	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
Basic Practical Telecommunications Systems	2020102129		T=2	P=0	ECTS=3.18	3	July 18, 2024

AUTHORIZATION	SP Developer	Course Cluster Coordinator	Study Program Coordinator
	.....	.....	Dr. Lusia Rakhmawati, S.T., M.T.

Learning model	**Case Studies**
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	Analog communication electronics circuits include oscillator circuits, analog modulators, digital modulators, filters and amplifiers, Optical Communication, CDMA practicum. Simulation using Simulink Matlab and Matlab simulation on M-file.
References	**Main :**

1. Rangkaian elektronika Telekomunikasi Analog
2. Telekomunikasi dengan software matlab
3. CDMA
4. Optical Telekomunication
5. Electronic Communications Systems V Edition by Wayne Tomasi &ndash Pearson Education.

	Supporters:
Supporting lecturer	EPPY YUNDRA Dr. Nurhayati, 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	Understand telecommunications electronic circuits including oscillator, modulator, filter and amplifier circuits	· Explain the block diagram of telecommunications. · Interpret the working principles of oscillator, filter, amplifier circuits · Demonstrate the working principles of analog and digital modulators.		Lectures, discussions, presentations 3 X 50			0%

2	Understand and be able to simulate and also be able to analyze oscillator, filter and amplifier circuits.	· Can simulate osciator circuits, filters, amplifier designs using multisim software. · Can create oscillator, filter, amplifier circuits with direct measurements. · And can make analysis of practical results	**Criteria:** Full marks are obtained if you do all the questions correctly	Practicum, discussion, presentation 3 X 50			0%
3	Understand and be able to simulate and also be able to analyze AM, FM and PM analog module circuits	· Can simulate AM, FM, PM analog modulator circuits using multisim software. · Can carry out practical work and direct measurements of simulated software · And can make analysis of practical results	**Criteria:** Full marks are obtained if you do all the questions correctly	Practicum, discussion, presentation 3 X 50			0%
4	Understand and be able to simulate and also be able to analyze AM, FM and PM analog module circuits	· Can simulate AM, FM, PM analog modulator circuits using multisim software. · Can carry out practical work and direct measurements of simulated software · And can make analysis of practical results	**Criteria:** Full marks are obtained if you do all the questions correctly	Practicum, discussion, presentation 3 X 50			0%
5	Can simulate and also analyze circuits, input and output digital modulation, ASK, FSK, PSK	· Can simulate ASK.FSK, PSK digital modulator circuits using multisim software · Can carry out practical work and direct measurements of the simulated software · And can make analysis of practical results	**Criteria:** Full marks are obtained if you do all the questions correctly	Practicum, discussion, presentation 3 X 50			0%
6	Can simulate and also analyze circuits, input and output digital modulation, ASK, FSK, PSK	· Can simulate ASK.FSK, PSK digital modulator circuits using multisim software · Can carry out practical work and direct measurements of the simulated software · And can make analysis of practical results	**Criteria:** Full marks are obtained if you do all the questions correctly	Practicum, discussion, presentation 3 X 50			0%
7				3 X 50			0%
8				3 X 50			0%
9				3 X 50			0%
10				3 X 50			0%
11				3 X 50			0%
12				3 X 50			0%
13				3 X 50			0%
14				3 X 50			0%
15				3 X 50			0%
16							0%

Evaluation Percentage Recap: Case Study

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.