

Module Description

Module name	Course Module
Module level, if applicable	Bachelor of Electrical Engineering
Code, if applicable	5115-053-2
Subtitle, if applicable	-
Course, if applicable	Control System Engineering (Teknik Pengaturan)
Semester(s) in which the module istaught	4 th (even semester)
Person responsible for the module	Lecturer of Course
Lecturer	- Nur Hanifah Yuninda., S.T., M.T. - Mochammad Djaohar., M.Sc.
Language	Indonesia Language
Relation to Curriculum	This course is one of subjects in the field of study and supporting expertisewhich is given in 4 th semester (even semester)
Type of teaching, contact hours	Teaching methods used in this course are: <ul style="list-style-type: none"> - Lecture (i.e., group investigation, small group discussion, case study) - Structured assignments (i.e., essays and case study) - Practice (i.e., computer simulation) <p>The class size for lecture is 30 students. Contact hours for lecture is 27 hours, assignments is 32 hours, learn individually is 32 hours.</p>
Workload	For this course, students are required to meet a minimum of 87 hours in one semester, which consist of: <ul style="list-style-type: none"> - 23 hours for lecture - 32 hours for structured assignments - 32 hours for learn individually
Credit points	2 credit points (equivalent with 3 ECTS)
Requirements according to the examination regulations	Students must attend at least fourteen lessons and submit all scheduled assignments before the final exam
Recommended prerequisites	-

Module objectives/intended learning outcomes	Course Learning Outcomes (CLO) : 1. Formulating mathematical models to obtain system responses from electrical systems, mechanical systems, and process systems in both the time and frequency domains (30) 2. Analyzing the characteristics of the first order and second order transient response (transition system) of a system which includes response time, steady state error, sensitivity and stability of the system (30) 3. Designing control system block diagram (40)
Content	Students will learn about: study the dynamic system control system so that the system produces output variables as desired. The Regulating Engineering course covers dynamics aspects such as laplace transformation, transfer function, control block diagram, stability, sensitivity, transient response, time response, ability to resist disturbance, and steady state error. Various control techniques have been researched and applied so that the system that previously could only be controlled manually can now be automated. To be able to understand the control process well, students are required to understand the concept of dynamic systems well. To be able to control a dynamic system properly, it is necessary to model a dynamic system. Various models have been developed such as block diagrams with Laplace transforms, signal flow graphs, and state space modeling. Based on these models, a controller is developed that produces a system output close to the desired one. Along with the rapid development of control system technology in the last few decades, learning materials must always be adapted to technological developments.
Forms of Assessment	Assessment components and weights include: attendance with a weight of 10%, General skills from class discussion assessments with a weight of 30%, Special skills from final project assignments and mid-term and end-of-semester examinations with a weight of 30% and Knowledge from quiz assessments 30%
Study and examination requirements and forms of examination	Study and examination requirements: <u>Attendance:</u> Students who are not present at the online meeting or face-to-face, whether with notification or not, more than 10% of the total meeting are not allowed to take the end-of-semester exam and are considered not to have passed (getting an E grade) <u>Lateness:</u> - Late joining online meeting more than 20 minutes is not allowed to attend lectures (online meeting) - Late submission of assignments for 1-7 days from the set deadline will result in a 5 point deduction from a total of 100 points. - Late submission of assignments for more than 7 days will result in a deduction of 10 points from a total of 100 points

	<p><u>Academic Cheating :</u> Students are required to comply with standard rules and policies regarding academic honesty and avoid plagiarism and cheating in exams. Acts of plagiarism and cheating in the exam will be given an E score on the exam</p> <p><u>Ethics in class:</u></p> <ul style="list-style-type: none"> - Students are not allowed to wear tight/transparent clothes - Students do not use communication tools for purposes that are not related to learning. - Students do not make noise that disturbs the order of learning. <p>Form of examination:</p> <ol style="list-style-type: none"> a. Test (essay). b. Non-test (portofolio, observation, and presentation)
Media employed	Direct Whiteboard and Power Point Presentation
Reading list	<p><u>Main references:</u></p> <ol style="list-style-type: none"> 1. Kuo, Benjamin, 1995, Automatic Control System, 7th edition, New Jersey: Prentice Hall 2. Norman S.Nise, 2000, Control System Engineering 3. Ogata, Katsuhiko, 1996, Modern Control Engineering, 3rd edition, New Jersey: Prentice Hall <p><u>Supporting references:</u></p> <ol style="list-style-type: none"> 1. Yuninda, Nur Hanifah, 2020, RPS Teknik Pengaturan 2. Yuninda, Nur Hanifah, 2013, Diktat Kuliah Sistem Kendali Kontinu, Teknik Elektro UNJ 3. Wijaya Kurniawan, Pengendalian Suhu Dan Ketinggian Air Pada Boiler Menggunakan Kendali PID dengan Metode Root Locus, Jurnal EECCIS Vol. III, No. 2, Desember 2009