



<b>Course Code and Course Title</b>	Thai วิชาศน ๒๘๑ สะเต็มในชีวิตประจำวันและอาชีพ English SCGI 281 STEM in the Daily Life and Careers
<b>Number of Credits</b>	2 (2-0-4) (Lecture 2 hours – Laboratory 0 hour/week - Self-Study 4 hours/week)
<b>Curriculum and Course Type</b>	Program of Study Bachelor’s Degree Program in Bioinnovation (International Program, Multidisciplinary Program) Course Type Major Course
<b>Course Coordinator</b>	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: <a href="mailto:wtriampo@gmail.com">wtriampo@gmail.com</a> , wannapong.tri@mahidol.edu
<b>Semester/Year of Study</b>	Academic Year 2021 First Semester (1/2020) / First Year
<b>Prerequisite</b>	None
<b>Co-requisite</b>	None
<b>Day/Time/Study Site Location</b>	Thursday / 10.30AM-12.30AM Faculty of Science, Mahidol University, Salaya Campus (ONLINE)
<b>Date of Latest Revision</b>	27 July 2021

**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 careers.
- 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; Forensic 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%
<b>Total</b>	<b>15%</b>	<b>30%</b>	<b>15%</b>	<b>60%</b>

**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	70-79.99	80-89.99	90-100
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 1<sup>st</sup> Semester of Academic Year 2021

Teaching Plan

Week	Topic	Hours			Teaching methods/ multimedia	Instru ctor
		Lectu re	Lab	Self- study		
1 12Aug	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 19 Aug	STEM vs. STEAM Innovative vs. disruptive technology	2	0	4	Group discussion Active lecture GBL	
3 26 Aug	Engineering physics STEM	2	0	4	Group discussion Active lecture	
4 2 Sep	Engineering physics STEM	2	0	4	Group discussion Active lecture PBL	
5 9 Sep	Food chemistry STEM	2	0	4	Group discussion Active lecture	
6 16 Sep	Food chemistry STEM	2	0	4	Group discussion Active lecture PBL	
7 23 Sep	Health and medicine STEM	2	0	4	Group discussion Active lecture	
8 30 Sep	Health and medicine STEM	2	0	4	Group discussion Active lecture PBL	
9 7 Oct	<b>Midterm examination</b>					
10 14 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 21 Oct	Internet of Things STEM	2	0	4	Group discussion Active lecture PBL	
12 28 Oct	Artificial Intelligence STEM	2	0	4	Group discussion Active lecture Oral presentation	
13 4 Nov	Artificial Intelligence STEM	2	0	4	Active Lecture, Group discussion PBL	
14 11 Nov	Forensic STEM	2	0	4	Active Lecture, Group discussion Case Study	
15 18 Nov	Forensic STEM	2	0	4	Active Lecture, Case study	
16 25 Nov	STEM Project	2	0	4	PBL	



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

Week	Topic	Hours			Teaching methods/ multimedia	Instru ctor
		Lectu re	Lab	Self- study		
17 2 Dec	Final examination					
	Total hours	30	0	60		