	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
Computer Organization and Architecture	2020103097	Compulsory Study Program Subjects	**T=3**	**P=0**	**ECTS=4.77**	4	May 1, 2023

AUTHORIZATION	SP Developer	Course Cluster Coordinator	Study Program Coordinator
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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 knowledge of mathematics and Computer Organization and Architecture to gain a thorough understanding of engineering principles.
	PLO-PO Matrix

P.O
PO-1

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
PO-1																

Short Course Description	This course is a basic course to find out more about the architecture and organization of a computer. Through the course, students are expected to be able to know and understand the evolution and performance of computers from generations 1 to 6, the interconnection structure of computer components known as the bus system, memory, especially cache, internal and external memory, I/O modules and CPU as part of computer components. , Operating System Support, Computer arithmetic, understand more deeply about instruction sets such as function, characteristics, format and addressing techniques.

References	**Main :**
	1. William Stallings. 2010. Computer Organization and Architecture. 8th Edition. New Jersey: Pearson Education, Inc.
	Supporters:
	1. Brian K Williams & Stacey C Sawyer. 2010. Using Information Technology. New York: McGraw-Hill

Supporting lecturer	Dr. Farid Baskoro, S.T., M.T. 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	Mastering the basic concepts of computer organization and architecture	1. Mastering computer architecture concepts 2. Mastering organizational concepts in computers	**Criteria:** Evaluation Rubric **Form of Assessment** : Participatory Activities	Model: Discovery Learning Method: Discussion Approach: Scientific 2 X 50		**Material:** Meeting material 1 **Reader:** *William Stallings. 2010. Computer Organization and Architecture. 8th Edition. New Jersey: Pearson Education, Inc.*	5%
2	Understand the BUS system on a computer	1. Understand the BUS system on a computer 2. Understand the form and function of the address bus on a computer 3. Understand the form and function of the data bus on a computer 4. Understand the form and function of the control bus on a computer	**Criteria:** Evaluation Rubric	Model: Discovery Learning Method: Discussion Approach: Scientific 2 X 50		**Material:** Meeting material 2 **Reader:** *William Stallings. 2010. Computer Organization and Architecture. 8th Edition. New Jersey: Pearson Education, Inc.*	5%
3	Understand the BUS system on a computer	1. Understand the BUS system on a computer 2. Understand the form and function of the address bus on a computer 3. Understand the form and function of the data bus on a computer 4. Understand the form and function of the control bus on a computer	**Criteria:** Evaluation Rubric **Form of Assessment** : Participatory Activities	Model: Discovery Learning Method: Discussion Approach: Scientific 2 X 50		**Material:** Meeting material 3 **Reader:** *William Stallings. 2010. Computer Organization and Architecture. 8th Edition. New Jersey: Pearson Education, Inc.*	0%
4	Mastering the ALU concept	1. Understanding RISC and CISC 2. Understand the instruction set in the ALU	**Criteria:** Evaluation Rubric	Model: Discovery Learning Method: Discussion Approach: Scientific 2 X 50		**Material:** Meeting material 4 **Reader:** *William Stallings. 2010. Computer Organization and Architecture. 8th Edition. New Jersey: Pearson Education, Inc.*	5%

5	Mastering the ALU concept	1. Understanding RISC and CISC 2.Understand the instruction set in the ALU	**Criteria:** Evaluation Rubric **Form of Assessment** : Participatory Activities	Model: Discovery Learning Method: Discussion Approach: Scientific 2 X 50		**Material:** Meeting material 5 **Reader:** *William Stallings. 2010. Computer Organization and Architecture. 8th Edition. New Jersey: Pearson Education, Inc.*	5%
6	Mastering the ALU concept	1. Understanding RISC and CISC 2.Understand the instruction set in the ALU	**Criteria:** Evaluation Rubric **Form of Assessment** : Participatory Activities	Model: Discovery Learning Method: Discussion Approach: Scientific 2 X 50		**Material:** Meeting material 5 **Reader:** *William Stallings. 2010. Computer Organization and Architecture. 8th Edition. New Jersey: Pearson Education, Inc.*	5%
7	Mastering the ALU concept	1. Understanding RISC and CISC 2.Understand the instruction set in the ALU	**Criteria:** Evaluation Rubric **Form of Assessment** : Participatory Activities	Model: Discovery Learning Method: Discussion Approach: Scientific 2 X 50		**Material:** Meeting material 5 **Reader:** *William Stallings. 2010. Computer Organization and Architecture. 8th Edition. New Jersey: Pearson Education, Inc.*	5%
8	can complete UTS	Evaluation Rubric	**Criteria:** Evaluation Rubric	Written Test 2 X 50		**Material:** Meeting material 5 **Reader:** *William Stallings. 2010. Computer Organization and Architecture. 8th Edition. New Jersey: Pearson Education, Inc.*	10%
9	Mastering the ALU concept	1. Understanding RISC and CISC 2.Understand the instruction set in the ALU	**Criteria:** Evaluation Rubric **Form of Assessment** : Participatory Activities	Model: Discovery Learning Method: Discussion Approach: Scientific 2 X 50		**Material:** Meeting material 5 **Reader:** *William Stallings. 2010. Computer Organization and Architecture. 8th Edition. New Jersey: Pearson Education, Inc.*	5%

10	Mastering the ALU concept	1. Understanding RISC and CISC 2. Understand the instruction set in the ALU	**Criteria:** Evaluation Rubric **Form of Assessment** : Participatory Activities	Model: Discovery Learning Method: Discussion Approach: Scientific 2 X 50		**Material:** Meeting material 5 **Reader:** *William Stallings. 2010. Computer Organization and Architecture. 8th Edition. New Jersey: Pearson Education, Inc.*	5%
11	Mastering the ALU concept	1. Understanding RISC and CISC 2. Understand the instruction set in the ALU	**Criteria:** Evaluation Rubric **Form of Assessment** : Participatory Activities	Model: Discovery Learning Method: Discussion Approach: Scientific 2 X 50		**Material:** Meeting material 5 **Reader:** *William Stallings. 2010. Computer Organization and Architecture. 8th Edition. New Jersey: Pearson Education, Inc.*	5%
12	Mastering the ALU concept	1. Understanding RISC and CISC 2. Understand the instruction set in the ALU	**Criteria:** Evaluation Rubric **Form of Assessment** : Participatory Activities	Model: Discovery Learning Method: Discussion Approach: Scientific 2 X 50		**Material:** Meeting material 5 **Reader:** *William Stallings. 2010. Computer Organization and Architecture. 8th Edition. New Jersey: Pearson Education, Inc.*	5%
13	Mastering the ALU concept	1. Understanding RISC and CISC 2. Understand the instruction set in the ALU	**Criteria:** Evaluation Rubric **Form of Assessment** : Participatory Activities	Model: Discovery Learning Method: Discussion Approach: Scientific 2 X 50		**Material:** Meeting material 5 **Reader:** *William Stallings. 2010. Computer Organization and Architecture. 8th Edition. New Jersey: Pearson Education, Inc.*	5%
14	Mastering the ALU concept	1. Understanding RISC and CISC 2. Understand the instruction set in the ALU	**Criteria:** Evaluation Rubric **Form of Assessment** : Participatory Activities	Model: Discovery Learning Method: Discussion Approach: Scientific 2 X 50		**Material:** Meeting material 5 **Reader:** *William Stallings. 2010. Computer Organization and Architecture. 8th Edition. New Jersey: Pearson Education, Inc.*	5%

| 15 | Mastering the ALU concept | 1. Understanding RISC and CISC 2. Understand the instruction set in the ALU | **Criteria:** Evaluation Rubric **Form of Assessment** : Participatory Activities | Model: Discovery Learning Method: Discussion Approach: Scientific 2 X 50 | | **Material:** Meeting material 5 **Reader:** *William Stallings. 2010. Computer Organization and Architecture. 8th Edition. New Jersey: Pearson Education, Inc.* | 5% |
| 16 | Solving UAS questions | Evaluation Rubric | **Criteria:** Evaluation Rubric **Form of Assessment** : Participatory Activities | Written Test 2 X 50 | | **Material:** Meeting material 5 **Reader:** *William Stallings. 2010. Computer Organization and Architecture. 8th Edition. New Jersey: Pearson Education, Inc.* | 10% |

Evaluation Percentage Recap: Case Study

No	Evaluation	Percentage
1.	Participatory Activities	65%
		65%

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.