Subject Description Form

Subject Code	AP00002
Subject Title	Foundation Physics I
Credit Value	3
Level	0
Pre-requisite/ Co-requisite/ Exclusion	Nil
Objectives	To provide students with fundamental knowledge in physics focusing on the topics of mechanics and thermal physics.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: (a) grasp a basic understanding in selected fundamental physical principles in mechanics and thermal physics; (b) solve real-life problems based on the physical principles; and (c) appreciate the importance of some physical principles as employed in various branches of engineering.
Subject Synopsis/ Indicative Syllabus	**Mechanics**: scalars and vectors; displacement, velocity and acceleration; motion along a straight line; projectile motion; Newton's laws of motions; addition and resolution of forces; work, energy and power; conservation of energy; momentum, impulse and collision; conservation of momentum. **Thermal physics**: temperature and thermometer; heat and internal energy; heat capacity; change of state and latent heat; conduction, convection and radiation; evaporation; general gas law.
Teaching/Learning Methodology	**Lecture**: The fundamentals in mechanics and thermal physics will be explained. Examples will be used to illustrate the concepts and ideas in the lecture. The students are free to request help. Homework problem sets will be given. The students are encouraged to solve problems and to use their own knowledge to verify their solutions before seeking assistance. **Student-centered Tutorial**: Students work on a set of problems in the tutorials. Students are encouraged to try to solve problems before seeking assistance. These problem sets provide them opportunities to apply the knowledge gained from the lecture. They also help the students consolidate what they have learned. Furthermore, students can develop a deeper understanding of the subject in relation to engineering science.

Assessment Methods in Alignment with Intended Learning Outcomes

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)		
		a	b	c
(1) Continuous assessment	40	✓	✓	✓
(2) Examination	60	✓	✓	✓
Total	100			

Homework problem sets and tests (assessment method 1) and a final written examination (assessment method 2) all require demonstration of basic understanding of the relevant physics (a), good problem solving skills (b), and being able to relate the fundamental physics to engineering problems (c).

The continuous assessments aim at checking the progress of students study throughout the course, assisting them in self-monitoring of fulfilling the learning outcomes. The examination will be used to assess the knowledge acquired by the students; as well as to determine the degree of achieving the learning outcomes.

Student Study Effort Expected

Class contact:	
• Lecture	26 h
• Tutorial	13 h
Other student study effort:	
• Self-study	81 h
Total student study effort	120 h

Reading List and References

John D. Cutnell & Kenneth W. Johnson, **Introduction to Physics**, 9th edition, 2013, John Wiley & Sons.

Giambattista, Richardson and Richardson, **Physics**, 2nd edition, 2010, MaGraw-Hill.