MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

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| **Module Information****معلومات المادة الدراسية** |
| **Module Title** | Seismic Refraction Method | **Module Delivery** |
| **Module Type** | Core | * **☒ Theory**
* **☒ Lecture**
* **☒ Lab**
* **☐ Tutorial**
* **☐ Practical**
* **☐ Seminar**
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| **Module Code** | GEO32121 |
| **ECTS Credits**  | 5 |
| **SWL (hr/sem)** | 125 |
| **Module Level** | 3ed | **Semester of Delivery** | 2ed |
| **Administering Department** | Geophysics Department |  **College** | Remote Sensing and Geophysics College |
| **Module Leader** | Ahmed Srdah Kahdem |  **e-mail** | Ahmed.srdah@yahoo.com |
| **Module Leader’s Acad. Title** | Lecturer | **Module Leader’s Qualification** |  |
| **Module Tutor** |  |  **e-mail** |  |
| **Peer Reviewer Name** |  |  **e-mail** |  |
| **Scientific Committee Approval Date** |  | **Version Number** |  |

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| **Relation with other Modules****العلاقة مع المواد الدراسية الأخرى** |
| **Prerequisite module** | Fundamentals of Geophysics | **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-Learn what RefractionMethod.2- Learn what Elastic moduli and body waves.3- Learn what Reflection and Refraction of Seismic Waves.4- Identify all techniques that used in refraction surveys.5- Identify the different methods that usedin Processing and Interpretation Data of Seismic Refraction Survey. |
| **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 boundaries of, normally, simple geometry .
3. This method has been used in hydrogeological, mining, geotechnical, archeological, environmental and engineering investigation.
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| **Indicative Contents****المحتويات الإرشادية** |  |

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| **Learning and Teaching Strategies****استراتيجيات التعلم والتعليم** |
| **Strategies** | The main strategy that will be adopted in delivering this module is to encourage students to use the surface geophysical techniques that providing a relatively quick and inexpensive data to characterize the subsurface, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, field work by use of different measuring devices. |

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| **Student Workload (SWL)****الحمل الدراسي للطالب** |
| **Structured SWL (h/sem)****الحمل الدراسي المنتظم للطالب خلال الفصل** | 36 |  |  |
| **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** | Basic principles of Refraction Methods |
| **Week 2** | Elastic moduli  |
| **Week 3** | Seismic waves |
| **Week 4** | Reflection and Refraction of Seismic Waves |
| **Week 5** | Reflection and Refraction of Seismic Waves |
| **Week 6** | Factors Affecting the Velocities of Seismic Waves |
| **Week 7** | Factors Affecting the Velocities of Seismic Waves |
| **Week 8** | Seismic Refraction Survey |
| **Week 9** | Data Acquisition |
| **Week 10** | Types of Refraction Seismic Survey |
| **Week 11** | Data Processing of Refraction Seismic Survey. |
| **Week 12** | Interpretation of Refraction Seismic Survey. |
| **Week 13** | Plus – Minus Method |
| **Week 14** | Mean Minus Time Method |
| **Week 15** | Generalized Reciprocal Time Method |
| **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** | Problem (1) Application of the theory of elasticity |
| **Week 2** | Problem (2) Snell’s Law |
| **Week 3** | Problem (3) Geometrical Optics Applications (Wave Front Diagram) |
| **Week 4** | Problem (4) Two Horizontal Layer |
| **Week 5** | Problem (5) Three Horizontal Layer |
| **Week 6** | Problem (6) Dipping Layer |
| **Week 7** | Problem (7) Pick the first arrival of the times. |

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| **Learning and Teaching Resources****مصادر التعلم والتدريس** |
|  | **Text** | **Available in the Library?** |
| **Required Texts** | Dobrin, M.B. Savit, C.H,(1988) , Introduction To Geophysical Prospecting .4th Ed., McGraw Hill ,New York 867 Kearey P, Brooks M, Hill I., (2002), Introduction to Geophysical Exploration (3rd ed.). Blackwell, Oxford. | YES |
| **Recommended Texts** | Lowrie,W.,(2007),"Fundamentals Of Geophysics "2nd Edition, Cambridge University Press. |  |
| **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. |