

## Subject Description Form

<b>Subject Code</b>	AP10004
<b>Subject Title</b>	Physics Experiments
<b>Credit Value</b>	1
<b>Level</b>	1
<b>Pre-requisite/ Co-requisite/ Exclusion</b>	Nil
<b>Objectives</b>	To provide the students with hands-on experience in the operation of various kinds of physical instruments and to apply their knowledge in physical principles for practical applications.
<b>Intended Learning Outcomes</b>	Upon completion of the subject, students will be able to:  (a) apply the principles, methodologies and skills for experimental observation and interpretation for scientific and engineering purposes; (b) analyze, evaluate, synthesize and propose solutions to problems of a general nature with innovative/creative ideas where appropriate; and (c) to collaborate smoothly with others in teamwork.
<b>Subject Synopsis/ Indicative Syllabus</b>	Suggested Experiments:  1. Linear motion and Newton's Laws 2. Artwood's Machine and Kinetic Friction 3. Physical Pendulum 4. Specific Heat of objects 5. Ideal Gas Law 6. Heat Engine Cycle 7. Sound Waves and Standing Waves 8. Light Intensity and Polarization 9. Interference from a Single-slit and a Double-slit 10. Electrostatic system 11. Magnetic Fields 12. Electromagnetic induction
<b>Teaching/Learning Methodology</b>	<b>Laboratory:</b> Twelve experiments will be conducted. They cover the whole range of fundamental physics, i.e. mechanics, heat, wave, light, and electromagnetism. Students will work in groups and conduct the experiments under the guidance of teaching staff. They are required to analyze their experimental results using basic physical principles. They also have to answer preset questions and complete laboratory reports before they leave the laboratory.

<b>Assessment Method in Alignment with Intended Learning Outcomes</b>	Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)		
			a	b	c
	Laboratory Reports	70	✓	✓	✓
	Participation	30	✓		✓
	Total	100			
	<p>Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:</p> <p>Method 1 is designed to assess how the students can apply their knowledge and whether they can provide a solution to a practical problem, which are the learning outcomes of (a) and (b). It also encourages the students to work in groups, which is outcome (c).</p>				
<b>Student Study Effort Required</b>	Class contact				
	• Laboratory		36 h		
	Total student study effort		36 h		
<b>Reading List and Reference</b>	John W. Jewett and Raymond A. Serway, “Physics for Scientists and Engineers”, 2010, 8th edition, Brooks/Cole Cengage Learning.				
	W. Bauer and G.D. Westfall, “University Physics with Modern Physics”, 2011, McGraw-Hill.				