	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
Electronic Circuits I	2020102160		T=2	P=0	ECTS=3.18	2	July 17, 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 which 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	Studying semi-conductor diodes, diode applications, bipolar junction transistors, DC BJT biasing, AC BJT analysis.
References	**Main :**

1. Boylestad, Robert. &ldquoElectronics Devices and Circuit Theory, 7th edition&rdquo. New Jersey : Prentice Hall.
2. J. Millmann. 2008. &ldquoMicroelectronics&rdquo. McGraw Hill.
3. Sedra. 2010. &ldquoMicroelectronics Circuit&rdquo, Reinhart & Winston.
4. Hayes. 2008. &ldquoDigital System Design and Microprocessor&rdquo. McGraw Hill.

Supporters:

Supporting lecturer	Dr. Nur Kholis, 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 can: 1. Explain the meaning of semiconductor materials 2. Distinguish between P-type and N3-type semiconductors. Comparing the ideal and practical diode approaches	1. Explain the meaning of semiconductor materials 2. Distinguish between P-type and N3-type semiconductors. Comparing the ideal and practical diode approaches	**Criteria:** In accordance with Rubric-1	Direct Instruction 3 X 50			0%
2	Students can: 1. Create a diode equivalent circuit2. Explain the diode specification sheet	1. Make a diode equivalent circuit2. Explain the diode specification sheet	**Criteria:** In accordance with Rubric-2	Cooperative Learning 3 X 50			0%
3	Students can: 1. Testing diode2. Explain the working of a zener diode3. Explain the work of Light Emitting Diodes	1. Testing the diode2. Explain the working of a zener diode3. Explain the work of Light Emitting Diodes	**Criteria:** In accordance with Rubric-3	Cooperative Learning 3 X 50			0%
4	Students can: 1. Make a load line 2. Analyze series and parallel configurations	1. Create a load line2. Analyze series and parallel configurations	**Criteria:** In accordance with Rubric-4	Cooperative Learning 3 X 50			0%
5	Students can: 1. Explain the work of a diode as a half wave rectifier 2. Explain the work of a diode as a full wave rectifier 3. Distinguish between the work of a diode as a clipper and clamper circuit.	1. Explain the work of a diode as a half wave rectifier 2. Explain the work of a diode as a full wave rectifier 3. Distinguish between the work of a diode as a clipper and clamper circuit.	**Criteria:** In accordance with Rubric-5	Cooperative Learning 3 X 50			0%
6	Students can: 1. Explain the characteristics of a zener diode2. Explain the working of the Volatage-Multiplier circuit	1. Explain the characteristics of a zener diode2. Explain the working of the Volatage-Multiplier circuit	**Criteria:** In accordance with Rubric-6	Cooperative Learning 3 X 50			0%
7	Students can: 1. Recognize transistor construction 2. Explain the working of a transistor 3. Describes the Common-Base configuration	1. Recognize transistor construction2. Explain the working of a transistor 3. Describes the Common-Base configuration	**Criteria:** In accordance with Rubric-7	Cooperative Learning 3 X 50			0%
8	Students can complete Mid-Semester Exam (UTS) questions	Done on time and everything is correct.	**Criteria:** In accordance with the UTS Rubric	Assignment 3 X 50			0%
9	Students can: 1. Explain the transistor specification sheet2. Testing Transistors3. Identify transistor terminals.	1. Explain the transistor specification sheet2. Testing Transistors3. Identify transistor terminals.	**Criteria:** In accordance with Rubric-9	Cooperative Learning 3 X 50			0%
10	Students can: Explain the workings of transistor circuits in various configurations	Explain the working of transistor circuits with emitter-bias configuration, voltage divider bias, collector feedback bias.	**Criteria:** In accordance with Rubric-10	Transistor circuit configuration emitter bias, voltage divider bias, collector feedback bias. 3 X 50			0%
11	Students can: 1. Explain the working of the Common-Base2 configuration transistor circuit. Explain the current source circuit 3. Identifying PNP Transistors	1. Explain the working of the Common-Base2 configuration transistor circuit. Explain the current source circuit 3. Identifying PNP Transistors	**Criteria:** In accordance with Rubric-11	Cooperative Learning 3 X 50			0%

12	Students can: 1. Explain transistors as switching,2. Explain trubleshooting techniques.	Explaining transistors as switching, Explaining the trubleshooting technique.	**Criteria:** In accordance with Rubric-12	Cooperative Learning 3 X 50			0%
13	Students can: 1. Model the BJT2 Transistor. Explains the Emitter-Follower configuration.	1. Modeling the BJT2 Transistor. Explains the Emitter-Follower configuration.	**Criteria:** In accordance with Rubric-13	Cooperative Learning 3 X 50			0%
14	Students can: 1. Determine the current gain2. Explain Darlington circuit	1. Determine the current gain2. Explain Darlington circuit	**Criteria:** In accordance with Rubric-14	Cooperative Learning 3 X 50			0%
15	Students can: 1. Recognize variations in transistor parameters2. Simulate troubleshooting	1. Recognize variations in transistor parameters2. Simulate troubleshooting	**Criteria:** In accordance with rubric-15	Cooperative Learning 3 X 50			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** abilities in the process and student learning outcomes are specific and measurable statements that identify the abilities 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.