

**GENERAL COURSES****BASIC SCIENCE KNOWLEDGE****1. General Physics 1 (PH019IU)**

Course designation	<i>This subject will provide an introduction to mechanics including concepts and principles of kinetics, dynamics, energetics of motion of a particle and a rigid body and provide a basic knowledge of fluid mechanics; macroscopic description of gasses; heat and the first law of thermodynamics; heat engines and the second law of thermodynamics; microscopic description of gasses and the kinetic theory of gasses.</i>
Semester(s) in which the course is taught	1, 2, summer semester
Person responsible for the course	Assoc. Prof. Phan Bảo Ngọc Dr. Phan Hiền Vũ
Language	English
Relation to curriculum	Compulsory
Teaching methods	Lecture, lesson, assignment.
Workload (incl. contact hours, self-study hours)	(Estimated) Total workload: 170 Contact hours (please specify whether lecture, exercise, laboratory session, etc.): lecture: 50 Private study including examination preparation, specified in hours: 120
Credit points/ECTS	4 credits/6.16 ECTS
Required and recommended prerequisites for joining the course	None



Course learning outcomes	Upon the successful completion of this course students will be able to:	
	<b>Competency level</b>	<b>Course learning outcome (CLO)</b>
	Knowledge	CLO1. Understand basic knowledge of kinematics, dynamics, and laws of conservation of a mechanical system.  CLO2. Understand basic knowledge of fluid mechanics, laws of thermodynamics, and the kinetic theory of an ideal gas.  CLO3. Apply knowledge of physics to solving problems in science and engineering
	Skill	CLO4. Apply skills to analyzing and solving problems in science and engineering
Attitude	CLO5. Communicate effectively in writing manner	



<p>Content</p>	<p><i>The description of the contents should clearly indicate the weighting of the content and the level.</i></p> <p>Weight: lecture session (2 hours)</p> <p>Teaching levels: I (Introduce); T (Teach); U (Utilize)</p> <table border="1" data-bbox="542 465 1401 1554"> <thead> <tr> <th>Topic</th> <th>Weight</th> <th>Level</th> </tr> </thead> <tbody> <tr> <td>Chapter 1: Bases of Kinematics</td> <td>2</td> <td>I, T,U</td> </tr> <tr> <td>Chapter 2: The Law of Motion</td> <td>2</td> <td>I, T,U</td> </tr> <tr> <td>Chapter 3: Work and Mechanical Energy</td> <td>2</td> <td>I, T,U</td> </tr> <tr> <td>Chapter 4: Linear Momentum and Collisions</td> <td>2</td> <td>I, T,U</td> </tr> <tr> <td>Chapter 5: Rotation of a Rigid Object About a Fixed Axis</td> <td>2</td> <td>I, T,U</td> </tr> <tr> <td>Chapter 6: Equilibrium and Elasticity</td> <td>2</td> <td>I</td> </tr> <tr> <td>Chapter 7: Universal Gravitation</td> <td>2</td> <td>I</td> </tr> <tr> <td>Chapter 1: Fluid Mechanics</td> <td>2</td> <td>I, T,U</td> </tr> <tr> <td>Chapter 2: Temperature, Heat, and the First Law of Thermodynamics</td> <td>4</td> <td>I, T,U</td> </tr> <tr> <td>Chapter 3: The Kinetic Theory of Gasses</td> <td>5</td> <td>I, T,U</td> </tr> <tr> <td>Chapter 4: Entropy and the Second Law of Thermodynamics</td> <td>4</td> <td>I, T,U</td> </tr> </tbody> </table>	Topic	Weight	Level	Chapter 1: Bases of Kinematics	2	I, T,U	Chapter 2: The Law of Motion	2	I, T,U	Chapter 3: Work and Mechanical Energy	2	I, T,U	Chapter 4: Linear Momentum and Collisions	2	I, T,U	Chapter 5: Rotation of a Rigid Object About a Fixed Axis	2	I, T,U	Chapter 6: Equilibrium and Elasticity	2	I	Chapter 7: Universal Gravitation	2	I	Chapter 1: Fluid Mechanics	2	I, T,U	Chapter 2: Temperature, Heat, and the First Law of Thermodynamics	4	I, T,U	Chapter 3: The Kinetic Theory of Gasses	5	I, T,U	Chapter 4: Entropy and the Second Law of Thermodynamics	4	I, T,U
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<p>Examination forms</p>	<p>Exam</p>																																				
<p>Study and examination requirements</p>	<p><i>Attendance:</i> A minimum attendance of 80 percent is compulsory for the class sessions. Students will be assessed on the basis of their class participation. Questions and comments are strongly encouraged.</p> <p><i>Assignments/Examination:</i> Students must have more than 50/100 points overall to pass this course.</p>																																				



Reading list	<p>[1] Lecture Notes</p> <p>[2] Halliday D., Resnick R. and Walker, J. (2011) <i>Principles of Physics</i>, 9<sup>th</sup> edition, John Willey and Sons, Inc.</p> <p>[3] Alonso M. and Finn E.J. (1992) <i>Physics</i>, Addison-Wesley Publishing Company.</p> <p>[4] Faughn/Serway (2006) <i>Serway's College Physics</i>, Thomson Brooks/Cole.</p>
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