



**Universitas Negeri Surabaya**  
**Faculty of Engineering**  
**, Information Technology Education Undergraduate Study Program**

Document Code

## SEMESTER LEARNING PLAN

<b>Courses</b>	<b>CODE</b>	<b>Course Family</b>	<b>Credit Weight</b>	<b>SEMESTER</b>	<b>Compilation Date</b>																																	
Computer network	8320703024		T=3 P=0 ECTS=4.77	4	July 17, 2024																																	
<b>AUTHORIZATION</b>	<b>SP Developer</b>		<b>Course Cluster Coordinator</b>		<b>Study Program Coordinator</b>																																	
	.....		.....		Drs. Bambang Sujatmiko, M.T.																																	
<b>Learning model</b>	Project Based Learning																																					
<b>Program Learning Outcomes (PLO)</b>	<b>PLO study program which is charged to the course</b>																																					
	<b>PLO-8</b>	Mastering the concepts and implementation in developing software engineering, games, intelligent multimedia, and network computer engineering.																																				
	<b>Program Objectives (PO)</b>																																					
	<b>PLO-PO Matrix</b>																																					
		<table border="1" style="margin: auto;"> <tr> <td style="width: 50px;">P.O</td> <td style="width: 50px;">PLO-8</td> </tr> </table>				P.O	PLO-8																															
P.O	PLO-8																																					
	<b>PO Matrix at the end of each learning stage (Sub-PO)</b>																																					
	<table border="1" style="margin: auto;"> <tr> <td rowspan="2" style="width: 30px;">P.O</td> <td colspan="16" style="text-align: center;">Week</td> </tr> <tr> <td style="width: 20px;">1</td> <td style="width: 20px;">2</td> <td style="width: 20px;">3</td> <td style="width: 20px;">4</td> <td style="width: 20px;">5</td> <td style="width: 20px;">6</td> <td style="width: 20px;">7</td> <td style="width: 20px;">8</td> <td style="width: 20px;">9</td> <td style="width: 20px;">10</td> <td style="width: 20px;">11</td> <td style="width: 20px;">12</td> <td style="width: 20px;">13</td> <td style="width: 20px;">14</td> <td style="width: 20px;">15</td> <td style="width: 20px;">16</td> </tr> </table>					P.O	Week																1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
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	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16																						
<b>Short Course Description</b>	This course discusses the basics of constituent components as well as layers in the OSI model and TCP/IP suite. The constituent components include devices, data transmission mechanisms, and the arrangement of packages in the encapsulation process. The deepening of TCP/IP material emphasizes the IPv4 addressing method for each class as well as preparing subnets according to standards, implementing the application layer and introducing Wireless Networks.																																					
<b>References</b>	<b>Main :</b>																																					
	1. James; Ross, Keith W. 2013.Computer Networking: A Top-down Approach, 6th Edition. USA: PearsonEducation, Inc. 2. Palmer, Michael. 2013.Hands-on: Networking Fundamental. USA: Cengage Learning.																																					
	<b>Supporters:</b>																																					
<b>Supporting lecturer</b>	Agus Prihanto, S.T., M.Kom.																																					
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	Master the basic concepts of computer networks, be able to explain and apply computer network technology and topology.	Explaining the basic concepts of computer networks, classifying computer networks, defining types of computer network topologies, applying technology and computer network topologies according to a case study.	<b>Criteria:</b> null	Approach: Scientific Model: Contextual Learning Method: Discussion, Presentation 3 X 50			0%																															

2	Master and be able to explain the concept of network architecture using both the OSI and TCP/IP models, and be able to differentiate the layers and components of each model	1. Explain the concept of protocols in networks 2. Explain the OSI model, and TCP/IP.3. defines the function of each layer in the three models and the protocols involved in each layer4. Analyze the differences between the OSI and TCP/IP models	Criteria: null	Cooperative Learning. Method: Discussion, Presentation 3 X 50			0%
3	Mastering the basic concepts of data communication in networks.	1. Explain the concept of data communication on computer networks	Criteria: null	Approach:Scientific Model:Problem-based learning. Method: Discussion, Presentation 3 X 50			0%
4	Comparing the function of the Physical Layer in the network architecture, including the type of transmission media and hardware on the network	1. Explain the concept and function of the physical layer in computer architecture2. Identify the types of hardware found on a computer network 3. Identify the types of transmission media on computer networks	Criteria: null	Approach: Scientific Model: Cooperative learning Method: Discussion, Presentation 3 X 50			0%
5	Master and be able to conceptually explain the function of the data link layer and supporting components at that layer	1. Explain the concept of the data link layer, the functions and mechanisms in that layer 2. Define the types of error detection mechanisms and error handling mechanisms that occur in the process of sending data on the network3. Define the types of flow control in the data transmission process	Criteria: null	Approach: Scientific Model: Cooperative Learning Method: Discussion, Presentation 3 X 50			0%
6	1. Master and be able to explain the concept and function of the internet layer and addressing with IP addresses. 2. Implement the IP address addressing process on the network.	1. Explain the concepts and mechanisms that exist at the network layer2. Define IP addresses, functions, classes and types3. Implementing IP address distribution/addressing on the network based on existing IP classes	Criteria: null	Approach: Scientific Model: Problem-based learning. Method: Discussion, Presentation, Demonstration. 6 X 50			0%
7							0%
8	Sub Summative Exam (UTS)			1 X 1			0%
9	1. Master the concept of subnetting 2. Apply the concept of subnetting to network design	1. Explain the concept of subnetting and its functions2. Implementing subnetting on a computer network	Criteria: null	Approach: Scientific Model: Problem-based learning. Method: Discussion, Presentation, Demonstration. 3 X 50			0%
10							0%
11	1. Master the concept of routing, both static and dynamic2. Implementing the Routing process on the network, including: types of routing, how it works and configuration on the network.	1. Explain the concept of routing and its functions2. Explain static and dynamic routing and their differences 3. Applying static and dynamic routing to a network topology	Criteria: null	Approach:Scientific Model:Problem-based learning. Method: Discussion, Presentation Demonstration. 1 X 1			0%
12							0%

13	1. Master and be able to explain the concepts and functions of the transport layer and supporting components in that layer 2. Master and be able to explain the concepts and functions of the Application Layer and supporting components at that layer	1. Explain the concepts and mechanisms at the transport layer 2. Defining the functions and mechanisms of the TCP and UDP protocols, 3. Analyze the differences between TCP and UDP protocols. 4. Explain the Application layer functions, mechanisms therein 5. Defines the types of protocols found at the application layer and their respective functions	Criteria: null	Approach: Scientific Model: Cooperative learning. Method: Discussion, Presentation 3 X 50			0%
14	Implementing protocols at the application layer in the network.	Implementing protocols at the application layer on a computer network	Criteria: null	Approach: Scientific Model: Problem-based learning. Method: Discussion, Presentation, Demonstration. 6 X 50			0%
15							0%
16							0%

#### Evaluation Percentage Recap: Project Based Learning

No	Evaluation	Percentage
		0%

#### Notes

- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- Forms of assessment:** test and non-test.
- 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.
- 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.
- Learning materials** are details or descriptions of study materials which can be presented in the form of several main points and sub-topics.
- 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%.
- TM=Face to face, PT=Structured assignments, BM=Independent study.