

مختصر توصيف المقرر

(Course Information)

معلومات المقرر\*

|                      |                           |               |
|----------------------|---------------------------|---------------|
|                      | اسم المقرر:               | فيزياء عامة 2 |
|                      | رقم المقرر:               | فيز 1022      |
|                      | اسم ورقم المتطلب السابق:  | --            |
|                      | اسم ورقم المتطلب المرافق: | --            |
|                      | مستوى المقرر:             | الأول         |
|                      | الساعات المعتمدة:         | (0+2+3)4      |
| <b>Module Title:</b> | General Physics II        |               |
| <b>Module ID:</b>    | PHYS 1022                 |               |
| <b>Prerequisite:</b> | General Physics 1         |               |
| <b>Co-requisite:</b> | --                        |               |
| <b>Course Level:</b> | Second                    |               |
| <b>Credit Hours:</b> | 4 (3+2+0)                 |               |



Module Description

وصف المقرر :

This course is an introductory course for the fundamental principles of physics in fluid dynamics, oscillations and mechanical wave, and thermodynamics.

Module Aims

أهداف المقرر :

|   |   |   |
|---|---|---|
| 1 | Understanding the fluid dynamics, oscillations and mechanical wave, and thermodynamics.   | 1 |
| 2 | The development of students thinking on how to apply the physical principles to explain the physical phenomena.                 | 2 |
| 3 | The student should be able to read and describe physical problems, to use mathematics in solving physical problems efficiently. | 3 |

Learning Outcomes:

مخرجات التعليم:

|   |   |   |
|---|---|---|
| 1 | <b>Knowledge</b> <ul style="list-style-type: none"> <li>To know and describe the basic principles of fluids dynamics, waves and oscillations, temperature, heat and thermodynamics.</li> <li>To apply the formulas learned to solve the different applications of the related topics.</li> </ul>                    | 1 |
| 2 | <b>Cognitive Skills</b> <ul style="list-style-type: none"> <li>To distinguish between the simple and damped harmonic motion, properties of sound and mechanical waves, heat and temperature, and the three thermodynamic laws.</li> <li>To explain and justify the results obtained from the experiment.</li> </ul> | 2 |

|          |  |   |
|----------|--|---|
| <b>3</b> | <b>Interpersonal Skills and Responsibility</b> <ul style="list-style-type: none"> <li>To participate in class discussion. Practice the safety and organizing rules of the laboratories.</li> <li>To act with self-reliance when working independently. Displays teamwork and shows professional commitment to ethical practice.</li> <li>The ability to interact professionally with others, to engage effectively in teamwork, and to function productively on multidisciplinary group projects.</li> <li>To develop in each student, the good writing skills so that they are able to communicate effectively and clearly</li> <li>The report is required to demonstrate proficient organizational skills and writing skills.</li> </ul> | 3 |
| <b>4</b> | <b>Communication, Information Technology and Numerical Skills</b> <ul style="list-style-type: none"> <li>To develop the team working skills necessary to perform effectively.</li> <li>To develop the ability to argue scientifically with the instructor.</li> <li>To know how to use the computer program to analyze the data, and make some simulation</li> <li>To know how to search the web for any updated information concerning the assigned experiment.</li> <li>To analyze the data with good mathematics and theory.</li> <li>To develop in each student good oral communication skills so that they are able to communicate effectively with others</li> </ul>   | 4 |
| <b>5</b> | <b>Psychomotor</b><br>Not applicable.  | 5 |

**Course Contents:**

محتوى المقرر:

| ساعات التدريس<br>(Hours) | عدد الأسابيع<br>(Weeks) | قائمة الموضوعات<br>(Subjects)                               |
|--------------------------|-------------------------|---|
|                          |                         | <b>Theory</b>   |
| 6                        | 2                       | Oscillatory Motion  |
| 6                        | 2                       | Wave Motion   |
| 6                        | 2                       | Sound Waves   |
| 6                        | 2                       | Superposition and Standing Waves                            |
| 3                        | 1                       | Temperature   |
| 6                        | 2                       | Heat and the First Law of Thermodynamics                    |
| 6                        | 6                       | The Kinetic Theory of Gases                                 |
| 6                        | 2                       | Heat Engines, Entropy, and the Second Law of Thermodynamics |
| <b>Practical</b>         |                         |   |
| 2                        | 1                       | Measurements experiment                                     |

|   |   |   |
|---|---|---|
| 2 | 1 | Viscosity experiment                          |
| 2 | 1 | Surface tension experiment                    |
| 2 | 1 | Specific heat capacity for liquids experiment |
| 2 | 1 | Specific heat capacity for solids experiment  |
| 2 | 1 | Speed of sound in solids experiment           |
| 2 | 1 | Thermal expansion experiment                  |
| 2 | 1 | Joule's equivalent experiment                 |
| 2 | 1 | Boil's law experiment)                        |
| 2 | 1 | Resonance experiment                          |

**Textbook and References:**

الكتاب المقرر والمراجع المساندة:

| سنة النشر<br>Publishing Year | اسم الناشر<br>Publisher | اسم المؤلف (رئيسي)<br>Author's Name                                    | اسم الكتاب المقرر<br>Textbook title                                       |
|------------------------------|-------------------------|--|---|
| 9 <sup>th</sup> Ed. (2013)   | <i>Cengage Learning</i> | <i>Raymond A. Serway and <a href="#">John W. Jewett</a></i>            | <b>Physics for scientists and engineers</b><br><i>ISBN-10: 013805715X</i> |
| سنة النشر<br>Publishing Year | اسم الناشر<br>Publisher | اسم المؤلف (رئيسي)<br>Author's Name                                    | اسم المرجع<br>Reference   |
| 9 <sup>th</sup> Ed. (2011)   | Cengage Learning        | <i><a href="#">Raymond A. Serway</a>, <a href="#">Chris Vuille</a></i> | <b>College Physics</b><br><i>ISBN-10:0840062060</i>                       |
| 9 <sup>th</sup> Ed. (2012)   | John Wiley & Sons       | <i>John D. Cutnell, <a href="#">Kenneth W. Johnson</a></i>             | <b>Physics</b><br><i>ISBN-10: 0470879521</i>                              |

