Course Syllabus

Department of Mechanical Engineering

Program name: Bachelor of Engineering Program in Mechanical Engineering,
                       Faculty of Engineering
Course Code: EGME 199
Course Title: Mechanical Engineering Project I
Number of Credits: 1 (0-3-1) Lecture 0 hr – Lab 3 hr – Self Study 1 hr
Class Schedule: 3 hours per week for one semester
Semester/Academic Year: 2/2018
Course Coordinator:

> Dr. Jetsadaporn Priyadumkol
> Department of Mechanical Engineering
> Room 4018 Floor 4 Building 1
> Faculty of Engineering, Mahidol University
> Tel. 02-889-2138 Ext. 6401-3
> E-mail: Jetsadaporn.pri@mahidol.ac.th

Instructor(s):

1. Asst.Prof.Dr.Chokchai Chutakositkanon
2. Dr. Jetsadaporn Priyadumkol
3. Dr. Chawannat Jaroenkhasemmeesuk
4. Dr. Machimontorn Promtong

Pre-requisite(s):   None
Co-requisite(s):   None
Status: Required
Texts/References: EGME Staffs, Lecture Notes

Course Description:

Group project for the first-year mechanical engineering students; applications of basic mathematics, basic mechanics, and computer-aided design

Course Objectives:

After the course students will be able to:

1. Identify engineering problems by applying principles of mathematics and science (from that year).
2. Generate creative and feasible alternative solutions to open-ended design problems, using precedent, lessons learned, and problem-solving tools
3. Write and edit precise and concise design reports
4. Recognize participant roles in a team setting
5. Apply modern engineering tools for solving problems and engineering practice

Course Learning Outcomes: CLOs

Student Outcomes (SOs)	Performance Indicators (PIs)	Course Learning Outcomes (CLOs)

Student Outcomes (SOs)	Performance Indicators (PIs)	Course Learning Outcomes (CLOs)
SO1 An ability to identify, formulate, and solve complex mechanical engineering problems by applying principles of engineering, science, and mathematics	PI 1.1 An ability to identify mechanical engineering problems by applying principles of engineering, science, and mathematics	CLO1 Identify applying principles of mathematics and science in problems
Rubric score for group assessment (Internet surfing / Topic discussion)		
SO2 An ability to apply mechanical engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors	PI 2.1 An ability to generate creative and feasible alternative solutions to open-ended design problems, using precedent, lessons learned, and problem solving tools	CLO2 Select creative and feasible alternative solutions to design problems
Rubric score for group assessment (Problem solving tools) Rubric score for individual assessment (Critical thinking)		
SO3 An ability to communicate effectively with a range of audiences	PI 3.1 An ability to write and edit precise and concise engineering design reports, including technical content that is factually correct, supported with evidence, explained with sufficient detail and properly document	CLO3 Write and edit precise and concise design reports
Rubric score for group assessment (Overall of term project) Rubric score for individual assessment (Pitch presentation / Pitch desk / Term project presentation)		
PLO5 An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives	PI 5.1 An ability to recognize participant roles in a team setting and to fulfill appropriate roles to assure team success	CLO4 Recognize participant roles in a team setting
Rubric score for group assessment (Overall of term project) Rubric score for individual assessment (Peer assessment)		
PLO7 An ability to acquire and apply new knowledge as needed, using appropriate learning strategies	PI 7.1 An ability to apply modern engineering tools for solving engineering problems and engineering practice	CLO5 Apply modern engineering tools for solving problems and engineering

Student Outcomes (SOs)	Performance Indicators (PIs)	Course Learning Outcomes (CLOs)
Rubric score for group assessment (Assembly-Modeling: Advanced mate / Animation)		

Assessment Criteria:
- Direct Assessment:
    1. Classroom Participant (30%)
    2. In-Class Assignments (30%)
    3. Term Project (40%)

- Indirect Assessment:
    1. Student survey by the Faculty of Engineering, Mahidol University
    2. Employer survey

Week #	Topics/ details	Number of hours			*Teaching Activities/ Media	Instructors
		Class room sessions	Practice sessions	Self-study sessions		
1 18 Jan 2019	Course introduction	0	3	1	Discussion/ Asking Question/Case Study	]all[
2 25 Jan 2019	Internet surfing / Topic discussion	0	3	1	Discussion/ Asking Question/Case Study/Homework	[1][4]
3 1 Feb 2019	Pitch presentation / Pitch desk	0	3	1	Discussion/ Asking Question/Case Study	[4]
4 8 Feb 2019	Critical thinking	0	3	1	Discussion/ Asking Question/Case Study	[1]
5 15 Feb 2019	Problem solving tools	0	3	1	Discussion/ Asking Question/Case Study	[3]
6 22 Feb 2019	Assembly-Modeling: Advanced mate No.1	0	3	1	Discussion/ Asking Question/Case Study	[2]
7 1 Mar 2019	Assembly-Modeling: Advanced mate No.2	0	3	1	Discussion/ Asking Question/Case Study /Group Assignment	[2]
8 8 Mar 2019	Progressive presentation	0	3	1	Discussion/ Asking Question/Case Study /Group Assignment	]all[
CLO1,2,4,5 evaluate from question/case study in class and rubric score in term of overall in project/group assignment						
9	Assembly-Modeling:	0	3	1	Project/Problem	[2]

Week #	Topics/ details	Number of hours			*Teaching Activities/ Media	Instruct ors
		Class room sessio ns	Practice sessions	Self-study sessions		
22 Mar 2019	Animation No.1				Based/ Group Assignment	
10 29 Mar 2019	Assembly-Modeling: Animation No.2	0	3	1	Project/Problem Based/ Group Assignment	[2]
11 5 Apr 2019	Presentation improvement	0	3	1	Project/Problem Based/ Group Assignment	[3]
12 12 Apr 2019	Project preparation	0	3	1	Project/Problem Based/ Group Assignment	[all]
13 19 Apr 2019	Term project presentation #1	0	3	1	Project/Problem Based/ Group Assignment	]all[
14 26 Apr 2019	Term project presentation #2	0	3	1	Project/Problem Based/ Group Assignment	]all[
15 3 May 2019	Course conclusion	0	3	1	Project/Problem Based/ Group Assignment	]all[
CLO1-5 evaluate using rubric score in term of teamwork in project/group assignment and peer review						
	Total	*0*	*45*	*15*		

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