



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 PRACTICUM	2020101275	Compulsory Study Program Subjects	T=1	P=0	ECTS=1.59	4	July 17, 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)																																																																																																																											
	PO - 1	Able to apply basic knowledge of transistors and Op-Amps to gain a thorough understanding of analog electronics and its applications.																																																																																																																										
	PO - 2	Able to design and analyze analog electronic circuits using transistors and op-amps to strengthen engineering assessments.																																																																																																																										
	PO - 3	Able to apply circuit analysis methods, identify appropriate methods, formulate circuit simplifications, and analyze data/information in solving problems regarding analog electronic circuits.																																																																																																																										
	PO - 4	Able to plan, complete and evaluate tasks related to analog electronic circuits.																																																																																																																										
	PO - 5	Able to understand the need for lifelong learning in the field of electrical engineering related to relevant current issues																																																																																																																										
	PLO-PO Matrix																																																																																																																											
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PO Matrix at the end of each learning stage (Sub-PO)																																																																																																																												
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Short Course Description	Students can discuss the basic concepts and principles of electronic components needed in the process of analysis, simulation, design and application description of analog electronic circuits, identify the characteristics of diodes, bipolar junction transistors, field effect transistors, and op-amps, distinguish between DC refraction, AC analysis, and frequency effects of each transistor, explaining how transistors and op-amps work, concluding the advantages and disadvantages of transistors and opamps, combining various formulas from opamp theory and applying them in practice, categorizing circuit applications that use transistors and opamps to solve problems in analog electronic circuits using the Project-based Learning learning model in lectures.																																																																																																																											
References	Main :																																																																																																																											

1. Clemons John, Evangelisti Fred, Kerr Fred, and Klingensmith Charles, 1994, Introductory Electronic Devices and Circuits , Third Edition, New Jersey: Prentice Hall Career & Technology. Floyd Thomas L, 2001, Electronics Fundamentals , Fifth Edition, New Jersey: Prentice-Hall International, Inc. Malvino Albbert Paul, 1993, Electronic Principles , Fifth Edition. New York: Mc. Graw-Hill. Robert Boylestad and Louis Nashelsky, 1992, Electronic Devices and Circuit Theory , Fifth Edition, New Jersey: Prentice-Hall International, Inc.
2. Boylestad, Robert. 2013. Electronics Devices and Circuit Theory, 11th edition. New Jersey: Pearson Education, Inc.

Supporters:

Supporting lecturer

Dr. Agus Budi Santoso, M.Pd.
Sayyidul Aulia Alamsyah, 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 explain the function of energy sources for electronic components	Explain the function of energy sources for electronic components	Criteria: Active in discussions Form of Assessment : Participatory Activities	Lectures, discussions, questions and answers. 2 X 50	Lectures, discussions, questions and answers.		5%
2	Students can explain the function of energy sources for electronic components	Explain the function of energy sources for electronic components	Criteria: Able to complete assigned tasks in a timely manner Form of Assessment : Project Results Assessment / Product Assessment	Experiments, group discussions and reflections 2 X 50	Experimentation, group discussion, and reflection		5%
3	Students can explain the characteristics of diodes	Can explain the characteristics of a diode	Criteria: Active in discussions Form of Assessment : Participatory Activities	Lectures, discussions, questions and answers. 2 X 50	Lectures, discussions, questions and answers.		5%
4	Students can explain the characteristics of diodes	Can explain the characteristics of a diode	Criteria: Able to complete assigned tasks in a timely manner Form of Assessment : Project Results Assessment / Product Assessment	Experiments, group discussions and reflections 2 X 50	Experimentation, group discussion, and reflection		5%
5	Students can analyze the work of diode circuits	Can analyze the work of diode circuits	Criteria: Active in discussions Form of Assessment : Participatory Activities	Lectures, discussions, questions and answers. 2 X 50	Lectures, discussions, questions and answers		5%
6	Students can analyze the work of diode circuits	Can analyze the work of diode circuits	Criteria: Able to complete assigned tasks in a timely manner Form of Assessment : Project Results Assessment / Product Assessment	Experiments, group discussions and reflections 2 X 50	Experimentation, group discussion, and reflection		5%

7	Students can explain the characteristics of special use diodes	Can explain the characteristics of special use diodes	Criteria: Able to complete assigned tasks in a timely manner Form of Assessment : Participatory Activities	Lectures, discussions, questions and answers. 2 X 50	Lectures, discussions, questions and answers.		5%
8	Students can work on midterm exam (UTS) questions	Doing midterm exam (UTS) questions	Criteria: Can solve problems given in evaluation questions	Student Center Learning 2 X 50	Student Center Learning		5%
9	Students can explain the characteristics of special use diodes	Can explain the characteristics of special use diodes	Criteria: Able to complete assigned tasks in a timely manner Form of Assessment : Project Results Assessment / Product Assessment	Experimentation, group discussion, and reflection	Experimentation, group discussion, and reflection		10%
10	Students can analyze the work of special use diode circuits	Can analyze the work of special use diode circuits	Criteria: Active in discussions Form of Assessment : Participatory Activities	Lectures, discussions, questions and answers. 2x50	Lectures, discussions, questions and answers. 2x50		5%
11	Students can analyze the work of special use diode circuits	Can analyze the work of special use diode circuits	Criteria: Able to complete assigned tasks in a timely manner Form of Assessment : Project Results Assessment / Product Assessment	Experiments, group discussions and reflections 2x50	Experiments, group discussions and reflections 2x50		10%
12	Students can explain the characteristics of transistors	Can explain the characteristics of transistors	Criteria: Active in discussions Form of Assessment : Participatory Activities	Lectures, discussions, questions and answers. 2x50	Lectures, discussions, questions and answers. 2x50		5%
13	Students can explain the characteristics of transistors	Can explain the characteristics of transistors	Criteria: Able to complete assigned tasks in a timely manner Form of Assessment : Project Results Assessment / Product Assessment	Experiments, group discussions and reflections 2x50	Experiments, group discussions and reflections 2x50		10%
14	Students can differentiate how various types of biasing transistor circuits work	Can explain the differences in how various types of biasing transistor circuits work	Criteria: Active in discussions Form of Assessment : Participatory Activities	Lectures, discussions, questions and answers.	Lectures, discussions, questions and answers.		5%
15		Can explain the differences in how various types of biasing transistor circuits work	Criteria: Able to complete assigned tasks in a timely manner Form of Assessment : Project Results Assessment / Product Assessment	Experimentation, group discussion, and reflection	Experimentation, group discussion, and reflection		10%
16	Students can take final semester exam (UAS) questions	Doing final semester exam (UAS) questions	Criteria: Can solve problems given in evaluation questions	Student Center Learning	Student Center Learning		5%

Evaluation Percentage Recap: Case Study

No	Evaluation	Percentage
1.	Participatory Activities	35%
2.	Project Results Assessment / Product Assessment	55%
		90%

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.