	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
MICROPROCESSOR SYSTEM	2020102308		T=0	P=0	ECTS=0	5	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 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	This course is a practical activity from the microprocessor course. Practical activities include assembly programming, use of PPI, PIT and PIC modules. After taking this course, students are expected to be able to create thematic applications using microprocessor modules.
References	**Main :**
	1. Brey, Barry B. 2003. Mikroprosesor Intel, 6th Edition. New Jersey: The Pearson Education. 2. Setiawan, Rachmad. 2006. Mikroprosesor 8088. Yogyakarta: Graha Ilmu.
	Supporters:
Supporting lecturer	Prof. Dr. Bambang Suprianto, M.T. Parama Diptya Widayaka, S.ST., 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	Able to understand basic instructions on a microprocessor	1. Understand basic microprocessor instructions 2. Shows the basic instruction workflow of a microprocessor 3. Analyze the workflow of basic microprocessor instructions		Model: DiscoveryMethod: DiscussionApproach: Constructivist 1 X 50			0%
2	Able to write programs in assembly language	1. Understand assembly language 2. Modifying example programs in assembly language 3. Create simple programs using assembly language		Model: Problem based learning Method: Demonstration Approach: Scientific 1 X 50			0%
3	Able to write programs in assembly language	1. Understand assembly language 2. Modifying example programs in assembly language 3. Create simple programs using assembly language		Model: Problem based learning Method: Demonstration Approach: Scientific 1 X 50			0%
4	Able to create functions using assembly language	1. Able to understand JMP instructions 2. Able to understand CALL instructions 3. Able to understand ORG instructions		Model: Problem based learning Method: Demonstration Approach: Scientific 1 X 50			0%
5	Able to create functions using assembly language	1. Able to understand JMP instructions 2. Able to understand CALL instructions 3. Able to understand ORG instructions		Model: Problem based learning Method: Demonstration Approach: Scientific 1 X 50			0%
6	Using PPI module	1. Understand PPI addressing 2. Write programs for PPI 3. Using PPI to light the LED matrix		Model: DiscoveryMethod: DiscussionApproach: Constructivist 3 X 50			0%
7	Using PPI module	1. Understand PPI addressing 2. Write programs for PPI 3. Using PPI to light the LED matrix		Model: DiscoveryMethod: DiscussionApproach: Constructivist 3 X 50			0%
8	UTS			3 X 50			0%

9	Using the PIT module	1. Understanding PIT module Addressing 2. Write the PIT module program 3. Using PIT module for digital clock		Model: DiscoveryMethod: DiscussionApproach: Constructivist 3 X 50			0%
10	Using the PIT module	1. Understanding PIT module Addressing 2. Write the PIT module program 3. Using PIT module for digital clock		Model: DiscoveryMethod: DiscussionApproach: Constructivist 3 X 50			0%
11	Using PIC module	1. Understand PIC addressing 2. Write PIC module programs 3. Using the PIC module as an interrupt input		Model: DiscoveryMethod: DiscussionApproach: Constructivist 3 X 50			0%
12	Using PIC module	1. Understand PIC addressing 2. Write PIC module programs 3. Using the PIC module as an interrupt input		Model: DiscoveryMethod: DiscussionApproach: Constructivist 3 X 50			0%
13	Create a traffic light application	1. Write programs for traffic light applications 2. Designing programs with subroutines		Model: DiscoveryMethod: DiscussionApproach: Constructivist 3 X 50			0%
14	Create a counter application using 7 segments	1. Write a counter program 2. Write a 7 segment program 3. Using a delay timer		Model: DiscoveryMethod: DiscussionApproach: Constructivist 3 X 50			0%
15	Running stepper motors	1. Write a program for a stepper motor 2. Calibrating stepper motors		Model: DiscoveryMethod: DiscussionApproach: Constructivist 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.