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Undergraduate Programme in Mathematics

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MODULE HANDBOOK

Module name	Introduction to System Theory
Module level, if applicable	Bachelor
Code, if applicable	MMM-3310
Subtitle, if applicable	-
Courses, if applicable	Introduction to System Theory
Semester(s) in which the module is taught	5th (fifth)
Person responsible for the module	Chair of the Lab. of Applied Mathematics
Lecturer(s)	Prof. Dr. Salmah, M.Si.
Language	Bahasa Indonesia
Relation to curriculum	Elective course in the third year (5th semester) Bachelor Degree
Type of teaching, contact hours	150 minutes lectures and 180 minutes structured activities per week.
Workload	Total workload is 136 hours per semester, which consists of 150 minutes lectures per week for 14 weeks, 180 minutes structured activities per week, 180 minutes individual study per week, in total is 16 weeks per semester, including mid exam and final exam.
Credit points	3
Requirements according to the examination regulations	Students have taken Introduction to System Theory course (MMM-3310) and have an examination card where the course is stated on.
Recommended prerequisites	Students have taken Linear Algebra course (MMM-2202), Elementary Differential Equations course (MMM-2301), and have participated in the final examination of the course.
Module objectives/intended learning outcomes	After completing these course the students will be able: CO1. to develop model of control problems into basic standard state space form and input output system form. CO2. to solve linear systems CO3. to examine some properties of systems such as stability, controllability and observability CO4. to interpret the solutions of control system problems due to the theory CO5. to use computer program to solve linear systems and to characterize the properties of linear systems.
Content	Topics include modeling aspect and state space form, linearization, solution of linear differential equation system, Impulse and step response, system properties: stability, controllability and observability, input output representation, transfer function, minimal realization
Study and examination requirements and forms of examination	The final mark will be weighted as follows: No Assessment methods (components, activities) Weight 1 Final Examination 40%

	2 Mid-Term Examination 30% 3 Class Activities: Quiz, Homework, etc 30% The initial cut-off points for grades A, B, C, and D should not be less than 80%, 70%, 50%, and 40%, respectively.
Media employed	Projector, board
Reading List	1. Geert Jan Olsder, 1994, *Mathematical Systems Theory,* 1'st Edition, Delft University of Technology. 2. Katsuhiko Ogata, 1990, *Modern Control Engineering,* 2nd ed. Englewood Cliffs, N.J.,: Prentice Hall, Inc. 3. Chi-Tsong Chen, 1999*, Linear System Theory And Design*, Third Edition, Oxford University Press

PLO and CO Mapping

	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9
CO 1					v				
CO 2			v						
CO 3			v						
CO 4					v	v	v		v
CO 5						v			