



Course specification

University/Academy: Damanhour

Faculty/Institute: Science

Department: Physics

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| 1. course Data: | | | | | |
| Course code: PHY (101) | Course title: General physics | Academic year/level: 2007-2008 1 st year (first term) | | | |
| Specialization: Physical science group | No. of instructional units: lecture <table border="1"><tr><td>3hrs/ week</td></tr></table> tutorial <table border="1"><tr><td>1hrs/ week</td></tr></table> practical <table border="1"><tr><td>3hrs/ week</td></tr></table> | | 3hrs/ week | 1hrs/ week | 3hrs/ week |
| 3hrs/ week | | | | | |
| 1hrs/ week | | | | | |
| 3hrs/ week | | | | | |

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| 2. course Aim | <ul style="list-style-type: none">The course introduces the basic physical quantities, standard units and dimensional analysis. Also it introduces some physical concept in properties of matter and their uses in daily life.The course provides the fundamentals of vibrations and different modes of waves. |
| 3 . Intended learning outcome | |
| a) Knowledge and understanding | A1: Recognize the Basic physical quantities and dimensional analysis with emphasis on validation of basic physical relations and how to deduce basic physical relation, Elasticity of materials and Fluids dynamics. A2: Describe the Simple harmonic motion and their applications, Free, forced and resonant vibrations and Wave motion characteristics, types of waves. |



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| | <p>A3: Recognize the Elasticity of materials, surface tension, capillarity, basic connected relations and applications.</p> <p>A4: Identify the Fluids dynamics, viscosity of liquids, diffusion and osmotic phenomenon.</p> |
| b) Intellectual skills | <p>B1: Apply calculations to determine the properties of simple Properties of Matters systems.</p> <p>B2: Determine ray diagrams for use in solving simple Properties of Matter problems.</p> <p>B3: Analyze the theoretical principles of simple Vibrations & Waves systems.</p> |
| c) Professional skills | <p>C1: Use appropriate software package to analyse quantitative data.</p> <p>C2: Practice appropriate heat experiments and sampling program in the laboratory.</p> <p>C3: Examine the principles of and limitation of practical techniques.</p> <p>C4 : Use instruments in laboratory.</p> |
| d) General skills | <p>D1: Use of new technology tools like internet/electronic resources to obtain subject specific information,. - use a number of computer packages to present information.</p> <p>D2: Ability to work in groups work with other as a part of a team to collect data and/or to produce reports and presentations.</p> <p>D3: The ability to communicate to make self learning; study independently, set realistic targets and plan work and time to met targets within deadlines.</p> <p>D4: <u>Prpblem solving</u>: - Regular problem exercises and example</p> |



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| | <p>will give students the chance to develop their theoretical understanding and problem.</p> <p>D5: Write reports: Students will have write reports and give oral presentation.</p> |
| <p>3. course content</p> | <ul style="list-style-type: none"> - BASIC DEFINITIONS AND UNITS - Simple Harmonic Motion and Energy of vibration. - Elasticity, Plastic behaviour , Isotropic materials and Elastic energy. - Oscillation with one and two degrees of freedom and Linearity and superposition principle. -Hydrostatics and Surface Tension - Simple and compound pendulum, Simple harmonic oscillation of a mass between springs and of loaded spring and Composition of two simple harmonic oscillations. - Surface energy, Pressure inside a soap bubble and a liquid drop, Capillarity and Negative pressure and the cohesion of water. - Free, forced and resonant vibration. - Microscopic Considerations for the Study of Properties of Matter, Properties of fluids -Fluid dynamics and Viscosity. - Damped and un-damped vibration and What does propagate in wave motion? - Diffusion , osmotic phenomenon and the gravitational force. Inertial and gravitational mass - Characteristics of wave motion: Transverse and Longitudinal wave motion and differential equation of wave motion. - Motion of satellites and planetary orbits, Use of gravitational potential energy and Escape speed. - Particle and wave velocities, Distribution of velocities and pressure wave and energy of Progressive wave. |
| <p>4. Teaching and learning methods</p> | <p>5.1. lecture using PowerPoint presentations.</p> <p>5.2. practical sections.</p> <p>5.3. independent reading throughout basic text books and research papers.</p> |
| <p>5. teaching and learning methods for</p> | <p>Data show – computer – blackboard –</p> <p>Student oral presentations</p> |



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| students with special needs | |
| 6. Student Assessment | <p>7-1. Semester Work.</p> <p>7-2. Mid-Term Examination .</p> <p>7-3. Practical Examination</p> <p>7-4. Final Term Examination</p> |
| a) Procedures used: | <p>7.1. Reaserch and presentation to assess skills of presenting data and discussion.</p> <p>7.2. Mid-Term Examination To accesses ability to continue in course</p> <p>7.3. practical exam. To access professional and practical skills.</p> <p>7.4. written exam. To accesses ability to remember &.understand scientific background.</p> |
| b) Schedule: | <p>Assessment 1:Semesterwork Week: 4-8</p> <p>Assessment 2: Mid-term Week: 10</p> <p>Assessment 3: Practical final Week: 12</p> <p>Assessment 4: Written final Week: 14</p> |
| c) Weighing of Assessment: | <p>Mid-Term Examination: 10</p> <p>Final-Term Examination: 150</p> <p>Practical Examination: 30</p> <p>Semester Work: 10</p> <hr/> <p>Total: 200</p> |



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| 7. List of Textbooks and References: | ----- |
| a) Course Notes | Lecturer private notes |
| b) Required Books (Textbooks) | 1- Book 4 in the Light and Matter series of free introductory physics textbooks Copyright c2002-2004 Benjamin Crowell All rights reserved. rev. April 1, 2006 2- " Physics Principles with applications ", D.C Giancoli, USA. 3- " University physics", F.W. Sears, M.W. Zemasky and H.D. Young, Wesley series in physics, USA |
| c) Recommended Books | 1- Feynman Lectures on Physics Volumes 1,2,3 - Feynman, Leighton and Sands 2-" Physics for Scientists and Engineering ", F.W Sears and R.J Beichner, Saunders college publishing. |
| d) Periodicals, web sites,...,etc | http://www.physics.upenn.edu/courses/gladney/phys151/lectures/lecture_apr_14_2003.shtml http://members.tripod.com/~IgorIvanov/physics/optics-geom.html - http://www.mip.berkeley.edu/physics/bookddx.html http://technorati.com/videos/youtube.com/%2Fwatch%3Fv%3DWxitGR-9qGA http://www.phy.duke.edu/courses/ |

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Date: -----/-----/-----

Prof. Dr. El. M. Elmaghrby