**MODULE DESCRIPTION FORM**

نموذج وصف المادة الدراسية

**Electromagnetism**

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| **Module Information****معلومات المادة الدراسية** |
| **Module Title** | Principles of Electromagnetic | **Module Delivery** |
| **Module Type** | C | * **☒ Theory**
* **☒ Lecture**
* **☒ Lab**
* **☐ Tutorial**
* **☐ Practical**
* **☐ Seminar**
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| **Module Code** | **GEO22013** |
| **ECTS Credits**  | 5 |
| **SWL (hr/sem)** | 125 |
| **Module Level** | 2nd  | **Semester of Delivery** | 4th  |
| **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 Electromagnetism phenomena.
2. Learn the basic Electric and magnetic fields.
3. The student acquires a cognitive skill about the basic principles of electromagnetism waves with properties.
4. The student learn the nature of light as well as learn the law of reflection and refraction.
5. Learn the source and types of radiation with their applications.
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| **Module Learning Outcomes****مخرجات التعلم للمادة الدراسية** | 1. To understand the basics of the Electromagnetism principles.
2. To learn the light and waves.
3. To learn the types of Electromagnetism.
4. To learn the induction of Electric and magnetic field.
5. To learn the Law of Reflection and refraction.
6. To learn the source and the types of radiations.
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| **Indicative Contents****المحتويات الإرشادية** | 1. Understanding, assimilation, analysis and interpretation of study results.
2. Recording scientific notes and realizing work in general.
3. Focusing on extra-curricular activities to develop students' skills.
4. 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 daily and monthly tests approved in the study. Examining the extent to which study subjects are applied in work |

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| **Student Workload (SWL)****الحمل الدراسي للطالب** |
| **Structured SWL (h/sem)****الحمل الدراسي المنتظم للطالب خلال الفصل** | 48 |  |  |
| **Unstructured SWL (h/sem)****الحمل الدراسي غير المنتظم للطالب خلال الفصل** | 77 |  |  |
| **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** | **Electromagnetic Spectrum** |
| **Week 2** | **Light and the Electromagnetic Spectrum** |
| **Week 3** | **Light as a Wave** |
| **Week 4** | **Types of Electromagnetic waves** |
| **Week 5** | **The Electric Field** |
| **Week 6** | **The Magnetic field** |
| **Week 7** | **Gauss’ Law** |
| **Week 8** | **Ampère’s Law** |
| **Week 9** | **Induction of Electric and Magnetic field** |
| **Week 10** | **Faraday Law’s** |
| **Week 11** | **Maxwell Law’s** |
| **Week 12** | **Properties of EM wave** |
| **Week 13** | **The nature of Light** |
| **Week 14** | **The Law of Reflection and Refraction**  |
| **Week 15** | **Dispersion** |
| **Week 16** | **The Sources of Radiation and their applications** |

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| **Delivery Plan (Weekly Lab. Syllabus)****المنهاج الاسبوعي للمختبر** |
| **Week**  | **Material Covered** |
| **Week 1** |  |
| **Week 2** |  |
| **Week 3** |  |
| **Week 4** |  |
| **Week 5** |  |
| **Week 6** |  |
| **Week 7** |  |

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| **Learning and Teaching Resources****مصادر التعلم والتدريس** |
|  | **Text** | **Available in the Library?** |
| **Required Texts** |  **Electromagnetics and Applications.**  **David H. Staelin.** |  |
| **Recommended Texts** | **ELECTROMAGNETISM Principles and Applications. Paul Lorrain.** |  |
| **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. |