



School of Bioinnovation and Bio-based Product Intelligence (SCIN)
 Program in Bioinnovation (International Program, Multidisciplinary Program)
 Course: SCGI 281 STEM in the Daily Life and Careers

Degree Bachelor Master Doctoral
 Faculty of Science

Course Code and Course Title	Thai วิชาศน ๒๘๑ สะเต็มในชีวิตประจำวันและอาชีพ English SCGI 281 STEM in the Daily Life and Careers
Number of Credits	2 (2-0-4) (Lecture 2 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 2023 First Semester (1/2023) /
Prerequisite	None
Co-requisite	None
Day/Time/Study Site Location	Thursday / 13.30-15.30 Faculty of Science, Mahidol University, Salaya Campus (ONLINE)
Date of Latest Revision	2 Auguste 2023

Course Learning Outcomes (CLOs)

After successful completion of this course, students will be able to:

- CLO1: Explain what STEM is and why it is important.
- CLO2: Apply STEM to effectively solve problems especially relating to daily life experiences and ca-reers.
- CLO3: Create new product(s), or process (es) or principle(s) thru STEM based learning to possibly benefit others.

Course Description

What and Why is STEM?; STEM vs. STEAM; Innovative vs. disruptive technology ; Engineering physics STEM; Food chemistry STEM; Health and medicine STEM; Internet of Things STEM; Artificial Intelligence STEM; Fo-rensic STEM

Credit hours / trimester

Lecture (Hours)	Additional class (Hours)	Laboratory/field trip/internship (Hours)	Self- study (Hours)
30 hours (2 hours x 15 weeks)	-		60 hours (4 hour/ 15 weeks)

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

Week	Topic	Hours			Teaching methods/ multimedia	Instru ctor
		Lectu re	Lab	Self- study		
1 10Aug	Introduction of the course discipline and class orientation. What and Why is STEM ?	2	0	4	Group discussion Active lecture GBL	Instruc tor (s) from the faculty of Scienc e, Mahid ol Univers ity or invited instruc tor(s)
2 17 Aug	STEM vs. STEAM Innovative vs. disruptive technology	2	0	4	Group discussion Active lecture GBL	
3 24 Aug	Engineering physics STEM	2	0	4	Group discussion Active lecture	
4 31 Aug	Engineering physics STEM	2	0	4	Group discussion Active lecture PBL	
5 7 Sep	Food chemistry STEM	2	0	4	Group discussion Active lecture	
6 14 Sep	Food chemistry STEM	2	0	4	Group discussion Active lecture PBL	
7 21 Sep	Health and medicine STEM	2	0	4	Group discussion Active lecture	
8 28 Sep	Health and medicine STEM	2	0	4	Group discussion Active lecture PBL	
9 5 Oct	Midterm examination					
10 12 Oct	Internet of Things STEM	2	0	4	Group discussion Active lecture	Instruc tor (s) from the faculty of Scienc e, Mahid ol Univers ity or invited instruc tor(s).
11 19 Oct	Internet of Things STEM	2	0	4	Group discussion Active lecture PBL	
12 26 Oct	Artificial Intelligence STEM	2	0	4	Group discussion Active lecture Oral presentation	
13 2 Nov	Artificial Intelligence STEM	2	0	4	Active Lecture, Group discussion PBL	
14 9 Nov	Forensic STEM	2	0	4	Active Lecture, Group discussion Case Study	
15 16 Nov	Forensic STEM	2	0	4	Active Lecture, Case study	
16 23 Nov	STEM Project	2	0	4	PBL	



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Week	Topic	Hours			Teaching methods/ multimedia	Instru ctor
		Lectu re	Lab	Self- study		
17 30 Nov	Final examination					
	Total hours	30	0	60		