**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:

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<tr>
<th>Assessment methods (components, activities)</th>
<th>Weight</th>
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<tr>
<td>Final Examination</td>
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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.

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**Reading List**


### PLO and CO Mapping

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