



## MODULE DESCRIPTION OF PHYSICS



**University Name:** AlKarkh University of Science

**College:** Energy and Environmental Science

**Dept:** Environmental Science

| Module Information                 |                       |                               |  |
|------------------------------------|-----------------------|-------------------------------|--|
| Module Title                       | physics               |                               | Module Delivery  |
| Module Type                        | S                     |                               | <input checked="" type="checkbox"/> Theory<br><input checked="" type="checkbox"/> Lecture<br><input checked="" type="checkbox"/> Lab<br><input checked="" type="checkbox"/> Tutorial<br><input type="checkbox"/> Practical<br><input type="checkbox"/> Seminar |
| Module Code                        | CRE1101               |                               |  |
| ECTS Credits                       | 6                     |                               |  |
| SWL (hr/sem)                       | 150                   |                               |  |
| Module Level                       | UGI                   | Semester of Delivery          | first  |
| Administering Department           | Environmental Science | College                       | Energy and Environmental Science   |
| Module Leader                      | Dr.Tabark Abdulabass  | e-mail                        | tabarak@kus.edu.iq   |
| Module Leader's Acad. Title        | Lecture doctor        | Module Leader's Qualification | Ph.D.  |
| Module Tutor                       | Mohammed obaid        | e-mail                        |  |
| Peer Reviewer Name                 |                       | e-mail                        |  |
| Scientific Committee Approval Date | 2023/06/20            | Version Number                | 1.0  |

| Relation with other Modules |      |          |  |
|-----------------------------|------|----------|--|
| Prerequisite module         | None | Semester |  |
| Co-requisites module        | None | Semester |  |

## Module Aims, Learning Outcomes and Indicative Contents

|                                 |   |
|---------------------------------|---|
| <b>Module Aims</b>              | <p>1- becomes able to know</p> <ol style="list-style-type: none"> <li>1. Measurement units and coordinates.</li> <li>2. Object movement and the use of vectors.</li> <li>3. Distinguish between work and energy and the relationship between them</li> <li>4- Understand electric charge and electric field.</li> <li>5- Knowing the materials.</li> <li>6- Identify the electric field of charges and electric field lines.</li> <li>7- Identifying the forces, moments and electric potential energy.</li> <li>8- Learn about Gauss' law ,Ohm's Law, Coulomb's law.</li> </ol>  |
| <b>Module Learning Outcomes</b> | <p>Make the student able to:</p> <ol style="list-style-type: none"> <li>1- Determine the coordinates and units of measurement used.</li> <li>2. Applying Newton's laws of motion</li> <li>3-Understand electric charge and electric field.</li> <li>4- Knowing the composition of the material.</li> <li>5- Know the types of matter.</li> <li>6- Know the types of electric charge.</li> <li>7- Learn about Coulomb's law.</li> <li>8- Identify the electric field of charges and electric field lines.</li> <li>9- Identifying the forces, moments and electric potential energy.</li> <li>10- Learn about Gauss' law.</li> </ol> |
| <b>Indicative Contents</b>      | <p>Indicative content includes the following.</p> <p>Physical Quantities Units, and vectors ,Motion Along a straight Line, Motion in two dimensions,Newton's Laws of Motion,Work and kinetic energy electric charge and electric field, electric charge and structure of matter, types of matter, charge is conserved, charging by induction and friction,electric forces on uncharged objects, Coulomb's law, electric field, electric field on a point charge, electric field calculations, electric field lines, electric dipole, forces, moments and electric potential energy, Gauss' law.</p>                                 |

## Learning and Teaching Strategies

|                   |   |
|-------------------|---|
| <b>Strategies</b> | <p>The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials and by considering type of simple experiments involving some sampling activities that are interesting to the students and by oral, written exams and homeworks</p> |
|-------------------|---|

| Student Workload (SWL)   |     |  |   |
|--------------------------|-----|--|---|
| Structured SWL (h/sem)   | 60  |  | 4 |
| Unstructured SWL (h/sem) | 86  |  |   |
| Total SWL (h/sem)        | 150 |  |   |

| Module Evaluation    |                 |             |                  |              |                           |
|----------------------|-----------------|-------------|------------------|--------------|---------------------------|
|                      |                 | Time/Number | Weight (Marks)   | Week Due     | Relevant Learning Outcome |
| Formative assessment | Quizzes         | 4           | 20% (20)         | 2, 5, 10, 12 |                           |
|                      | Assignments     | 2           | 5%(5)            | 2, 12        |                           |
|                      | Projects / Lab. | 1           | 10% (10)         | Continuous   |                           |
|                      | Report          | 1           | 5% (5)           | 13           |                           |
| Summative assessment | Midterm Exam    | 2 hr        | 10% (10)         | 8            |                           |
|                      | Final Exam      | 4hr         | 50% (50)         | 16           |                           |
| Total assessment     |                 |             | 100% (100 Marks) |              |                           |

| Delivery Plan (Weekly Syllabus) |   |
|---------------------------------|---|
|                                 | Material Covered  |
| Week 1                          | 1. Fundamentals of physics.   |
| Week 2                          | 2. Coordinates and units of measurement used in the field of physics                |
| Week 3                          | 3. The motion of bodies and the application of Newton's laws.                       |
| Week 4                          | 4. The relationship between work and energy   |
| Week 5                          | 5 - Analysis of the influencing forces  |
| Week 6                          | Analysis of the influencing forces  |
| Week 7                          | electric charge, electric field, electric charge and structure of matter.           |
| Week 8                          | Mid exam + types of matter, charge is conserved, charging by induction and friction |
| Week 9                          | electric forces on uncharged objects, Coulomb's law                                 |
| Week 10                         | electric forces on uncharged objects, Coulomb's law                                 |
| Week 11                         | electric field, electric field on a point charge,                                   |
| Week 12                         | electric field calculations, electric field lines,                                  |

|                |  |
|----------------|--|
| <b>Week 13</b> | electric dipole, forces, moments and electric potential energy |
| <b>Week 14</b> | Causs' law, electric flux and the enclosed charge              |
| <b>Week 15</b> | <b>Preparatory Week</b>  |
| <b>Week 16</b> | <b>Final Exam</b>  |

| <b>Delivery Plan (Weekly Lab. Syllabus)</b> |   |
|---|---|
|   | <b>Material Covered</b>                           |
| <b>Week 1</b>                               | Lab 1: Ohms law and Ohmic and Non Ohmic materials |
| <b>Week 2</b>                               | Lab 2: Diffraction grating                        |
| <b>Week 3</b>                               | Lab 3: Archimedes principle                       |
| <b>Week 4</b>                               | Lab 4: Spiral spring                              |
| <b>Week 5</b>                               | Lab 5: Simple pendulum                            |
| <b>Week 6</b>                               | Lab 6: speed and sound                            |
| <b>Week 7</b>                               | Lab 7: The flywheel                               |

| <b>Learning and Teaching Resources</b> |  |                                  |
|--|--|----------------------------------|
|  | <b>Text</b>  | <b>Available in the Library?</b> |
| <b>Required Texts</b>                  | Edward M.Purcell, Electricity and magnetism, 3 <sup>rd</sup> edition   | yes                              |
| <b>Recommended Texts</b>               | University physics with modern physics, 13 <sup>th</sup> edition   | Yes                              |
|  | University Physics, 13th Edition<br>Hugh D. Young and Roger A. Freedman<br>Addison-Wesley publishing.                | yes                              |
|  | Physics for Scientists and Engineers with Modern Physics, Ninth Edition<br>.Raymond A. Serway and John W. Jewett, Jr | yes                              |

| Grading Scheme  |                         |                     |           |                                       |
|---|-------------------------|---------------------|-----------|---------------------------------------|
| Group   | Grade                   | التقدير             | Marks (%) | Definition                            |
| <b>Success Group<br/>(50 - 100)</b>   | <b>A</b> - Excellent    | امتياز              | 90 - 100  | Outstanding Performance               |
|   | <b>B</b> - Very Good    | جيد جدا             | 80 - 89   | Above average with some errors        |
|   | <b>C</b> - Good         | جيد                 | 70 - 79   | Sound work with notable errors        |
|   | <b>D</b> - Satisfactory | متوسط               | 60 - 69   | Fair but with major shortcomings      |
|   | <b>E</b> - Sufficient   | مقبول               | 50 - 59   | Work meets minimum criteria           |
| <b>Fail Group<br/>(0 – 49)</b>  | <b>FX</b> – Fail        | راسب (قيد المعالجة) | (45-49)   | More work required but credit awarded |
|   | <b>F</b> – Fail         | راسب                | (0-44)    | Considerable amount of work required  |
|   |                         |                     |           |                                       |
| <p><b>Note:</b> 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.</p> |                         |                     |           |                                       |