MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

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| **Module Information****معلومات المادة الدراسية** |
| **Module Title** | Seismology  | **Module Delivery** |
| **Module Type** | Core | * **☒ Theory**
* **☒ Lecture**
* **☒ Lab**
* **☐ Tutorial**
* **☐ Practical**
* **☐ Seminar**
 |
| **Module Code** | GEO2109 |
| **ECTS Credits**  | 7 |
| **SWL (hr/sem)** | 175 |
| **Module Level** | 4th  | **Semester of Delivery** | 2nd  |
| **Administering Department** | Geophysics |  **College** | College of Geophysics and Remote Sensing |
| **Module Leader** | Dr. Ahmed Askar |  **e-mail** | ahmed askar@kus.edu.iq  |
| **Module Leader’s Acad. Title** | Professor  | **Module Leader’s Qualification** | Stratigraphy  |
| **Module Tutor** | Null  |  **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 TrainingSeminar  |

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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** | 61 |  |  |
| **Total SWL (h/sem)****الحمل الدراسي الكلي للطالب خلال الفصل** | 175 |

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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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| **Week**  | **المنهاج الاسبوعي النظري****Delivery Plan (Weekly Syllabus)****Material Covered** |
|  | Introduction and Definition of Seismology |
|  | Rebound Elastic Theory  |
|  | Definition of Faults |
|  | Kinds of Faults  |
|  | Exam |
|  | Plate Tectonic Theory |
|  | Seismograph  |
|  | Movements of Plate Tectonic |
|  | Richer Scale |
|  | Mericalli Scale |
|  | Exam |
|  | Geotectonics in Iraq |
|  | Instructions to avoid Earth quakes  |
|  | Oceanic and Continental Crust  |
|  | General Dissection  |
|  | **Preparatory week before the final 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.

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| **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.

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| **Websites** |  |

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| **Delivery Plan (Weekly Lab. Syllabus)****المنهاج الاسبوعي للمختبر** |
| **Week**  | **Material Covered** |
|  | Seismic Velocity  |
|  | Seismogram  |
|  | Earthquakes 1 |
|  | Earthquakes 2 |
|  | Intensity of Earthquakes |
|  | Measurements of Earthquakes |
|  | Exam |

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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. |