



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

Document Code

SEMESTER LEARNING PLAN

Courses	CODE	Course Family	Credit Weight	SEMESTER	Compilation Date																																	
Wireless Network	8320703027		T=3 P=0 ECTS=4.77	5	July 17, 2024																																	
AUTHORIZATION	SP Developer		Course Cluster Coordinator		Study Program Coordinator																																	
		Drs. Bambang Sujatmiko, M.T.																																	
Learning model	Project Based Learning																																					
Program Learning Outcomes (PLO)	PLO study program which is charged to the course																																					
	PLO-8	Mastering the concepts and implementation in developing software engineering, games, intelligent multimedia, and network computer engineering.																																				
	PLO-13	Able to develop innovative educational products or learning resources using scientific design-based strategies to support teaching activities that can be integrated with ICT.																																				
	Program Objectives (PO)																																					
	PLO-PO Matrix																																					
		<table border="1" style="margin-left: auto; margin-right: 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																													
P.O	PLO-8	PLO-13																																				
PO Matrix at the end of each learning stage (Sub-PO)																																						
	<table border="1" style="margin-left: auto; margin-right: 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																						
Short Course Description	This course discusses the concept of wireless networks, technology in wireless networks, their development and implementation of wireless networks including: the basics of wireless transmission and communication, types of wireless network technology which are included in wireless personal area networks (WPAN), wireless local area networks (WLAN), wireless Metropolitan area network (WWAN), Wireless network topology and infrastructure, and Security in Wireless Networks.																																					
References	Main :																																					
	<ol style="list-style-type: none"> 1. Fette B, Aiello R, Chandra P, Dobkin D M, Bensky A, Miron D, Lide D. A, Dowla F, Olexa R. 2008. RF & Wireless Technologies: Know It All. Elsevier. 2. Garg Vijay, 2007, Wireless Communication and Networking, Morgan Kaufmann. 3. Rappaport Theodore S, Wireless Communications Principles and Practice: Second Edition, Pretice Hall. 4. Purbo. Onno W, 2007, Jaringan Wireless di Dunia Berkembang. 																																					
	Supporters:																																					
Supporting lecturer	Agus Prihanto, S.T., M.Kom. I Gusti Lanang Putra Eka Prisma, S.Kom., 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 wireless networks, and be able to explain technology and developments in wireless networks.	<ol style="list-style-type: none"> 1.Explain the basic concepts of Wireless networks, 2.Classifying Wireless networks, 3.Define the development of wireless networks and examples of wireless network implementation 		<p>Approach: Scientific Model: Contextual Learning Method: Discussion, Presentation 3 X 50</p>			0%
2	Master and be able to explain wireless network standards and architecture	<ol style="list-style-type: none"> 1.Defines standards for wireless networks 2.Explain the architecture of wireless networks 		<p>Approach: Scientific Model: Cooperative Learning Method: Discussion, Presentation 3 X 50</p>			0%
3	Master and be able to explain the concepts and processes of data and radio frequency communications on wireless networks.	<ol style="list-style-type: none"> 1.Explain the basic concepts of communication on wireless networks. 2.Explain the concept of radio frequency. 3.Distinguish between types of modulation and spectrum spread. 		<p>Approach: Scientific Model: Cooperative learning Method: Discussion, Presentation 3 X 50</p>			0%
4	Master and be able to explain the concepts, developments and types of technology in the WPAN standard.	<ol style="list-style-type: none"> 1. Explain the 802.15 Standard on Wireless networks. 2. Distinguish between types of technology and the characteristics of each technology in the WPAN standard. 		<p>Approach: Scientific Model: Cooperative Learning Method: Discussion, Presentation 6 X 50</p>			0%
5	Master and be able to explain the concepts, developments and types of technology in the WPAN standard.	<ol style="list-style-type: none"> 1. Explain the 802.15 Standard on Wireless networks. 2. Distinguish between types of technology and the characteristics of each technology in the WPAN standard. 		<p>Approach: Scientific Model: Cooperative Learning Method: Discussion, Presentation 6 X 50</p>			0%
6	Master and be able to explain the concepts, developments and types of technology in WLAN standards.	<ol style="list-style-type: none"> 1. Explain the 802.11 Standard on Wireless networks. 2. Distinguish between types of technology and the characteristics of each technology in the WLAN standard. 		<p>Approach: Scientific Model: Cooperative Learning Method: Discussion, Presentation 6 X 50</p>			0%
7	Master and be able to explain the concepts, developments and types of technology in WLAN standards.	<ol style="list-style-type: none"> 1. Explain the 802.11 Standard on Wireless networks. 2. Distinguish between types of technology and the characteristics of each technology in the WLAN standard. 		<p>Approach: Scientific Model: Cooperative Learning Method: Discussion, Presentation 6 X 50</p>			0%
8	UTS			<p>3 X 50</p>			0%

9	Master and be able to explain the concepts, developments and types of technology in the WMAN standard.	1. Explain the 802.16 Standard on Wireless networks.2. Distinguish between types of technology and the characteristics of each technology in the WMAN standard.		Approach: Scientific Model: Cooperative Learning Method: Discussion, Presentation, 3 X 50			0%
10	Master and be able to apply wireless network design in accordance with case studies and existing technology	Design wireless networks according to case studies and existing technologies		Approach: Scientific Model: Problem-based learning. Method: Discussion, Presentation Demonstration. 6 X 50			0%
11	Master and be able to apply wireless network design in accordance with case studies and existing technology	Design wireless networks according to case studies and existing technologies		Approach: Scientific Model: Problem-based learning. Method: Discussion, Presentation Demonstration. 6 X 50			0%
12	Master and be able to explain the concepts, developments and types of cellular technology.	1. Explain the concept of cellular technology. 2. Distinguish between GSM and CDMA technology 3. Distinguish between developments in 1G, 2G, 3G, 4G and 5G cellular technology.		Approach: Scientific Model: Cooperative Learning Method: Discussion, Presentation, Demonstration. 6 X 50			0%
13	Master and be able to explain the concepts, developments and types of cellular technology.	1. Explain the concept of cellular technology. 2. Distinguish between GSM and CDMA technology 3. Distinguish between developments in 1G, 2G, 3G, 4G and 5G cellular technology.		Approach: Scientific Model: Cooperative Learning Method: Discussion, Presentation, Demonstration. 6 X 50			0%
14	Mastering the concept of wireless Ad-Hoc networks, their implementation and development.	1. Explain the concept of wireless ad-hoc networks 2. Differentiate between infrastructure networks and networks without infrastructure (Ad-Hoc)		Approach: Scientific Model: Problem-based learning. Method: Discussion, Presentation Demonstration. 6 X 50			0%
15	Mastering the concept of wireless Ad-Hoc networks, their implementation and development.	1. Explain the concept of wireless ad-hoc networks 2. Differentiate between infrastructure networks and networks without infrastructure (Ad-Hoc)		Approach: Scientific Model: Problem-based learning. Method: Discussion, Presentation Demonstration. 6 X 50			0%
16				UAS	UAS		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.