MODULE DESCRIPTION FORM

نموذج وصف المادة الدراسية

**Applied Physics**

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| **Module Information****معلومات المادة الدراسية** |
| **Module Title** | Applied Physics | **Module Delivery** |
| **Module Type** | S | * **☒ Theory**
* **☒ Lecture**
* **☒ Lab**
* **☐ Tutorial**
* **☐ Practical**
* **☐ Seminar**
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| **Module Code** | RGC1101 |
| **ECTS Credits**  | 6 |
| **SWL (hr/sem)** | 150 |
| **Module Level** | 1st | **Semester of Delivery** | 1st |
| **Administering Department** | **Geophysics** |  **College** | **Remote sensing & Geophysics** |
| **Module Leader** | **Hind Ibrahim Abdulgafour** | **e-mail** |  hind.ibrahem.abdulghafoor@kus.edu.iq |
| **Module Leader’s Acad. Title** | **Assistant Professor** | **Module Leader’s Qualification** | **PhD** |
| **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** | **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. Basic principles of physics phenomena.
2. Learn the basic physical properties of matter, such as force, energy and motion.
3. The student acquires a cognitive skill about the basic principles of physics, which is one of the phenomena found in nature on the surface of the earth and in the outer orbits of the earth.
4. The student acquires theoretical and practical knowledge of the basic principles of physics and laboratory experiments.
5. How to use laboratory equipment for the purpose of conducting the practical part of the course.
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| **Module Learning Outcomes****مخرجات التعلم للمادة الدراسية** | 1. To understand the basics of the physical measurements.
2. To learn the motion in one, two, and three dimentions.
3. To learn the Force and Motion.
4. To learn the Newton’s Laws of Motion.
5. To learn the Energy and Work.
6. To learn the Potential Energy and Conservation of Energy.
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| **Indicative Contents****المحتويات الإرشادية** | 1. Understanding, assimilation, analysis and interpretation of work results.
2. Recording scientific notes and realizing work in general.
3. Conducting practical experiments, discussing and interpreting them by the student.
4. Focusing on extra-curricular activities to develop students' skills.
5. Scientific trips to research centers specialized in this field.
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| **Learning and Teaching Strategies****استراتيجيات التعلم والتعليم** |
| **Strategies** | The main strategy that will be focus on understanding the topics and the sequence of logical answers to intellectual questions. Analyze the results according to the standards adopted when conducting laboratory experiments. Interpreting the results obtained from conducting experiments and comparing them with theoretical indices. Learn how to calculate the percentage of errors according to the results obtained. |

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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** | 3 | 10% (10) |  |  |
| **Assignments** | 2 | 10% (10) |  |  |
| **Projects / Lab.** | 8 | 10% (10) |  |  |
| **Report** | 8 | 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** | **Physics and Physical Measurements** |
| **Week 2** | **Motion Along a Straight Line** |
| **Week 3** | **Motion in two and three dimensions –I** |
| **Week 4** | **Force and Motion** |
| **Week 5** | **Newton’s Laws of Motion** |
| **Week 6** | **Energy and Work** |
| **Week 7** | **Potential Energy and Conservation of Energy** |
| **Week 8** | **Center of mass and linear momentum** |
| **Week 9** | **Rotation** |
| **Week 10** | **Gravitation** |
| **Week 11** | **Equilibrium and Elasticity** |
| **Week 12** | **Waves and Light** |
| **Week 13** | **Fluid** |
| **Week 14** | **Oscillations** |
| **Week 15** | **Temperature, Heat , and First Law of Thermodynamics**  |
| **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** | **Simple pendulum** |
| **Week 2** | **Glass refractive index** |
| **Week 3** | **Forces equilibrium** |
| **Week 4** | **Focal length of convex lens** |
| **Week 5** | **Archimedes principle** |
| **Week 6** | **The speed of sound** |
| **Week 7** | **Inclined Surface** |

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| **Learning and Teaching Resources****مصادر التعلم والتدريس** |
|  | **Text** | **Available in the Library?** |
| **Required Texts** | **FUNDAMENTALS OF PHYSICS. Tenth edition, Halliday & Resnick.** |  |
| **Recommended Texts** | **University Physics, with modern physics. Hugh D. Young and Roger A. Freedmen, 13th edition.**  |  |
| **Websites** | https://www.abebooks.com/book-search/title/university-physics-13th-edition/author/freedman-roger-a-young-hugh-d |

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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. |