<table>
<tr><td>Course Title</td><td colspan="5">Physics I</td></tr>
<tr><td>Course Code</td><td colspan="5">MANS-102</td></tr>
<tr><td>Course Type</td><td colspan="5">Required</td></tr>
<tr><td>Level</td><td colspan="5">1st Cycle</td></tr>
<tr><td>Year / Semester</td><td colspan="5">1st Year, Fall Semester</td></tr>
<tr><td>Teacher’s Name</td><td colspan="5">Mrs. Panayiota Argyrou</td></tr>
<tr><td rowspan="2">ECTS</td><td rowspan="2">4</td><td>Theory</td><td>Laboratory</td><td>Simulation</td><td>Tutorial</td></tr>
<tr><td>3</td><td>---</td><td>---</td><td>-----</td></tr>
<tr><td>Course Purpose and Objectives</td><td colspan="5">The main objectives of the course are:
• to introduce students to the basic concepts of mechanics.
• to assist in the development of strong problem-solving skills
• to help cultivate critical thinking in the approach to learning</td></tr>
<tr><td>Learning Outcomes</td><td colspan="5">After completion of the course students are expected to:
• Assign the correct units of measurement to physical quantities and convert from one unit of measurement to another.
• Analyze the motion of a particle in one and two dimensions using the quantities of velocity, acceleration and displacement.
• Apply Newton’s Laws of motion to solve problems.
• Analyze the equilibrium of extended objects based on the acting forces and moments
• Apply the principles of conservation of energy, linear momentum and angular momentum to solve problems.
• Analyze situations involving fluids in equilibrium and fluids in motion employing Bernoulli’s equation</td></tr>
<tr><td>Prerequisites</td><td colspan="2">None</td><td>Required</td><td colspan="2">None</td></tr>
<tr><td>Course Content</td><td colspan="5">1. Fundamental Units and Measurement, conversions
2. Vectors
3. Motion in one and two dimensions (displacement, velocity, acceleration)
4. Force and Newton’s Laws of Motion, Friction, Drag force</td></tr>
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5. Work and Kinetic Energy Theorem, Potential Energy, Mechanical Energy, Conservation of Mechanical Energy
6. Motion of a System of particles, Center of Mass & Linear Momentum Conservation
7. Moments and Equilibrium
8. Rotational motion and angular momentum
9. Simple Machines, mechanical advantage, efficiency and speed ratio
10. Fluids at equilibrium: Hydrostatic Pressure, Pascal’s Principle Buoyancy
11. Fluids in motion, continuity equation, Bernoulli’s equation
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<tr><td>Teaching Methodology</td><td>Lectures, Tutorials</td></tr>
<tr><td>Bibliography</td><td>
Required Textbooks/Reading:
<table>
<tr><th>Authors</th><th>Title</th><th>Publisher</th><th>Year</th><th>Library Access</th></tr>
<tr><td>D. Giancoli</td><td>Physics, Principles with applications</td><td>Pearson</td><td>7th Edition</td><td>Print copy at library</td></tr>
</table>
Recommended Textbooks/Reading:
<table>
<tr><th>Authors</th><th>Title</th><th>Publisher</th><th>Year</th><th>Library Access</th></tr>
<tr><td>Ben Crowell</td><td>Conceptual Physics</td><td>http://www.lightandmatter.com/</td><td></td><td>Free to download</td></tr>
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<tr><td>Assessment</td><td>Midterm Exam, Final Exam, Homework Assignments</td></tr>
<tr><td>Language</td><td>English</td></tr>
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