

<p>The University of Jordan School of Science Department of Physics</p>		<p>General Physics 1 PHYSICS (0302101) First Semester 2021/2022</p>
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**Course Number:** 0302101

**Course Title:** Introductory Physics 1

**Prerequisites and/or Corequisites:** None

<p><b>Textbook: "University Physics with Modern Physics".</b> H. D. Young and R. A. Freedman 15<sup>th</sup> edition (Pearson, 2020)</p>
<p><b>Recommended References:</b></p> <ol style="list-style-type: none"> <li>1. R. A. Serway and J. W. Jewett Jr., "Physics for Scientists and Engineers with Modern Physics", 9<sup>th</sup> edition, (Thomson Learning, Belmont, CA, USA, 2014).</li> <li>2. D. Halliday, R. Resnick, and J. Walker, "Extended Principles of Physics", 9<sup>th</sup> Edition (John Wiley &amp; Sons, Inc., 2011).</li> <li>3. W. Bauer, G. D. Westfall, "University Physics with Modern Physics", (McGraw Hill, 2011).</li> <li>4. J. S. Walker, "Physics" Fourth Edition, (Addison – Wesley, 2010).</li> <li>5. Giancoli, "Physics for Scientists &amp; Engineers with Modern Physics", Fourth Edition, (Pearson Education, 2009).</li> <li>6. Ohanian and Market, "Physics for Engineers and Scientists", Extended Third Edition, (W. W. Norton &amp; Company, 2007).</li> </ol>

➤ **Course Contents:**

Chapter	Contents
<b>1</b>	<p><b>Units, Physical Quantities and Vectors</b></p> <p>1.7 Vectors and Vector Addition 1.8 Components of Vectors 1.9 Unit Vectors 1.10 Products of Vectors</p>
<b>2</b>	<p><b>Motion Along a Straight Line</b></p> <p>2.1 Displacement, Time, Average Velocity 2.2 Instantaneous Velocity 2.3 Average and Instantaneous Acceleration 2.4 Motion with Constant Acceleration 2.5 Freely Falling Objects 2.6 Velocity and Position by Integration</p>
<b>3</b>	<p><b>Motion in Two or Three Dimensions</b></p> <p>3.1 Position and Velocity Vectors 3.2 The Acceleration Vector 3.3 Projectile Motion 3.4 Motion in a Circle</p>
<b>4</b>	<p><b>Newton's Laws of Motion</b></p> <p>4.1 Force and Interactions 4.2 Newton's First Law 4.3 Newton's Second Law 4.4 Mass and Weight 4.5 Newton's Third Law 4.6 Free body Diagrams</p>
<b>13</b>	<p>13.1 Newton's Law of Gravitation 13.2 Weight</p>
<b>5</b>	<p><b>Applying Newton's Laws</b></p> <p>5.1 Using Newton's First Law: Particles in Equilibrium 5.2 Using Newton's Second Law: Dynamics of Particles 5.3 Friction Forces 5.4 Dynamics of Circular Motion 5.5 The Fundamental Forces of Nature</p>

<b>6</b>	<b>Work and Kinetic Energy</b> 6.1 Work 6.2 Kinetic Energy and the Work-Energy Theorem 6.3 Work and Energy with Varying Forces 6.4 Power
<b>7</b>	<b>Potential Energy and Energy Conservation</b> 7.1 Gravitational Potential Energy 7.2 Elastic Potential Energy 7.3 Conservative and Non-Conservative Forces 7.4 Force and Potential Energy
<b>8</b>	<b>Momentum, Impulse, and Collisions</b> 8.1 Momentum and Impulse 8.2 Conservation of Momentum 8.3 Momentum Conservation and Collisions 8.4 Elastic Collisions 8.5 Centre of Mass (No Integrals)
<b>9</b>	<b>Rotation of Rigid Bodies</b> 9.1 Angular Velocity and Acceleration 9.2 Rotation with Constant Angular Acceleration 9.3 Relating Linear and Angular Kinematics 9.4 Energy in Rotational Motion 9.5 Parallel-Axis Theorem
<b>10</b>	<b>Dynamics of Rotational Motion</b> 10.1 Torque 10.2 Torque and Angular Acceleration for a Rigid Body 10.4 Work and Power in Rotational Motion 10.5 Angular Momentum 10.6 Conservation of Angular Momentum
<b>11</b>	<b>Equilibrium and Elasticity (self-reading)</b> 11.1 Conditions for Equilibrium 11.2 Centre of Gravity 11.3 Solving Rigid-Body Equilibrium Problems

**Course Coordinator:**

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**Course web site:** Students of all sections of physics 101 are required to frequently check the announcements written at the course e-learning web site:  
<https://elearning.ju.edu.jo/moodle10/course/view.php?id=8553>

**Examinations:**

**All exams are multiple-choice and computerized.**

<b>Exam</b>	<b>Weight %</b>	<b>Tentative Date</b>	<b>Included Material</b>
<b>First</b>	<b>20 %</b>	<b>To be announced later</b>	<b>Required sections in chapters: 1, 2, 3</b>
<b>Second</b>	<b>30 %</b>	<b>To be announced later</b>	<b>Required sections in chapters: 4, 5, 13, 6, 7</b>
<b>Final</b>	<b>50 %</b>	<b>To be announced later</b>	<b>Required sections in all chapters.</b>

**Good Luck!!!**