



**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>																																	
Advanced Computer Networks	8320703026		T=3 P=0 ECTS=4.77	5	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>	<b>Project Based Learning</b>																																					
<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>PLO-13</b>	Able to develop innovative educational products or learning resources using scientific design-based strategies to support teaching activities that can be integrated with ICT.																																				
	<b>Program Objectives (PO)</b>																																					
	<b>PLO-PO Matrix</b>																																					
		<table border="1" style="margin: auto;"> <tr> <td style="width: 20%;">P.O</td> <td style="width: 20%;">PLO-8</td> <td style="width: 20%;">PLO-13</td> <td colspan="3"></td> </tr> </table>					P.O	PLO-8	PLO-13																													
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<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: 10%;">P.O</td> <td colspan="16" style="text-align: center;">Week</td> </tr> <tr> <td style="width: 5%;">1</td> <td style="width: 5%;">2</td> <td style="width: 5%;">3</td> <td style="width: 5%;">4</td> <td style="width: 5%;">5</td> <td style="width: 5%;">6</td> <td style="width: 5%;">7</td> <td style="width: 5%;">8</td> <td style="width: 5%;">9</td> <td style="width: 5%;">10</td> <td style="width: 5%;">11</td> <td style="width: 5%;">12</td> <td style="width: 5%;">13</td> <td style="width: 5%;">14</td> <td style="width: 5%;">15</td> <td style="width: 5%;">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 advanced implementation of basic computer network concepts according to the OSI and TCP/IP models. The deepening of TCP/IP material emphasizes the IPv4 addressing method for each class as well as preparing subnets according to standards, routing implementation, application layer implementation and the latest concepts related to computer networks.																																					
<b>References</b>	<b>Main :</b>																																					
	1. Walter Goralski. 2017. The Illustrated Network: How TCP/IP Works in a Modern Network, Second Edition . Morgan Kaufman. Elsevier Inc.																																					
	<b>Supporters:</b>																																					
<b>Supporting lecturer</b>	Drs. Bambang Sujatmiko, M.T. Agus Prihanto, S.T., M.Kom. I Made Suartana, S.Kom., M.Kom.																																					
<b>Week-</b>	<b>Final abilities of each learning stage (Sub-PO)</b>	<b>Evaluation</b>		<b>Help Learning, Learning methods, Student Assignments, [ Estimated time]</b>		<b>Learning materials [ References ]</b>	<b>Assessment Weight (%)</b>																															
		<b>Indicator</b>	<b>Criteria &amp; Form</b>	<b>Offline ( offline )</b>	<b>Online ( online )</b>																																	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)																															

1	Understand the concept of computer networks	1. Explain the basic concepts of computer networks including: interconnection, types of computer networks and topology in computer networks in OSI and TCP/IP architecture networks		Approach: Scientific Model: Cooperative Method: Discussion, Presentation 3 X 50			0%
2	Network Security Concepts (part 2)	Understanding Security Issues Understanding Technological Weaknesses in Computer Networks		Approach: Scientific Model: Cooperative Method: Discussion, Presentation 3 X 50			0%
3	Cryptography	Understand the concept of cryptography as a basis for network security mechanisms		3 X 50			0%
4	Students can apply dynamic routing configurations to networks	1. Implement dynamic routing configuration with RIP and OSPF on the computer network topology		Approach: Scientific Model: Cooperative Method: Discussion, Presentation 3 X 50			0%
5	Understand the concepts and working mechanisms of the TCP/IP application layer	Briefly describes how HTTP, DNS, DHCP, and FTP work		3 X 50			0%
6	Able to apply Application Layer configuration	1. Apply DHCP configuration to the network2. Applying HTTP configuration to the network3. Implement FTP and file sharing configuration on the network.		3 X 50			0%
7	Able to apply Application Layer configuration	1. Apply DHCP configuration to the network2. Applying HTTP configuration to the network3. Implement FTP and file sharing configuration on the network.		3 X 50			0%
8				3 X 50			0%
9	Students are able to explain the functions and how VLANs work	Explain the concept of VLAN in computer networks		3 X 50			0%
10	Students are able to implement VLANs on networks	Implementing VLAN configuration in a computer network		3 X 50			0%

11	Students can carry out Network Monitoring	1.Explains concepts and protocols in network monitoring 2.Implement network monitoring using software		3 X 50			0%
12	Students can apply monitoring to the network	Using software to monitor the network		3 X 50			0%
13	Students understand the concept of Content distribution networks or Content Delivery Network	Explain the CDN concept. Mention the application or case study of CDN use		3 X 50			0%
14	Students understand the concept of Software-defined networking (SDN)	Explain the concept of SDN. Mention the application or case study of SDN use		3 X 50			0%
15	Advanced Computer Network Final Project			3 X 50			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.

