| **Week 10** | Fluids mechanism. |
| **Week 11** | Oil reservoir. |
| **Week 12** | Reservoir characterization. |
| **Week 13** | Reservoir Evaluation |
| **Week 14** | **Case studies from Iraqi oil fields.** |
| **Week 15** | **Exam** |
| **Week 16** | **Preparatory week before the final Exam** |

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| **Delivery Plan (Weekly Lab. Syllabus)**  **المنهاج الاسبوعي للمختبر** | |
| **Week** | **Material Covered** |
| **Week 1** | Source Rock Evaluation (Quality) |
| **Week 2** | Source Rock Evaluation (Quantity) |
| **Week 3** | Source Rock Evaluation (thermal maturation) |
| **Week 4** | Source Rock Evaluation (Total Evaluation) |
| **Week 5** | Reservoir Rock Evaluation (Structural) |
| **Week 6** | Reservoir Rock Evaluation (Stratigraphic) |
| **Week 7** | Reservoir Rock Evaluation (Isopach) |

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| **Learning and Teaching Resources**  **مصادر التعلم والتدريس** | | |
|  | **Text** | **Available in the Library?** |
| **Required Texts** | * -Selley, R. C., and Sonnenberg, S. A., 2015. Elements of Petroleum Geology. Third edition. Pp 515. * -Hunt, John,2010, petroleum geochemistry and geology. |  |
| **Recommended Texts** | - Richard, 2004. Petroleum geoscience, Blackwell Science Ltd.  --Norman J. Hyne,2017,  Petroleum geology, Exploration, Drilling & Production. |  |
| **Websites** | http:// glossary.slb.com.  http// www.lyellcollection.org/journal/pg | |

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| **Grading Scheme**  **مخطط الدرجات** | | | | |
| **Group** | **Grade** | التقدير | **Marks (%)** | **Definition** |
| **Success Group**  **(50 - 100)** | **A -** Excellent | **امتياز** | 90 - 100 | Outstanding Performance |
| **B -** Very Good | **جيد جدا** | 80 - 89 | Above average with some errors |
| **C -** Good | **جيد** | 70 - 79 | Sound work with notable errors |
| **D -** Satisfactory | **متوسط** | 60 - 69 | Fair but with major shortcomings |
| **E -** Sufficient | **مقبول** | 50 - 59 | Work meets minimum criteria |
| **Fail Group**  **(0 – 49)** | **FX –** Fail | **راسب (قيد المعالجة)** | (45-49) | More work required but credit awarded |
| **F –** Fail | **راسب** | (0-44) | Considerable amount of work required |
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| **Note:** Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above. | | | | |