MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

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| **Module Information****معلومات المادة الدراسية** |
| **Module Title** | Seismic Reflection Method | **Module Delivery** |
| **Module Type** | Core | * **☒ Theory**
* **☒ Lecture**
* **☒ Lab**
* **☐ Tutorial**
* **☐ Practical**
* **☐ Seminar**
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| **Module Code** | GEO31114 |
| **ECTS Credits**  | 8 |
| **SWL (hr/sem)** | 150 |
| **Module Level** | Third  | **Semester of Delivery** | First  |
| **Administering Department** | Geophysics |  **College** | Remote sensing & Geophysics |
| **Module Leader** | Omar Nasir Ahmed |  **e-mail** | omargeophysics@gmail.com |
| **Module Leader’s Acad. Title** | Lecture | **Module Leader’s Qualification** | Msc |
| **Module Tutor** |  |  **e-mail** |  |
| **Peer Reviewer Name** |  |  **e-mail** |  |
| **Scientific Committee Approval Date** | 15/5/2023 | **Version Number** |  |

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| **Relation with other Modules****العلاقة مع المواد الدراسية الأخرى** |
| **Prerequisite module** |  | **Semester** |  |
| **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** | 1. Explain how the reflective seismic method works
2. Describe the different types of seismic velocities used in field work
3. The ability of the student to understand the scientific and theoretical basis of the reflective seismic method
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| **Module Learning Outcomes****مخرجات التعلم للمادة الدراسية** | 1. The student distinguishes between the types of Seismic Methods.
2. Learn how applied this method to exploration problems involving the detection and mapping of subsurface structures
3. This method has been used in oil exploration.
4. Determine the subsurface structure in general shape.
5. Determine and measure the seismic velocities and actual depth of formations
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| **Indicative Contents****المحتويات الإرشادية** |  |

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| **Learning and Teaching Strategies****استراتيجيات التعلم والتعليم** |
| **Strategies** | E-learning methodThe e-learning method is a method of education using modern technology. Such as computers, the Internet, and multimediaproblem-solving methodThis strategy is based on motivating students to find scientific solutions to the educational problems they face by applying reason and cooperation among studentsdiscovery methodThis method is concerned with the implementation of the student's thought and mind, and therefore the discovery requires the individual to reorganize his previous information, and benefit from it in a way that enables him to realize new relationships and facts that were not known to him, and it is distinguished by that it increases the student's effectiveness in education. |

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| **Student Workload (SWL)****الحمل الدراسي للطالب** |
| **Structured SWL (h/sem)****الحمل الدراسي المنتظم للطالب خلال الفصل** | 100 |  |  |
| **Unstructured SWL (h/sem)****الحمل الدراسي غير المنتظم للطالب خلال الفصل** | 50 |  |  |
| **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** |
| **Week**  | **Material Covered** |
| **Week 1** | Introduction to seismic exploration |
| **Week 2** | Introduction to seismic exploration |
| **Week 3** | The Seismic Velocity |
| **Week 4** | Velocity Determination Methods |
| **Week 5** | Basics of Seismic Reflection Geometry |
| **Week 6** | Seismic Reflection Data Acquisition |
| **Week 7** | Seismic survey  |
| **Week 8** | Seismic Reflection Data Processing (1) |
| **Week 9** | Seismic Reflection Data Processing (2) |
| **Week 10** | Seismic Interpretation (1) |
| **Week 11** | Seismic Interpretation(2) |
| **Week 12** | Seismic Interpretation(3) |
| **Week 13** | Seismic Interpretation(4) |
| **Week 14** | Seismic Attribute  |
| **Week 15** | Seismic inversion |
| **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** | **Seismic Reflection Basics** |
| **Week 2** | **Modeled Seismic Trace**  |
| **Week 3** | **Well-to-Seismic Tie** |
| **Week 4** | **Picking Horizon and TWT Map Construction** |
| **Week 5** | **Seismic processing** |
| **Week 6** | **Seismic interpretation** |
| **Week 7** | **Depth conversion** |

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| **Learning and Teaching Resources****مصادر التعلم والتدريس** |
|  | **Text** | **Available in the Library?** |
| **Required Texts** | Telford, W. M., Geldart, L. P. and Sheriff R. E, 1990. Applied Geophysics, 2nd ed., Cambridge Univ. Press. Dobrin, M, 1976. Introduction to Geophysical Prospecting, 3rd ed., McGraw Hill. Int. co., International Student Edition 386 p. Dobrin, M.B. and Savit, C.H, 1988. Introduction to Geophysical Prospecting, 4th ed. McGraw-Hill Co., 865 p | yes |
| **Recommended Texts** | Yilmaz, O, 1987. Seismic Data Processing, SEG, Investigations in geophysics V. 2, Tulsa, SEG, 526 p.  | no |
| **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. |