	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
Analog & Digital Communication Systems	2020102329		**T=0**	**P=0**	**ECTS=0**	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	learn the concept of analog and digital communication systems which includes understanding signals and systems, amplitude modulation, angle modulation, digital transmission of analog signals, probability and random variables, random signals and noise

References	**Main :**
	1. Hwei P. HSU.1995. Analog and digital communications.Mcgraw-Hill,Inc
	Supporters:

Supporting lecturer	Dr. Nurhayati, S.T., M.T. Dr. Farid Baskoro, S.T., M.T. Miftahur Rohman, 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	Students are able to understand signals and systems	Students are able to understand signal classification, singularity filter function and bandwidth		direct learning, PPT and 2 X 50 discussions			0%
2	Students are able to understand signals and systems	Students are able to understand signal classification, singularity filter function and bandwidth		direct learning, PPT and 2 X 50 discussions			0%
3	Students are able to understand amplitude modulation	1. describe the modulation amplitude2. describe double sideband modulation 3. describe single sideband modulation 4. describes frequency division multiplexing	**Criteria:** Answering questions, providing responses to lectures, asking questions	discussion, PPT 2 X 50			0%
4	Students are able to understand amplitude modulation	1. describe the modulation amplitude2. describe double sideband modulation 3. describe single sideband modulation 4. describes frequency division multiplexing	**Criteria:** Answering questions, providing responses to lectures, asking questions	discussion, PPT 2 X 50			0%
5	students are able to learn angle modulation	1. describe angle modulation 2. describe the phase and frequency of modulation 3. describe the modulation tone4. describe the bandwidth of angle modulation5. generates an angle modulation signal	**Criteria:** Activeness and accuracy of answers	discussion, ppt, and questions and answers 2 X 50			0%
6	students are able to learn angle modulation	1. describe angle modulation 2. describe the phase and frequency of modulation 3. describe the modulation tone4. describe the bandwidth of angle modulation5. generates an angle modulation signal	**Criteria:** Activeness and accuracy of answers	discussion, ppt, and questions and answers 2 X 50			0%

7	Students are able to understand digital transmission of analog signals	1. describe PCM2. describe sampling theory3. describe sampling4. describe PAM, quantizing and coding 5. describe the bandwidth required by PCM 6. describe TDM	**Criteria:** Activeness and accuracy of answers	Discussion and PPT 2 X 50				0%
8	Students are able to understand digital transmission of analog signals	1. describe PCM2. describe sampling theory3. describe sampling4. describe PAM, quantizing and coding 5. describe the bandwidth required by PCM 6. describe TDM	**Criteria:** Activeness and accuracy of answers	Discussion and PPT 2 X 50				0%
9	UTS			2 X 50				0%
10	Students are able to understand probability and random variables	1. describe probability2. describe random variables3. describe the distribution function 4. describe the function of the random variable 5. describe average statistics		Discussion, PPT 2 X 50				0%
11	Students are able to understand probability and random variables	1. describe probability2. describe random variables3. describe the distribution function 4. describe the function of the random variable 5. describe average statistics		Discussion, PPT 2 X 50				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.