



Universitas Negeri Surabaya
Faculty of Engineering,
Electrical Engineering Undergraduate Study Program

Document Code

SEMESTER LEARNING PLAN

Courses	CODE	Course Family	Credit Weight			SEMESTER	Compilation Date										
State Variable Techniques	2020102239		T=2	P=0	ECTS=3.18	5	July 18, 2024										
AUTHORIZATION	SP Developer		Course Cluster Coordinator			Study Program Coordinator											
			Dr. Lusia Rakhmawati, S.T., M.T.											
Learning model	Project Based Learning																
Program Learning Outcomes (PLO)	PLO study program that is charged to the course																
	Program Objectives (PO)																
	PLO-PO Matrix																
		P.O															
	PO Matrix at the end of each learning stage (Sub-PO)																
	P.O	Week															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Short Course Description	Discussion and understanding of: Concept of State Variables, Solving state equations in the time domain, solving state equations in the frequency domain, n state matrix transitions, State equations of electrical networks, State equations of Transfer functions.																
References	Main :																
	1. William II, R. et.all. 2007.Linear State Space Control Systems. John Wiley and Sons Inc. 2. K. Ogata. 1997. Modern Control Engineering. New Jersey: Prentice Hall. 3. B. Shehu & M. Habsul. 1993. Control System Design Using Matlab. New Jersey: Prentice Hall.																
	Supporters:																
Supporting lecturer	Endryansyah, S.T., M.T.																
Week-	Final abilities of each learning stage (Sub-PO)	Evaluation		Help Learning, Learning methods, Student Assignments, [Estimated time]		Learning materials [References]	Assessment Weight (%)										
		Indicator	Criteria & Form	Offline (offline)	Online (online)												
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)										

1	Know the scope of the State Variable Engineering Lecture and the concept of state variables	Students can explain the concept of state variables		Lectures, discussions and questions and answers 2 X 50			0%
2	Students are able to understand equations of state in the time and frequency domains	Students are able to solve equations of state in the time and frequency domains		Lectures, discussions and questions and answers 4 X 50			0%
3	Students are able to understand equations of state in the time and frequency domains	Students are able to solve equations of state in the time and frequency domains		Lectures, discussions and questions and answers 4 X 50			0%
4	Students are able to understand matrix notation and state space equations	Students are able to use matrix notation and solve state space matrix equations		Lectures, discussions and questions and answers 4 X 50			0%
5	Students are able to understand matrix notation and state space equations	Students are able to use matrix notation and solve state space matrix equations		Lectures, discussions and questions and answers 4 X 50			0%
6							0%
7							0%
8							0%
9							0%
10							0%
11							0%
12							0%
13							0%
14							0%
15							0%
16							0%

Evaluation Percentage Recap: Project Based Learning

No	Evaluation	Percentage
		0%

Notes

1. **Learning Outcomes of Study Program Graduates (PLO - Study Program)** are the abilities possessed by each Study Program graduate which are the internalization of attitudes, mastery of knowledge and skills according to the level of their study program obtained through the learning process.
2. **The PLO imposed on courses** are several learning outcomes of study program graduates (CPL-Study Program) which are used for the formation/development of a course consisting of aspects of attitude, general skills, special skills and knowledge.
3. **Program Objectives (PO)** are abilities that are specifically described from the PLO assigned to a course, and are specific to the study material or learning materials for that course.
4. **Subject Sub-PO (Sub-PO)** is a capability that is specifically described from the PO that can be measured or observed and is the final ability that is planned at each learning stage, and is specific to the learning material of the course.
5. **Indicators for assessing** ability in the process and student learning outcomes are specific and measurable statements that identify the ability or performance of student learning outcomes accompanied by evidence.
6. **Assessment Criteria** are benchmarks used as a measure or measure of learning achievement in assessments based on predetermined indicators. Assessment criteria are guidelines for assessors so that assessments are consistent and unbiased. Criteria can be quantitative or qualitative.
7. **Forms of assessment:** test and non-test.
8. **Forms of learning:** Lecture, Response, Tutorial, Seminar or equivalent, Practicum, Studio Practice, Workshop Practice, Field Practice, Research, Community Service and/or other equivalent forms of learning.
9. **Learning Methods:** Small Group Discussion, Role-Play & Simulation, Discovery Learning, Self-Directed Learning, Cooperative Learning, Collaborative Learning, Contextual Learning, Project Based Learning, and other equivalent methods.
10. **Learning materials** are details or descriptions of study materials which can be presented in the form of several main points and sub-topics.
11. **The assessment weight** is the percentage of assessment of each sub-PO achievement whose size is proportional to the level of difficulty of achieving that sub-PO, and the total is 100%.
12. TM=Face to face, PT=Structured assignments, BM=Independent study.