MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

**Applied Physics**

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| **Module Information****معلومات المادة الدراسية** |
| **Module Title** | Calculus | **Module Delivery** |
| **Module Type** | B | * **☒ Theory**
* **☒ Lecture**
* **☒ Lab**
* **☐ Tutorial**
* **☐ Practical**
* **☐ Seminar**
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| **Module Code** | GEO32023 |
| **ECTS Credits**  | 4 |
| **SWL (hr/sem)** | 100 |
| **Module Level** | 1st | **Semester of Delivery** | 1st |
| **Administering Department** | **Geophysics** |  **College** | **Remote sensing & Geophysics** |
| **Module Leader** | **Ali Khalid Khudhayir** | **e-mail** |  ali.khdayir@kus.edu.iq |
| **Module Leader’s Acad. Title** | **Lecturer** | **Module Leader’s Qualification** | **MSc. Method of teaching mathematics** |
| **Module Tutor** |  | **e-mail** |  |
| **Peer Reviewer Name** |  | **e-mail** |  |
| **Scientific Committee Approval Date** | **15/5/2023** | **Version Number** | 2 |

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| **Relation with other Modules****العلاقة مع المواد الدراسية الأخرى** |
| **Prerequisite module** | **Null** | **Semester** |  |
| **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** | 1. Identify the properties of calculus
2. Knowledge of methods of finding derivatives
3. Knowledge of integration methods
4. Learn about the scientific applications of calculus and integration
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| **Module Learning Outcomes****مخرجات التعلم للمادة الدراسية** | 1. Calculating derivatives for algebraic and special functions
2. Calculation of integrals for algebraic and special functions
3. Using the concepts of calculus and integration in scientific applications
4. Employing the concepts of calculus and integration in the study of other sciences
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| **Indicative Contents****المحتويات الإرشادية** | 1. At the beginning of the semester, students are informed of the course vocabulary and information sources
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| **Learning and Teaching Strategies****استراتيجيات التعلم والتعليم** |
| **Strategies** | 1. Lecture method
2. standard method
3. inductive method
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| **Student Workload (SWL)****الحمل الدراسي للطالب** |
| **Structured SWL (h/sem)****الحمل الدراسي المنتظم للطالب خلال الفصل** | 80 |  |  |
| **Unstructured SWL (h/sem)****الحمل الدراسي غير المنتظم للطالب خلال الفصل** | 20 |  |  |
| **Total SWL (h/sem)****الحمل الدراسي الكلي للطالب خلال الفصل** | 100 |

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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** | Inequalities  |
| **Week 2** | **Function** |
| **Week 3** | Limits and Continuity |
| **Week 4** | Differentiation |
| **Week 5** | Applications of differentiation |
| **Week 6** | Related rates |
| **Week 7** | Exam |
| **Week 8** | Integration |
| **Week 9** | Methods of Integration A |
| **Week 10** | Methods of Integration B |
| **Week 11** | Methods of Integration C |
| **Week 12** | Methods of Integration D |
| **Week 13** | Plane analytic geometry A |
| **Week 14** | Plane analytic geometry B |
| **Week 15** | **Exam** |
| **Week 16** | **Preparatory week before the final Exam** |

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| **Learning and Teaching Resources****مصادر التعلم والتدريس** |
|  | **Text** | **Available in the Library?** |
| **Required Texts** | **Calculus and Analytical Geometry by Thomas and Finney (2005), 11th Ed., Addison Wesley.** |  |
| **Recommended Texts** | **Calculus by Howard Anton, Bivens and Stephen Davis (2009), 9th Ed. John wiley and Sons, NC.** |  |
| **Websites** | Varies lectures and lecture notes on the internet  |

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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. |