MODULE HANDBOOK
SYSTEM AND CONTROL

MASTER DEGREE PROGRAM
DEPARTMENT OF MATHEMATICS
FACULTY OF SCIENCE AND DATA ANALYTICS

INSTITUT TEKNOLOGI SEPULUH NOPEMBER

MODULE HANDBOOK
SYSTEM AND CONTROL

Module name	**System And Control**
Module level	Master
Code	KM185273
Course (if applicable)	System And Control
Semester	Spring (Genap)
Person responsible for the module	Dr. Dra. Mardlijah, M.T.
Lecturer	Dr. Dra. Mardlijah, M.T.
Language	Bahasa Indonesia and English
Relation to curriculum	Undergradute degree program, **mandatory**, 2nd semester.
Type of teaching, contact hours	Lectures, <60 students
Workload	1. Lectures : 3 x 50 = 150 minutes per week. 2. Exercises and Assignments : 3 x 60 = 180 minutes (3 hours) per week. 3. Private learning : 3 x 60 = 180 minutes (3 hours) per week.
Credit points	3 credit points (sks)
Requirements according to the examination regulations	A student must have attended at least 80% of the lectures to sit in the exams.
Mandatory prerequisites	-
Learning outcomes and their corresponding ILOs	Course Learning Outcome (CLO) after completing this module, [C3] Mahasiswa mampu menganalisis masalah matematika dalam salah satu bidang: analisis, aljabar, pemodelan, sistem, optimasi atau ilmu komputasi [C5] Mahasiswa mampu bekerja dan meneliti secara kolaboratif masalah matematika baik dalam bidang matematika murni, matematika terapan atau ilmu komputasi Mahasiswa mampu mengkomunikasikan dan mempresentasikan ide matematika dengan jelas dan koheren, baik secara tertulis maupun lisan	ILO-2 ILO-3 ILO-4
Content	The discussion of the System and Control course includes an assessment of the definition of a system, Modeling Principles, Linear Systems and System Properties, Condition and Output Feedback, Presentation of Input / Output, Optimal Control (LQR), and developing control methods. In the learning process in the classroom, students will be given an understanding of problem identification and derivation of mathematical models and express it into a system form, then determine the appropriate controls for these problems. Besides being directed to learn independently through assignments, students

	are directed to work together in group work. Assessment of learning outcomes is done through written evaluation, activity assignments and class discussions.
Study and examination requirements and forms of examination	• In-class exercises • Assignment 1, 2, 3 • Mid-term examination • Final examination
Media employed	LCD, whiteboard, websites (myITS Classroom), zoom.
Reading list	Main : 1. Subiono., " Sistem Linear dan Kontrol Optimal", Jurusan Matematika FMIPA-ITS, 2014. 2. Frank L. Lewis, Vassilis LS, "Optimal Control and Estimation", Wiley and Son, New Jersey, Canada, Inc., (1995) 3. Olsder, GJ, "Mathematical System Theory", Fourth Edition, VSDD, Delft The Supporting : 1. Christiaan Hiej,"Introduction to Mathematical System Theory, Linear Space, Identification and Control", Birchauser Verlag ,2007 2. Kaddour Najim,"Control of Continuous Linear Systems",ISTE Ltd, London UK,2006 3. Katsuhiko Ogata,"Modern Control Engineering",Prentice Hall,2010