

## Course Syllabus

- 1. Name of Curriculum** Bachelor of Science Program  
Mahidol University International Program
- 2. Course Code** ICPY 210      **Course Title** General Physics
- 3. Number of Credits** 4 (Lecture/Lab) (3 / 1)
- 4. Prerequisites** ICNS 132 Principles Of Physics
- 5. Type of Course** General Education for Bachelor of Science Program
- 6. Trimester/Academic Year** Third Trimester / 2011-2012

### 7. Course Description

The second introductory course for biological science and food science majors that will include theory and laboratory techniques in mechanics, heat, waves, electricity and magnetism, dc and ac electrical circuits. Elementary calculus will be used.

### 8. Course Objectives

1. To provide students an understanding of the fundamental principles of physics and its applications with emphasis on thermodynamics, sound and optics, electricity and electrical circuits.
2. Students should be able to solve basic problems using fundamental equations developed in the areas listed above.
3. Students should be able to apply fundamental principles of these fields of study to new situations
4. Students should be able to use and handle some physical instruments
5. Students should be able to perform and explain the aims and techniques in various physical experiments

## 9. Course Outline

Week	Topic				Instructor
	lecture	Hour	Lab	Hour	(Lecture/Lab)
1. 28/05/2012	Systems, process and thermal Equilibrium temperature, pressure	2		-	A. Santi (6/0)
30/05/2012	Ideal gas and kinetic theory of gas. Basic concept of heat, heat capacity, latent heat	4	-	-	
2. 04/06/2012	<b>Holiday</b>	-	Lab.1 06/06/2012 Lab.2 06/06/2012	4	A. Santi (2/4) A. Narin (0/4)
3. 11/06/2012	Heat transfer, work and the first law of thermodynamics.	2	Lab.3 13/06/2012 Lab.4 13/06/2012	4	A. Santi (2/4) A. Narin (0/4)
4. 18/06/2012	The first law of thermodynamics and its applications	2	Lab.5 20/06/2012 Lab.6 20/06/2012	4	A.Santi (2/4) A.Nalin (0/4)
5. 25/06/2012	The second law of thermodynamics and its applications	2	Lab.7 27/06/2012 Lab.8 27/06/2012	4	A. Santi (2/4) A. Narin (0/4)
6. 02/07/2012	Waves, basic properties of waves, standing wave, node and antinode, beating of waves	2	Lab.9 04/07/2012 Lab.10 04/07/2012	4	A. Santi (2/4) A. Narin (0/4)
7. 09/07/2012 & 11/07/2012	<b>Midterm Exam</b>  Sound wave and light wave.	2&2		-	A. Santi (4/0)
8. 16/07/2012 & 18/07/2012	Electrostatic, electric force and field, electric potential energy	2&2	-	-	A. Santi (4/0)
9. 23/07/2012 & 25/07/2012	Electric potential energy and their applications	2&2	-	-	A. Santi (4/0)
10. 30/07/2012 & 01/08/2012	Direct current and dc circuits, applications. Alternating currents	2&2	-	-	A. Santi (4/0)
11. 06/08/2012 & 08/08/2012	AC circuits, some basic ac instruments and their applications	2&2	-	-	A. Santi (4/0)
12.	<b>Final Exam</b>		-	-	A. Santi
	<b>Total</b>	<b>34</b>		20	

Note    Laboratory 1. Moment of Inertia  
           Laboratory 2. Rotational Motion down a Slope  
           Laboratory 3. Simple Harmonic Motion  
           Laboratory 4. Viscosity  
           Laboratory 5. Calorimeter  
           Laboratory 6. Lens  
           Laboratory 7. Multimeter  
           Laboratory 8. Wheatstone Bridge  
           Laboratory 9. Cathode Ray Oscilloscope  
           Laboratory 10. Beat of Sound

#### **10 Teaching Methods**

Lecturing and classroom discussion

#### **11. Teaching Media**

Transparencies and handouts

#### **12. Course Achievement**

Final letter grades will be assigned on a curve

#### **13. Course Evaluation**

Attendance, assignment and quiz	20%
Lab assignment	25%
Midterm examination	25%
Final Examination	30%
<u>Total</u>	100%

#### **14. References**

1. J. W. KANE and M. M. STERNHEIM, Physics, John Wiley & Sons, 1988.
2. D. Halliday, R. Resnick and J. Walker, Fundamental of Physics, John Wiley & Sons, 2001.

#### **15. Lecture Instructor**

Assistant Professor Dr. Santi Watanayon

#### **16. Laboratory Instructors**

Assistant Professor Dr. Santi Watanayon  
 and Assistant Professor Dr. Narin Nattavut

#### **17. Course Coordinator**

Assistant Professor Dr. Santi Watanayon