

Automation Technology 2

Basic Course Information			
Course Number	01005134	Subject Category	Compulsory (M)
Class Format	Lecture	Credit Type and Number of Credits	1
Department	Mechatronics	Student Category	Year 5
Period of Study	Semester 2	Classes per Week	1
Required Materials			
Instructor	Kashine Kenji	Thanapol Luckanawat	

Course Objective
The course provides students with the fundamentals of automation technology with a focus on Technologies 4.0. Topics covered in this course include: Electric Actuators, Smart Devices, Artificial Vision Systems, Energy Efficiency System, Human-Machine Interface System.

Evaluation(Rubric)	Ideal Level of Achievement (Very Good)	Standard Level of Achievement (Good)	Unacceptable Level of Achievement (Fail)
Principle of Electric Actuators and Pneumatic Actuators in automation technology	To be able to explain in detail electric actuators/pneumatic actuators and their operating principles, and their applications	To be able to explain electric actuators/pneumatic actuators and their operating principles	Cannot explain electric actuators/pneumatic actuators and their operating principles
Principle of Smart Devices in automation technology	To be able to explain in detail smart devices and their operating principles, and their applications	To be able to explain smart devices and their operating principles	Cannot explain smart devices and their operating principles
Principle of Artificial Vision Systems in automation technology	To be able to explain in detail artificial vision systems and their operating principles, and their applications	To be able to explain artificial vision systems and their operating principles	Cannot explain artificial vision systems and their operating principles
Principle of Energy Efficiency Systems in automation technology	To be able to explain in detail energy efficiency systems and their operating principles, and their applications	To be able to explain energy efficiency systems and their operating principles	Cannot explain energy efficiency systems and their operating principles
Principle of Human-Machine Interface Systems in automation technology	To be able to explain in detail human-machine interface systems and their operating principles, and their applications	To be able to explain human-machine interface systems and their operating principles	Cannot explain human-machine interface systems and their operating principles

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
M(5) Ability to design, propose and develop network systems to control robotic/ mechatronic systems.

Teaching Method	
Outline:	Student will study the fundamentals of automation technology with a focus on Technologies 4.0. Some of the content in this course links to Labwork 10 themes. Therefore, student will apply their knowledge to actual equipment.
Class Format:	Lecture, Practice and Homework Assignments
Please Note :	Students are required to ask any questions after sufficient self-learning

Course Plan				
Semester 2	Contents and Method of Course		Goals	Related MCC
1st week	Guidance, Overview of Automation Technology			

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2nd week	Electric Actuators 1	To be able to explain types of electric actuators and their control methods	
3rd week	Electric Actuators 2	To be able to explain types of electric actuators and their control methods	V-A 8 169
4th week	Energy Efficiency Systems 1	To be able to explain fundamentals of energy and application of energy efficiency systems	
5th week	Energy Efficiency Systems 2	To be able to explain fundamentals of energy and application of energy efficiency systems	
6th week	Holiday		
7th week	Energy Efficiency Systems 3	To be able to explain fundamentals of energy and application of energy efficiency systems	
8th week	Energy Efficiency Systems 4	To be able to explain fundamentals of energy and application of energy efficiency systems	
9th week	Pneumatic Actuators	To be able to explain types of pneumatic actuators and their control methods	
10th week	Midterm Exam.	For week 1-9	
11th week	Smart Devices 1	To be able to explain types of smart devices and their communication systems	
12th week	Smart Devices 2	To be able to explain types of smart devices and their communication systems	
13th week	Artificial Vision Systems 1	To be able to explain fundamentals of artificial vision systems	
14th week	Artificial Vision Systems 2	To be able to explain fundamentals of artificial vision systems	

		vision systems	
15th week	Human-Machine Interface Systems 1	To be able to explain fundamentals of Human-Machine interface systems	
16th week	Human-Machine Interface Systems 2	To be able to explain fundamentals of Human-Machine interface systems	
17th week	Holiday		
18th week	Review the semester	Review and summarize learning	
19th week	Final Exam.	For week 9-18	
20th week	Return Exam Papers and Feedback, and special sessions	Review and summarize learning	

Do not

	Examination	Quiz	Mutual Evaluations between students	Report	Portfolio	Other
Basic Ability	70			10		
Technical Ability				10		
Interdisciplinary Ability				10		