	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
Digital Circuit II	2020102157		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	Examines the basic concepts of digital engineering, logic gates, Flip-Flops, Boolean Algebra, combinatorial circuit design, sequential circuits, counters and registers, as well as their applications in everyday life.
References	**Main :**
	1. 1.Tokheim. 1990 elektronika digital 2nd edition 2. Leach,donald 1997, digital principle and application 2. 1. Barmawi, 1991. *Rangkaian dan Sistem Analog dan Digital.* Jilid 2. Jakarta: Erlangga 3. Leach, Donald. 1997. *Digital Principles and Applications* . Fifth Edition. New York: McGraw-Hill
	Supporters:
Supporting lecturer	Adam Ridiantho Muhamad, S.T., M.T. Dr. Lilik Anifah, S.T., M.T. Dr. Farid Baskoro, 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	1. Describe the differences between analog and digital systems. 2. Explain the application of digital systems in everyday life	1. Students are able to describe the differences between analog and digital systems. 2. Students are able to explain the application of digital systems in everyday life		Lectures, questions and answers and assignments. 2 X 50			0%
2	Students will understand registers	1. Students will understand data buffer registers2. Students will understand controlled buffer registers3. Students will understand shift registers		lecture, question and answer and discussion 2 X 50			0%
3	Analyze the properties of logic gates	1. Students are able to describe the properties of logic gates (logic gates) 2. Students are able to simplify logic circuits using Boolean algebra		Lectures, practice questions and assignments 2 X 50			0%
4	Master the Karnaugh Map method	Simplify circuits with the Karnaugh Map		discussion, lecture and question and answer 2 X 50			0%
5	Analyze the properties of FLIP FLOP	1. Students describe the characteristics of the types of Flip Flop 2. Students analyze the circuit		discussions, lectures, questions and answers, practice questions and giving assignments 2 X 50			0%
6	Analyze the properties of FLIP FLOP	1. Students are able to describe the characteristics of the types of Flip Flop 2. Students are able to analyze circuits		Direct instruction, practice questions and assignments 2 X 50			0%
7	Analyze the counter circuit	1. Students are able to describe the properties of counter circuits. 2. Students are able to design counter application circuits.		Lectures, discussions and assignments 2 X 50			0%
8	Students are able to do UTS well	Students are able to do UTS well		Practice questions and give assignments 2 X 50			0%

9	Analyzing register circuits	1. Students are able to describe the properties of register circuits. 2. Students are able to design register application circuits		Discussion and assignment 2 X 50			0%
10	Analyze and design register circuits	Students are able to analyze and design a series of counter applications.		Discussion and assignment 2 X 50			0%
11	Analyzing multiplexer circuits	Design and analyze multiplexer application circuits		Discussion and assignment 2 X 50			0%
12	Analyzing multiplexer circuits	Design and analyze multiplexer application circuits		Discussion and assignment 2 X 50			0%
13	Designing a series of digital applications	1. Able to design digital application circuits 2. Able to assemble circuits Create modules/job sheets		Discussion and assignment 2 X 50			0%
14	Designing a series of digital applications	1. Able to design digital application circuits 2. Able to assemble circuits Create modules/job sheets		Discussion and assignment 2 X 50			0%
15	Designing a series of digital applications	1. Able to design digital application circuits 2. Able to assemble circuits Create modules/job sheets		Discussion and assignment 2 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.