

**UNDERGRADUATE PROGRAM IN ELECTRONICS AND INSTRUMENTATION**  
**DEPARTMENT OF COMPUTER SCIENCE AND ELECTRONICS**  
**FACULTY OF MATHEMATICS AND NATURAL SCIENCES**  
**UNIVERSITAS GADJAH MADA**

Module name	System Actuator Lab Module		
Module level	Undergraduate		
Code	MII-2861		
Courses (if applicable)	System Actuator Lab		
Semester	Odd (Gasal)		
Contact person	Roghib Muhammad Hujja, M.Cs		
Lecturer	Roghib Muhammad Hujja, M.Cs		
Language	Bahasa Indonesia		
Relation to curriculum	Undergraduate degree program, mandatory, 3 <sup>th</sup> semester.		
Type of teaching, contact hours	Undergraduate degree program: lectures, < 30 students		
Workload	Lectures: 1 x 100 = 100 minutes per week. Exercises and Assignments: 1 x 50 = 50 minutes per week.		
Credit points	1 credit points (sks).		
Requirements according to the examination regulations	A student must have attended at least 75% of the lectures to sit in the exams.		
Recommended prerequisites			
Learning outcomes and their corresponding PLOs	After completing this module, a student is expected to:		
	CO1	Understand the basic about how actuator work	PLO3
	CO2	Introduction about signals and system in controlling actuators	PLO3
	CO3	Introduction to driver module as actuator controller	PLO4
	CO4	Able to use actuators in the system	PLO4
Content	<p>Actuators are transducers that can convert electrical energy into motion energy. The actuator need big power source that can come from direct current (DC) or alternating current (AC). Most electronic systems that exist today are systems that have small energy / energy saving and in the form of an embedded system (embedded system) so that the stimulus or signal provided has not been able to change or move the actuator. For this reason the introduction of drivers as bridges between actuators and embedded systems is necessary for an electronics, instrumentation and control expert.</p> <p>The course of the actuator system learns about actuators such as selenoids, toroidal, DC drive motors. Besides that the electronic components support drivers such as switching transistors, MOSFETs, SCRs, TRIACs, Diacs, Diodes, zener diodes. Hopefully after taking this course students can understand designing a driver that can be used to drive an actuator. In this lecture,</p>		

	students are introduced to Proteus software which can be used to design systems in the form of simulator software.				
Study and examination requirements and forms of examination	Final examination.				
Media employed	LCD, blackboard, websites, Actuator, Computer.				
Assessments and Evaluation	CO	Evaluation Method	Type	Percentage	Total
	CO-1	Labwork 1	Formatif	2%	16%
		Labwork 2	Formatif	2%	
		Labwork 3	Formatif	2%	
		Labwork 4	Formatif	2%	
		Labwork 5	Formatif	2%	
		Labwork 6	Formatif	2%	
		Labwork 7	Formatif	2%	
		Labwork 8	Formatif	2%	
	CO-2	Labwork 1	Formatif	2%	16%
		Labwork 2	Formatif	2%	
		Labwork 3	Formatif	2%	
		Labwork 4	Formatif	2%	
		Labwork 5	Formatif	2%	
		Labwork 6	Formatif	2%	
		Labwork 7	Formatif	2%	
		Labwork 8	Formatif	2%	
	CO-3	Labwork 1	Formatif	2%	16%
		Labwork 2	Formatif	2%	
		Labwork 3	Formatif	2%	
		Labwork 4	Formatif	2%	
		Labwork 5	Formatif	2%	
		Labwork 6	Formatif	2%	
		Labwork 7	Formatif	2%	
		Labwork 8	Formatif	2%	
	CO-4	Case Test 1	Summatif	5%	52%
		Case Test 2	Summatif	5%	
		Final Exam	Summatif	42%	
Reading List	Lab Module System Actuator				