Introduction to Mechatronics

Basic Course Information

Course Number	01005072	**Subject Category**	Compulsory (M)
Class Format	Lecture	**Credit Type and Number of Credits**	1
Department	Mechatronics	**Student Category**	Year 1
Period of Study	Semester 2	**Classes per Week**	2
Required Materials	TBA		
Instructor	Apichat Chaiseaporn	Dr.Wutipong Preechaphonkul	

Course Objective

In this course, students will learn how mechanical engineering technology is applied to a daily use products. In addition, overview of the individual technology in the mechanical engineering will introduced. Through this course, students can be achieved in three main objects as follows.
(1) To be able to explain the mechanical technology in the daily use products.
(2) Understand an overview of the individual technologies that consist of mechanical engineering.
(3) To be able to explain the role of mechanical engineering.

Evaluation(Rubric)	Ideal Level of Achievement (Very Good)	Standard Level of Achievement (Good)	Unacceptable Level of Achievement (Fail)
To be able to explain the mechanical technology in the daily use products.	To be able to explain the mechanical technology in the daily use products in detail.	To be able to explain outline the mechanical technology in the daily use products.	Cannot be able to explain the mechanical technology in the daily use products.
Understand an overview of the individual technologies that consist of mechanical engineering.	Deeply understand an overview of the individual technologies that consist of mechanical engineering, and apply it to design.	Understand an overview of the individual technologies that consist of mechanical engineering, and explain how to use it.	Cannot understand an overview of the individual technologies that consist of mechanical engineering.
To be able to explain the role of mechanical engineering.	To be able to explain the role of mechanical engineering in detail, and apply it to design.	To be able to explain outline the role of mechanical engineering.	Cannot be able to explain outline the role of mechanical engineering.

Relationship with Learning Outcomes
M(1) Ability to design, propose and develop robotic/ mechatronic systems to solve specific problems
M(3) Ability to design, propose and develop mechanical solutions/ systems for robotic/ mechatronic systems
Please change

Teaching Method	
Outline:	This course provide an introduction to the basic principles of mechanical engineering; history, basics mechanical drawing, and design of mechanical mechatronic elements, basics analysis of forces, basics strength of materials, fundamental of fluid and thermodynamic for mechatronics engineering.
Class Format:	Lecture, groupwork, and presentation
Please Note :	If you have any questions, please ask me anytime during the lecture.

Course Plan

Semester 2	**Contents and Method of Course**	**Goals**	**Related MCC**
			Y-D 4
1st week	Introduction class, explaining to class objective, criteria of score, and expected output, Introduction history and the field of mechanical engineering	Understand class objective, criteria of score, and expected output, Understand overview of daily use mechanical and mechatronics application.	
2nd week	Application of mechanics and mechatronics (1)	Understand overview of daily use mechanical and mechatronics application.	
3rd week	Application of mechanics and mechatronics (2)	Understand ditails of daily use mechanical and mechatronics application.	
4th week	Introduction to Mechanical drawing (1)	Understand basic of mechanical drawing.	
5th week	Introduction to Mechanical drawing (2)	Understand basic mechanical drawing projection method 2 to 3 dimensions.	
6th week	Introduction to Mechanical drawing (3)	Understand basic mechanical drawing projection method 3 to 2 dimensions.	
7th week	Introduction to Mechanical elements (1)	Understand basic of mechanical elements.	
8th week	Introduction to Mechanical elements (2)	Understand basic of mechanical elements, gear tranmission , spring, pipe and valve.	
9th week	Midterm examination	Check your understanding	
10th week	Reflection and Feedback	Reflect midterm examination and feedback to foster understanding.	
11th week	Introduction to Strength of material (1)	Understand basic material dynamics for stress and strain.	
12th week	Introduction to Strength of material (2)	Understand basic material dynamics for sheering and bending moment.	
13th week	Introduction to Fluid dynamics	Understand basic fluid dynamics and its application.	
14th week	Introduction to Thermo dynamics	Understand basic thermo dynamics and its application.	
15th week	Introduction to Mechanical materials	Understand basic mechanical materials.	
16th week	Introduction to Manufacturing process	Understand basic manufacturing process.	
17th week	Introduction to measurement and control	Understand basic measurement and control.	
18th week	Exercises for examination	Promote understanding by exercises.	
19th week	Final examination	Check your understanding	
20th week	Reflection and Feedback	Reflect final examination and feedback to foster understanding.	

Do not

	Examination	**Assignment**	**Total**	**Report**	**Portfolio**	**Other**
Basic Ability	30	10	40			
Technical Ability	40	20	60			
Interdisciplinary Ability						