

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

Module name	Actuator System	
Module level	Undergraduate	
Code	MII2811	
Courses (if applicable)	Actuator System	
Semester	Odd	
Contact person	Bakhtiar Alldino Ardi Sumbodo, S.Si., M.Cs.	
Lecturer	Dr. Danang Lelono, M.T. Bakhtiar Alldino Ardi Sumbodo, S.Si., M.Cs.	
Language	Bahasa Indonesia	
Relation to curriculum	Undergraduate degree program, mandatory, 3 rd semester	
Type of teaching, contact hours	Lectures, < 60 students, 3 hours	
Workload	<ol style="list-style-type: none"> 1. Lectures: 3 x 50 = 150 minutes (2 hours and 30 minutes) per week 2. Exercises and Assignments: 3 x 50 = 150 minutes (2 hours and 30 minutes) per week 3. Private study: 3 x 60 = 180 minutes (3 hours) per week 	
Credit points	Three credit points (SKS)	
Requirements according to the examination regulations	A student must have attended at least 75% of the lectures to sit in the final exams.	
Mandatory prerequisites	MII1801 Electric Circuits	
Learning outcomes and their corresponding PLOs	<p>After completing this module, a student is expected to:</p> <p>CO-1 Understand the basic concepts of actuator systems, signals, and systems, and be able to implement system drivers</p> <p>CO-2 Understand and apply DC motors, brushless motors, relays, and solenoids</p> <p>CO-3 Understand the concept and be able to design and implement drivers for actuators with the help of simulator software</p>	<p>PLO2</p> <p>PLO3</p> <p>PLO4</p>
Content	Students can explain about actuators such as solenoids, toroid, DC drive motor. Also, students can understand the electronic components supporting drivers such as switching transistors, MOSFETs, SCRs, TRIACs, Diacs, Diodes, Zener diodes. Then students can design and analyze drivers that can be used to drive the actuator. To make it easier in designing and analyzing the simulator in the form of Proteus software that can be used to design the system.	
Study and examination	<ul style="list-style-type: none"> • Assignments (4) • Mid-term examination 	

requirements and forms of examination	<ul style="list-style-type: none"> • Final examination
Media employed	LCD, whiteboard, websites (eLisa).
Assessments and Evaluation	CO-1 Midterm exam, final exam, assignment (total: 37,5%) CO-2 Midterm exam, final exam, assignment (total: 50%) CO-3 Midterm exam, final exam, assignment (total: 12,5%)
Reading List	Bishop, R.H., 2008, Mechatronic Systems, Sensors and Actuators, Fundamentals and Modeling, CRC Press USA David G. Alciatore dan M.B. Hstand, 2007, " Introduction to Mechatronics and Measurement Systems," McGraw-Hill, USA. Hanselman, D., 2003, Brushless Permanent Magnet Motor Design, 2 nd Edition The Writers' Collective Yon Rijono, 1997; Dasar Teknik Tenaga Listrik, Andi Offset Yogyakarta