MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

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| **Module Information**  **معلومات المادة الدراسية** | | | | | | | |
| **Module Title** | Seismic Stratigraphy | | | | **Module Delivery** | | |
| **Module Type** | Core | | | | * **☒ Theory** * **☒ Lecture** * **☒ Lab** * **☐ Tutorial** * **☐ Practical** * **☐ Seminar** | | |
| **Module Code** | GEO41128 | | | |
| **ECTS Credits** | 6 | | | |
| **SWL (hr/sem)** | 150 | | | |
| **Module Level** | | 4 | **Semester of Delivery** | | | | Eight |
| **Administering Department** | | Geophysics | **College** | College of Geophysics and Remote Sensing | | | |
| **Module Leader** | Dr. Ahmed Askar | | **e-mail** | [ahmed askar@kus.edu.iq](mailto:ahmed%20askar@kus.edu.iq) | | | |
| **Module Leader’s Acad. Title** | | Assistant Professor | **Module Leader’s Qualification** | | | | Petroleum Geology |
| **Module Tutor** | Nul | | **e-mail** |  | | | |
| **Peer Reviewer Name** | | Null | **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** | 120 ECTS | **Semester** | Four |
| **Co-requisites module** |  | **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 the Seismic Stratigraphy module are to provide students with a deep understanding of the principles and applications of seismic stratigraphy in interpreting subsurface geology. The module aims to develop skills in seismic data interpretation, sequence stratigraphy analysis, and the identification of depositional systems and reservoir characteristics. Students will also learn to integrate seismic and well data for subsurface mapping and exploration purposes. |
| **Module Learning Outcomes**  **مخرجات التعلم للمادة الدراسية** | The Seismic Stratigraphy module encompasses several learning outcomes. Students will gain proficiency in interpreting seismic data and identifying seismic stratigraphic patterns. They will develop skills in recognizing key seismic sequences, understanding depositional systems, and identifying potential hydrocarbon reservoirs. Students will also learn to integrate well data and seismic information for accurate subsurface mapping and reservoir characterization |
| **Indicative Contents**  **المحتويات الإرشادية** | Through explanations and applications, using display screens, and presenting scientific films that explain the reality of what happens in nature. |

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| **Learning and Teaching Strategies**  **استراتيجيات التعلم والتعليم** | |
| **Strategies** | Class Lecture  Practical Training  Seminar |

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| **Student Workload (SWL)**  **الحمل الدراسي للطالب** | | | |
| **Structured SWL (h/sem)**  **الحمل الدراسي المنتظم للطالب خلال الفصل** | 114 |  |  |
| **Unstructured SWL (h/sem)**  **الحمل الدراسي غير المنتظم للطالب خلال الفصل** | 36 |  |  |
| **Total SWL (h/sem)**  **الحمل الدراسي الكلي للطالب خلال الفصل** | 150 | | |

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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**   1. Week 1-Introduction to seismic stratigraphy and its role in subsurface interpretation. 2. Week 2-Principles of seismic data acquisition and processing. 3. Week 3- Interpretation of seismic reflection data and seismic facies analysis. 4. Week 4-Understanding seismic sequence stratigraphy concepts and terminology. 5. Week 5-Identification and characterization of depositional systems using seismic data. 6. Week 6-Analysis of seismic sequence boundaries and chronostratigraphic interpretation. 7. Week 7-Integration of well data with seismic data for correlation and mapping. 8. Week 8-Identification and evaluation of seismic attributes for reservoir characterization. 9. Week 9- Seismic interpretation of structural features and fault analysis.   Week 10 -Application of seismic stratigraphy in exploration and production workflows.  Week 11-Quantitative analysis of seismic data for facies and reservoir modeling.  Week 12 -Case studies and practical exercises in seismic interpretation and stratigraphic analysis.  Week 13-Use of seismic stratigraphy in hydrocarbon exploration and development.  Week 14- Evaluation of uncertainty and risk assessment in seismic stratigraphy interpretations.   1. Exam |

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| **Learning and Teaching Resources**  **مصادر التعلم والتدريس** | | |
|  | **Text** | **Available in the Library?** |
| **Required Texts** | 1. Mitchum, R. M., Jr., Vail, P. R., and Thompson, S. III. (1977). Seismic stratigraphy and global changes of sea level: Part 6, stratigraphic interpretation of seismic reflection patterns in depositional sequences. In: Payton, C.E. (Ed.), Seismic Stratigraphy—Applications to Hydrocarbon Exploration. American Association of Petroleum Geologists Memoir 26, 117-133. | Y |
| **Recommended Texts** | 1. Posamentier, H. W., and Allen, G. P. (1999). Siliciclastic sequence stratigraphy—Concepts and applications. SEPM Concepts in Sedimentology and Paleontology, 7, 1-210. | y |
| **Websites** |  | |

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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. | | | | |