



Course Code and Course Title	Thai วิทยาศาสตร์เบื้องต้น English SCPY 177 Basic Physics
Number of Credits	2 (2-0-4) (Lecture 3 hours – Laboratory 0 hour/week - Self-Study 4 hours/week)
Curriculum and Course Type	Program of Study Bachelor’s Degree Program in Science and Technology (International Program, Multidisciplinary Program) Course Type Major Course
Course Coordinator	Assoc. Prof. Wannapong Triampo, Ph.D. Address: Department of Physics, Faculty of Science, Mahidol University 272 Rama VI Road, Ratchathewi District, Bangkok 10400, THAILAND Tel. 02-201-5770-1 e-mail: wtriampo@gmail.com , wannapong.tri@mahidol.edu
Semester/Year of Study	Academic Year 2020 First Semester (1/2020) / First Year
Prerequisite	None
Co-requisite	None
Day/Time/Study Site Location	Thursday / 08.30AM-10.30AM Faculty of Science, Mahidol University, Salaya Campus (ONLINE)
Date of Latest Revision	12 July 2020

Course Learning Outcomes (CLOs)

After finishing the course, successful students are expected to be able to

CLO1 give qualitative explanations for a variety of natural phenomena from everyday life using basic physics principles in the areas of (i) classical mechanics, (ii) mechanical waves, (iii) fluid mechanics, (iii) thermodynamics, (iv) electromagnetism, (v) quantum mechanics, (vi) atomic and nuclear physics

CLO2 apply appropriate physics concepts to analyze introductory level physics problems in the areas of (i) classical mechanics, (ii) mechanical waves, (iii) fluid mechanics, (iii) thermodynamics, and (iv) electromagnetism, (v) quantum mechanics, (vi) atomic and nuclear physics

CLO3 use appropriate mathematical techniques and concepts to obtain quantitative solutions to introductory level physics problems in the areas of (i) classical mechanics, (ii) mechanical waves, (iii) fluid mechanics, (iii) thermodynamics, and (iv) electromagnetism, (v) quantum mechanics, (vi) atomic and nuclear physics

Course Description

Basic mechanics, temperature and heat, fluid, waves, sound and hearing, optics and visualization, basic electromagnetism, basic quantum mechanics, basic atomic physics, basic nuclear physics and radioactivity

Credit hours / trimester

Lecture (Hours)	Additional class (Hours)	Laboratory/field trip/internship (Hours)	Self- study (Hours)
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School of Bioinnovation and Bio-based Product Intelligence (SCIN)
 Program in Bioinnovation (International Program, Multidisciplinary Program)
 Course: SCPY 177 Basic Physics

Degree Bachelor Master Doctoral
 Faculty of Science

30 hours (2 hours x 15 weeks)	-	60 hours (4 hour/ 15 weeks)
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Number of hours that the lecture provides individual counseling and guidance

1 hour / week or student requirement during prescribed date and time

Evaluation of the CLOs

Learning Measurement and Evaluation

A. Formative Assessment

Quiz & feedback for all CLOs with weight 40% (of total weight)

B. Summative Assessment

(1) Evaluation Methods and Weight

Course Learning Outcomes	Evaluation Strategies			Weight (%)
	Class Attendance, Participation and Behavior in Class	Written Exam	Class Project Executed without Plagiarism	
CLO1	5%	10%	-	15%
CLO2	5%	10%	-	15%
CLO3	5%	10%	15%	30%
Total	15%	30%	15%	60%

Note: Students have the right to request a review of a grade and appeal evaluation decisions

(Mahidol University Disciplinary Measures 2010)

Measurement and evaluation

After completion of the evaluation process each student is assigned a criterion-referenced grade (as shown in the table below). Evaluation and achievement will be justifying according to Faculty and University code, conducted by grading system of A, B+, B, C+, C, D and F. To pass this course, student must earn a grade of a least D.

The tentative Grade evaluation

Total Percentage of Evaluation	Below 50	50-54.99	55-59.99	60-64.99	65-69.99	70-74.99	75-79.99	80-100
Grade	F	D	D+	C	C+	B	B+	A

Teaching staff:

Code	Name	Email
WT	Wannapong Triampo R3/1- SC 3 Building N (MUSC-Salaya)	wtriampo@gmail.com, wannapong.tri@mahidol.edu



Teaching Schedule 1st Semester of Academic Year 2020

Teaching Plan

Teaching plan

Week	Topic		Teaching methods/ multimedia	Instructor
1 13Aug	Introduction of course discipline and class orientation. Basic Mechanics & motion	2	Think-Pair-Share Game based learning Active lecture	Assoc. Prof. Wannapong Triampo
2 20Aug	Basic Mechanics & Energy	2	Brain storming Group discussion Active lecture	Assoc. Prof. Wannapong Triampo
3 27Aug	Basic Mechanics & Fluid	2	Game based learning Group discussion	Assoc. Prof. Wannapong Triampo
4 3Sep	Temperature, and heat	2	Problem based learning Group discussion	Assoc. Prof. Wannapong Triampo
5 10Sep	Temperature, and heat	2	Problem based learning Group discussion	Assoc. Prof. Wannapong Triampo
6 17Sep	Wave	2	Case based learning Group discussion	Assoc. Prof. Wannapong Triampo
7 24Sep	Sound and hearing	2	Case based learning Group discussion	Assoc. Prof. Wannapong Triampo
8 1 Oct	Optics and visualization	2	Project based learning	Assoc. Prof. Wannapong Triampo
9 8 Oct	Midterm examination			Assoc. Prof. Wannapong Triampo
10 15Oct	Basic Electromagnetism (I)	2	Project based learning	Assoc. Prof. Wannapong Triampo
11 22Oct	Basic Electromagnetism (II)	2	Active Lecture, Game-based learning	Assoc. Prof. Wannapong Triampo
12 29 Oct	Modern physics	2	Active Lecture,	Assoc. Prof. Wannapong Triampo
13 5 Nov	Atomic physics and applications (I)	2	Active Lecture, Problem-based learning	Assoc. Prof. Wannapong Triampo
14 19 Nov	Atomic physics and applications (II)	2	Active Lecture, Problem-based learning	Assoc. Prof. Wannapong Triampo



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Week	Topic	Teaching methods/ multimedia		Instructor
15 26 Nov	Nuclear physics and radioactivity (I)	2	Active Lecture, Project-based learning discussion	Assoc. Prof. Wannapong Triampo
16 3 Dec	Nuclear physics and radioactivity (II)	2	Active Lecture, Project-based learning	Assoc. Prof. Wannapong Triampo
17 11 Dec	Final examination			Assoc. Prof. Wannapong Triampo
	Total hours	30		

Teaching Materials and Resources

Texts: Fundamentals of Physics 8-10th Edition by David Halliday, Robert Resnick (Author), Jearl Walker (Author)