MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

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| **Module Information**  **معلومات المادة الدراسية** | | | | | | | |
| **Module Title** | Sedimentary Facies | | | | **Module Delivery** | | |
| **Module Type** | Core | | | | * **☒ Theory** * **☒ Lecture** * **☒ Lab** * **☐ Tutorial** * **☐ Practical** * **☐ Seminar** | | |
| **Module Code** | GEO32122 | | | |
| **ECTS Credits** | 6 | | | |
| **SWL (hr/sem)** | 150 | | | |
| **Module Level** | | III | **Semester of Delivery** | | | | Six |
| **Administering Department** | | Geophysics | **College** | College of Geophysics and Remote Sensing | | | |
| **Module Leader** | Dr. Mohammed Sattam | | **e-mail** | [moh.sattam@kus.edu.iq](mailto:moh.sattam@kus.edu.iq) | | | |
| **Module Leader’s Acad. Title** | | Assistant Professor | **Module Leader’s Qualification** | | | | Stratigraphy & Paleontology |
| **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** | General Geology | **Semester** | One |
| **Co-requisites module** | Null | **Semester** | - |

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| **Module Aims, Learning Outcomes and Indicative Contents**  **أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية** | |
| **Module Aims**  **أهداف المادة الدراسية** | Sedimentary facies are distinct rock units that display specific characteristics, such as grain size, sediment composition, and depositional environment. They provide valuable insights into the past geological conditions, including ancient climates, sea levels, and tectonic activity as well as facies classification. Analyzing sedimentary facies helps geologists reconstruct Earth's history and interpret the processes that shaped our planet over time. |
| **Module Learning Outcomes**  **مخرجات التعلم للمادة الدراسية** | -Understanding the importance of Ssedimentology as one of the important geological sciences .  -Develop an understanding of how to identify the sedimentary facies and their distribution.  - Identify the types of sedimentary facies and the difference between them.  -Understanding of how to identify the sedimentary facies in the field .  -Evaluate whether the resources or reserves attributed to a completed interpretation map are under or over estimated.  - Determine the relationships between sedimentary facies laterally and vertically . |
| **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  Laboratory  Practical Training  Seminar |

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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** | 64 |  |  |
| **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** | Sedimentology "Introduction and Identification " |
| **Week 2** | Principles of sedimentary facies identification |
| **Week 3** | Sedimentary facies Classification " sedimentary facies types" |
| **Week 4** | Sedimentary facies Units |
| **Week 5** | Nomenclature of Sedimentary facies |
| **Week 6** | Lithostratigraphy and Lithostratigraphic facies |
| **Week 7** | Biostratigraphy and biostratigraphic facies |
| **Week 8** | Self-potential SP logs |
| **Week 9** | Midterm exam |
| **Week 10** | Resistivity and conductivity logs: |
| **Week 11** | * The Laterolog |
| **Week 12** | * Induction Logs |
| **Week 13** | * Microresistivity Logs |
| **Week 14** | Image logs |
| **Week 15** | Second Midterm 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** | Time lag corrections |
| **Week 2** | Borehole environment and corrections of logs |
| **Week 3** | Lithology detection from logs |
| **Week 4** | Lithology and Fluids detection from logs |
| **Week 5** | Type of fluid(s) and identification |
| **Week 6** | Fluid amounts and Pay zone prediction |
| **Week 7** | Cross-plots |

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| **Learning and Teaching Resources**  **مصادر التعلم والتدريس** | | |
|  | **Text** | **Available in the Library?** |
| **Required Texts** | 1- The Geological Interpretation of well logs (2000), Malcolm Rider (second edition), Whittles Publishing.  2- Basic Well Log Analysis, (2004), George Asquith and Daniel Krygowski, (second edition), AAPG. | Y |
| **Recommended Texts** | 1- Principles of Wireline Logging Technology, China National Logging Corporation (CNLC).  2- Log Analysis of Subsurface Geology (1985) John H. Doveton.  3- Well Logging for Earth Scientists, 2nd Edition (2008), by Darwin V. Ellis and Julian M. Singer.  4- Well Logging and Formation Evaluation (2005), by Toby Darling.  5- Brown, A., 2004, Interpretation of three-dimensional seismic data; AAPG Memoir 42, 534 p. | y |
| **Websites** | <https://www.sciencedirect.com/topics/earth-and-planetary-sciences/well-logging> | |

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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. | | | | |