2. General Physics 1 Lab (PH020IU)

Course designation	*This subject is an experimental course that provides students necessary skills to do experiment of mechanics, thermodynamics, and fluid mechanics.*
Semester(s) in which the course is taught	1, 2, summer semester
Person responsible for the course	MSc. Trịnh Thanh Thủy
Language	English
Relation to curriculum	Compulsory
Teaching methods	Experiment, writing report
Workload (incl. contact hours, self-study hours)	(Estimated) Total workload: 110 Contact hours (please specify whether lecture, exercise, laboratory session, etc.): lecture: 50 Private study including examination preparation, specified in hours: 60
Credit points/ECTS	2 credits/4 ECTS
Required and recommended prerequisites for joining the course	Parallel course: General Physics 1 (PH019IU)

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<tr><td>Course learning outcomes</td><td>Upon the successful completion of this course students will be able to:<table>
<tr><th>Competency level</th><th>Course learning outcome (CLO)</th></tr>
<tr><td>Knowledge</td><td>CLO1. Understand basic knowledge of law of conservations and dynamics of rigid body and of the kinetic energy of ideal gas and the second law of thermodynamics.</td></tr>
<tr><td>Skill</td><td>CLO2. Approach and solve problems in Mechanic and Thermodynamics experiments
CLO3. Write scientific report, have understanding the relations between theory and experiment</td></tr>
<tr><td>Attitude</td><td>CLO4. Communicate effectively in writing manner</td></tr>
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<tr><td>Content</td><td>The description of the contents should clearly indicate the weighting of the content and the level.
Weight: experiment session (4 hours)
Teaching levels: I (Introduce); T (Teach); U (Utilize)
<table>
<tr><th>Topic</th><th>Weight</th><th>Level</th></tr>
<tr><td>Projectile motion</td><td>1</td><td>T,U</td></tr>
<tr><td>Newton’s law of motion</td><td>1</td><td>T,U</td></tr>
<tr><td>Conservation of momentum</td><td>1</td><td>T,U</td></tr>
<tr><td>Conservation of angular momentum</td><td>1</td><td>T,U</td></tr>
<tr><td>Rotational inertia</td><td>1</td><td>T,U</td></tr>
<tr><td>Sliding friction</td><td>1</td><td>T,U</td></tr>
<tr><td>Pendulum</td><td>1</td><td>T,U</td></tr>
<tr><td>Vibrating Strings</td><td>1</td><td>T,U</td></tr>
<tr><td>Gyroscope</td><td>1</td><td>T,U</td></tr>
<tr><td>Bernoulli’s principle</td><td>1</td><td>T,U</td></tr>
<tr><td>Ideal gas law</td><td>1</td><td>T,U</td></tr>
<tr><td>Boyle’s law and Gay-Lussac’s law</td><td>1</td><td>T,U</td></tr>
<tr><td>Heat engine cycles</td><td>1</td><td>T,U</td></tr>
<tr><td>Blackbody radiation</td><td>1</td><td>T,U</td></tr>
</table></td></tr>
<tr><td>Examination forms</td><td>Experiment, write report</td></tr>
<tr><td>Study and examination requirements</td><td>Attendance: 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.
Assignments/Examination: Students must have more than 50/100 points overall to pass this course.</td></tr>
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Reading list	[1] Lab manual, PASCO Scientific [2] Halliday D., Resnick R. and Walker, J. (2011) *Principles of Physics*, 9th edition, John Willey and Sons, Inc. [3] Alonso M. and Finn E.J. (1992) *Physics,* Addison-Wesley Publishing Company. [4] Faughn/Serway (2006) *Serway's College Physics*, Thomson Brooks/Cole.