

Department of Mathematics
 Institut Teknologi Sepuluh Nopember
 email : matematika@its.ac.id – web : <https://www.its.ac.id/matematika>

Course	Course Name : Mathematical Systems
	Course Code : KM184604
	Credit : 4
	Semester : 6

Description of Course	
<p>Discussion of the Mathematics course of the system includes the study of the dynamics system mathematics model, the formation of the state space system, stability analysis, control analysis, the analysis of the observation, the formation of the system controller, the feedback system, the transfer function and the realization of the transfer function in the state space. In the discussion of lectures used software to equip learners have the ability to do computation related to the topic of discussion. In the learning process in the classroom learners will learn to identify the problem, express the idea of Mathematics and express it into writing. In addition to being directed to independent learning through tasks, learners are directed to cooperate in group work.</p>	
Learning Outcome	
PLO 2	[C3] Students are able to solve simple and practical problems by applying basic mathematical statements, methods and computations
PLO 3	[C4] Students are able to analyze simple and practical problems in at least one field of analysis, algebra, modeling, system optimizations and computing sciences
Course Learning Outcome	
1. Be able to identify natural phenomena and technical problems in the form of dynamic systems	

2. Able to analyze the dynamics of the system, especially the stability, control and kesamatannya and able to arrange input controller system 3. Able to form a transfer function and relate to the realization of the system in the form of a state space 4. Able to cooperate in analyzing the dynamic system and present it in written and oral form well
Main Subject
Dynamic system mathematics model, establishment of state space system, stability analysis, control analysis, observation analysis, formation of system controller, feedback system, transfer function, realization of transfer function in state space.
Prerequisites
Reference
1. Olsder, G.J, “ Mathematical System Theory”, 1999 2. Ogata K, “ <i>Modern Control Engineering</i> ”, Fifth Edition, 2010
Supporting Reference
1. Zak, S.H, “Systems and Control”, Oxford University Press, 2003