

Mechatronics 2

Basic Course Information			
Course Number	31005111	Subject Category	Compulsory - IM
Class Format	Lecture	Credit Type and Number of Credits	1
Department	Mechatronics	Student Category	Year 3
Period of Study	Semester 2	Classes per Week	2
Required Materials	Provided by the course teacher		
Instructor	Dulson, Preechachonchai Pookhat Chaisarnom		

Course Objective	
1) To be able to explain the types and roles of the mechanical elements that compose a machine.	
2) Understand the concept of instantaneous center and be able to calculate the velocity and acceleration of a mechanism.	
3) Ability to provide basic calculations on motion transfer elements necessary for machine design.	

Evaluation/ rubric	Ideal Level of Achievement (Very Good)	Standard Level of Achievement (Good)	Unacceptable Level of Achievement (Fail)
To be able to explain the types and roles of the mechanical elements that compose a machine.	To be able to explain the types and roles of the mechanical elements that compose a machine in detail.	To be able to explain the types and roles of the mechanical elements that compose a machine.	Cannot be able to explain the types and roles of the mechanical elements.
Understand the concept of instantaneous center and be able to calculate the velocity and acceleration of a mechanism.	Deeply understand the concept of instantaneous center and be able to apply the velocity and acceleration of a mechanism.	Understand an overview of the concept of instantaneous center and be able to calculate the velocity and acceleration of a mechanism.	Cannot understand the concept of instantaneous center and cannot be able to calculate the velocity and acceleration of a mechanism.
Ability to provide basic calculations on motion transfer elements necessary for machine design.	To be able to provide basic calculations and its application on motion transfer elements necessary for machine design.	To be able to explain basic calculations on motion transfer elements necessary for machine design.	Cannot be able to explain basic calculations on motion transfer elements necessary for machine design.

Relationship with Learning Outcomes	
M(1) Ability to design, process and develop robotic/ mechatronic systems to solve specific problems	
M(5) Ability to design, process and develop mechanical solutions/ systems for robotic/ mechatronic systems	
Please change	

Teaching Method	
Outline:	This subject focus on the mechanics of how machine elements move. Even the
Class Format:	Lecture
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
1st week		Introduction class: explaining to class objective, criteria of score, expected output and overview of introduction to Mechanisms and Kinematics	Understanding class objective, criteria of score, and expected output. Review of introduction to Mechanisms and Kinematics	V-A 2 26
2nd week		Kinematic Diagrams	Understanding concepts of Kinematic Diagrams	V-A 2 28
3rd week		Mobility	Understanding concepts of Mobility	V-A 2 28
4th week		Linkages and Mechanism part 1	Understand basic four-bar linkages	V-A 2 29
5th week		Linkages and Mechanism part 2	Understand and explain about various link mechanisms	V-A 2 29
6th week		Position and Displacement Analysis	Understanding concepts of Position and Displacement Analysis	V-A 2 29
7th week		Mechanism Design	Understanding concepts of Mechanism Design	
8th week		Midterm examination	Check understanding covers Weeks 1-7	
9th week		school events	-	
10th week		Monday class	-	
11th week		Reflection and Feedback	Reflect midterm examination and feedback to foster understanding.	
12th week		Cams: introduction of Cam and types	Understanding concepts of Cams and classification	V-A 2 30
13th week		Cams: Design and Kinematic Analysis	Understanding concepts of Cams: cam's displacement curve etc.	V-A 2 31
14th week		Gear: introduction of gear and types	Understanding concepts of gear and classification	V-A 2 23
15th week		Gears: Kinematic analysis and selection	Understanding concepts of gear kinematic analysis and selection	V-A 2 24
16th week		Belt and Chain Drives	Understanding concepts of Belt and Chain Drives	V-A 2 25
17th week		Screw Mechanisms	Understanding concepts of Screw Mechanisms	V-A 2 14
18th week		Wrap-up of 2nd half of semester (Review)	Review and summarize learning	V-A 2 16
19th week		Final examination	Check understanding covers Weeks 11-18.	
20th week		Reflection and Feedback	Reflect final examination and feedback to foster understanding.	

Do not

	Examination	Quiz	Midst Examinations between students	Report	Portfolio	Other
Basic Ability	25	25				
Technical Ability	15	15				
Interdisciplinary Ability	10	10				