



**Universitas Negeri Surabaya  
Faculty of Engineering,  
Electrical Engineering 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 Networks and Mobile Computing	2020103048		T=3	P=0	ECTS=4.77	6	July 18, 2024																																
<b>AUTHORIZATION</b>		<b>SP Developer</b>	<b>Course Cluster Coordinator</b>			<b>Study Program Coordinator</b>																																	
		.....	.....			Dr. Lusia Rakhmawati, S.T., M.T.																																	
<b>Learning model</b>	Project Based Learning																																						
<b>Program Learning Outcomes (PLO)</b>	PLO study program that is charged to the course																																						
	Program Objectives (PO)																																						
	PLO-PO Matrix																																						
		P.O																																					
<b>Short Course Description</b>	This course discusses the meaning of applications, network architecture and performance, network connectivity which includes coding processes, ethernet, multiple access networks, internetworking, cellular networks, channel management, MAC protocols, WSN, Ad-Hoc and MANET architecture, WPAN, UMTS, Wireless technology. data packages and security on wireless networks																																						
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td rowspan="2" style="width: 10%; text-align: center;">P.O</td> <td colspan="16" style="text-align: center;">Week</td> </tr> <tr> <td style="width: 5%; text-align: center;">1</td> <td style="width: 5%; text-align: center;">2</td> <td style="width: 5%; text-align: center;">3</td> <td style="width: 5%; text-align: center;">4</td> <td style="width: 5%; text-align: center;">5</td> <td style="width: 5%; text-align: center;">6</td> <td style="width: 5%; text-align: center;">7</td> <td style="width: 5%; text-align: center;">8</td> <td style="width: 5%; text-align: center;">9</td> <td style="width: 5%; text-align: center;">10</td> <td style="width: 5%; text-align: center;">11</td> <td style="width: 5%; text-align: center;">12</td> <td style="width: 5%; text-align: center;">13</td> <td style="width: 5%; text-align: center;">14</td> <td style="width: 5%; text-align: center;">15</td> <td style="width: 5%; text-align: center;">16</td> </tr> </table>							P.O	Week																1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
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<b>References</b>	<b>Main :</b> 1. Larry L. Peterson and Bruce S. Davie. 2012.Computer Network a system approach,5th edition. Morgan Kaufma 2. Ivan Stojmenovic. 2002. Handbook of Wireless Networks and Mobile Computing. John Wiley&Sons,Inc 3. Azzedine Boukerche.2006.Handbook of Algorithms for Wireless Networking and Mobile Computing. Chapman&Hall/CRC Computer and Information Science Series  <b>Supporters:</b>																																						
<b>Supporting lecturer</b>	EPPY YUNDRA Dr. Nurhayati, S.T., M.T. Pradini Puspitaningayu, S.T., M.T., Ph.D.																																						
<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	Students can determine devices and classifications for building networks	a. Students know network applications on computers and mobile computing b. Students can determine network devices and architecture c. Students can explain network performance		Lectures and presentations 3 X 50			0%
2	Students can understand the concept of multiplexing and multiplexing techniques	Students know, understand and understand multiplexing and its functions in computer networks in detail. Students understand the meaning of these multiplexing techniques, both the modulation and demodulation processes down to the basic circuits and their applications. Students know and understand the meaning of LAN, MAN, WAN		Lectures, Presentations, Assignments 3 X 50			0%

3	Students can understand medium access sublayer, LAN, ALOHA Protocol, LAN Protocol, IEEE 802.XX Standard for LAN	<ol style="list-style-type: none"> <li>1.Students can explain again the meaning of the medium access sublayer and its function.</li> <li>2.Students can explain the meaning of a good LAN topology and its advantages</li> <li>3.Students can explain the meaning of the protocol in general, the function of the ALOHA protocol and its advantages</li> <li>4.Students can explain the meaning of protocols in general, the function of LAN protocols and their advantages. And can differentiate between ALOHA and LAN</li> <li>5.Students can explain the meaning of functions in general, in the IEEE802.XX standard. especially for Computer Networks</li> </ol>		3 X 50			0%
4	Students can explain network connectivity	<ol style="list-style-type: none"> <li>a. Students can explain the coding process</li> <li>b. Describe Ethernet and Multiple Access Network technology</li> <li>c. Identifying Wireless devices: Wifi/Bluetooth, cellphone technology</li> </ol>		Discussion, presentation 3 X 50			0%
5	Students are able to describe Internet working	<ol style="list-style-type: none"> <li>a. Understand routing, Switching and Bridging</li> <li>b. Know the basics of internetworking</li> <li>c. Understand the performance and implementation of Internet working</li> </ol>		6 X 50 discussion presentation			0%

6	Students are able to describe Internet working	a. Understand routing, Switching and Bridging b. Know the basics of internetworking c. Understand the performance and implementation of Internet working		6 X 50 discussion presentation			0%
7	Students can describe advanced internetworking	a. Explain the global internet b. Describe Multicast c. Describe Multiprotocol Label Switching d. Explaining Mobile IP		Lectures, discussions 6 X 50			0%
8	Students can describe advanced internetworking	a. Explain the global internet b. Describe Multicast c. Describe Multiprotocol Label Switching d. Explaining Mobile IP		Lectures, discussions 6 X 50			0%
9	UTS	Meetings 1-8		3 X 50			0%
10	Categorize management and problems in cellular networks	a. Determine the cellular network b. Explain Location Management c. Interference and frequency management/ Channel Assignment		Presentation and discussion 3 X 50			0%
11	Describe Wireless Media Access Control	1. Understanding wireless protocols 2. MAC Protocol		Lecture presentation 3 X 50			0%
12	Explain MAC protocol for WSN	a. Understanding WSN b. MAC Protocol for WSN		a. Understanding WSN b. MAC Protocol for WSN 3 X 50			0%
13	Categorizing Mobile Ad Hoc Networks	a. Ad-Hoc Architecture b. Broadcast and Multicast MANET		3 X 50 discussion presentation			0%
14	Mention and analyze Traffic Integration in Personal, Local, Geographical Wireless Network	a. WPAN Technology: Bluetooth b. UMTS c. Wireless packet data network d. Radio Network Protocol		3 X 50			0%
15	Security in Wireless Networks	Security in WLAN Security in Ad Hoc networks		3 X 50			0%
16	UAS			3 X 50			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** 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.