Mechanical Engineering

Basic Course Information

Course Number	01005120	**Subject Category**	Compulsory (M)
Class Format	Lecture	**Credit Type and Number of Credits**	1
Department	Mechatronics	**Student Category**	Year 5
Period of Study	Semester 1	**Classes per Week**	2
Required Materials			
Instructor	Hironori KIKUGAWA	Wutisoong Preechapoln	Apichat Chaisaporn

Course Objective

The course provides students with introduction of Mechanical engineering in manufacturing. Students study the basis of manufacturing process and systems, and mechanical materials. Through this course, students can be achieved three main objectives as follows.
(1) To be able to explain basic machining principles and methods of cutting.
(2) To be able to explain the properties and types of metallic materials and their characteristics.

Evaluation(Rubric)	Ideal Level of Achievement (Very Good)	Standard Level of Achievement (Good)	Unacceptable Level of Achievement (Fail)
To be able to explain basic machining principles and methods of cutting.	To be able to explain the details of machining principles and methods of cutting.	To be able to explain the outline of machining principles and methods of cutting.	Cannot be able to explain the basic machining principles and methods of cutting.
To be able to explain the properties and types of metallic materials and their characteristics.	To be able to explain the details of properties and types of metallic materials and their characteristics.	To be able to explain the outline of properties and types of metallic materials and their characteristics.	Cannot be able to explain the basic of properties and types of metallic materials and their characteristics.
To be able to explain how to select appropriate machining processes and materials for manufacturing.	To be able to explain the details of how to select appropriate machining processes and materials for manufacturing.	To be able to explain the outline of how to select appropriate machining processes and materials for manufacturing.	Cannot be able to explain the basic of how to select appropriate machining processes and materials for manufacturing.

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

Teaching Method	
Outline:	Machining technology is a major component of the modern mechanical industry.
Class Format:	Lecture
Please Note :	If you have any questions, please ask me anytime during the lecture.

Course Plan

Semester 1	Contents and Method of Course	Goals	Related MCC
1st week	Introduction and history and the field of mechanical engineering	To understand basic history and the field of mechnical engineering.	
2nd week	Introduction to Machining Technology (1)	To understand basic Machining technology.	V-A 5 116 V-A 5 119 V-A 5 123 V-A 5 127 V-A 5 134
3rd week	Introduction to Machining Technology (2)	To understand basic Machining technology.	V-A 5 116 V-A 5 119 V-A 5 123 V-A 5 127 V-A 5 134
4th week	Introduction to measurement and cutting tools	To understand popular measurement and cutting tools.	V-A 8 165 V-A 8 168
5th week	Introduction to machining processing (1)	To understand the technics of the Lathe machine.	V-A 5 128 V-A 5 129 V-A 5 130 V-A 5 131
6th week	Introduction to machining processing (2)	To understand the technics of the Milling machine.	V-A 5 132 V-A 5 133
7th week	No class (School Event)		
8th week	Introduction to machining processing (3)	To understand the theory and conditions of cutting processing.	V-A 5 132 V-A 5 133
9th week	Midterm examination	Check your understanding	
10th week	Midterm examination	Check your understanding	
11th week	Reflection and Feedback	Reflect midterm examination and feedback to foster understanding.	
12th week	Introduction to Mechanical Materials	To understand overview of the mechanical materials.	
13th week	No class (Holiday)		
14th week	Introduction to Crystal structure of metal	To understand basic crystal structure of metal and its mechanical characteristics.	V-A 6 137 V-A 6 138
15th week	Introduction to Material Testing	To understand basic mechanical properties and test methods	V-A 6 139 V-A 6 140 V-A 6 141 V-A 6 142 V-A 6 143
16th week	Introduction to Crystal structure of metal	To understand basic Crystal structure of metal.	V-A 6 144 V-A 6 145
17th week	Introduction to Equilibrium diagram of metal materials	To understand basic equilibrium diagram of metal materials.	V-A 6 146 V-A 6 147 V-A 6 148
18th week	Introduction to Carbon steel	To understand basic characteristics of carbon steel.	V-A 6 149 V-A 6 150 V-A 6 151
19th week	Introduction to Metal Alloy and heat treatment	To understand basic characteristics of metal alloy and its heat treatment.	V-A 6 152 V-A 6 153 V-A 6 154 V-A 6 155
20th week	Final Examination	Check your understanding	
21st week	Reflection and Feedback	Reflect final examination and feedback to foster understanding.	

Do not

	Examination	Assignment	Total			
Basic Ability	0	0	0			
Technical Ability	70	30	100			
Interdisciplinary Ability	0	0	0			