



Universitas Negeri Surabaya
Faculty of Engineering
, Electrical Engineering Education Undergraduate Study Program

Document Code

SEMESTER LEARNING PLAN

Courses	CODE	Course Family	Credit Weight	SEMESTER	Compilation Date
Telecommunication Systems	8320102174		T=2 P=0 ECTS=3.18	4	July 17, 2024
AUTHORIZATION	SP Developer		Course Cluster Coordinator		Study Program Coordinator
		Dr. Nur Kholis, S.T., M.T.

Learning model	Case Studies																																																	
Program Learning Outcomes (PLO)	PLO study program that is charged to the course																																																	
	PLO-7 Able to apply applied research to innovate vocational learning methods, optimize production process technology and electrical engineering services relevant to industry (Education).																																																	
	PLO-9 Able to communicate in Indonesian and English well orally and in writing (General).																																																	
	PLO-10 Have a responsible character and be committed to professional ethics (General/SSC4.6).																																																	
	Program Objectives (PO)																																																	
	PO - 1 This course discusses basic knowledge of telecommunications systems, the function of basic telecommunications elements, telecommunications networks, information signals carried via telecommunication networks, transmission system concepts, knowledge of analog and digital modulation, multiplex systems, transmission equipment in networks, basic systems mobile communications, GSM systems, CDMA systems, WLAN, and WiMAX																																																	
	PLO-PO Matrix																																																	
	<table border="1" style="margin: auto;"> <tr> <td>P.O</td> <td>PLO-7</td> <td>PLO-9</td> <td>PLO-10</td> </tr> <tr> <td>PO-1</td> <td></td> <td></td> <td></td> </tr> </table>	P.O	PLO-7	PLO-9	PLO-10	PO-1																																												
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	PO-1																																																	
PO Matrix at the end of each learning stage (Sub-PO)																																																		
<table border="1" style="margin: auto;"> <tr> <td rowspan="2">P.O</td> <td colspan="16">Week</td> </tr> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td> </tr> <tr> <td>PO-1</td> <td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </table>	P.O	Week																1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	PO-1																
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PO-1																																																		

Short Course Description This lecture discusses the basic concepts of telecommunications, telecommunications networks, information signals, information signals carried via telecommunication networks, transmission system concepts, transmission media, transmission equipment in networks, mobile communication systems, GSM systems, CDMA systems, WLAN, WiMax and technological developments. the latest telecommunications.

References	Main :	
		<ol style="list-style-type: none"> 1. Simon Haykin. 2001. Communication Systems, 4th edition. New York: John Wiley & Sons 2. Tarmo Anttalainen. 2003. Introduction to telecommunications network engineering 2-edition. Norwood: Artech House Telecommunication. 3. M.R. Karim. 2002. W-CDMA and cdma2000 for 3G Mobile Network. McGraw-Hill
	Supporters:	

Supporting lecturer Dr. Nurhayati, S.T., M.T.
 Dr. Lusia Rakhmawati, S.T., M.T.
 Dr. Farid Baskoro, 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	Demonstrates basic telecommunications	according to the Grading Rubric	<p>Criteria: according to the Grading Rubric</p> <p>Form of Assessment : Participatory Activities, Practice/Performance</p>	<p>1. Understand the meaning of telecommunications</p> <p>2. Know the history of telecommunications</p> <p>3. Know telecommunications standards</p> <p>4. Know the 2x50 telecommunications standards organization</p>		<p>Material: 1. Understand the meaning of telecommunications</p> <p>2. Know the history of telecommunications</p> <p>3. Know telecommunications standards</p> <p>4. Know telecommunications standards organizations</p> <p>Reader: <i>Simon Haykin. 2001. Communication Systems, 4th edition. New York: John Wiley & Sons</i></p>	4%
2	Demonstrates basic telecommunications	according to the Grading Rubric	<p>Criteria: according to the Grading Rubric</p> <p>Form of Assessment : Participatory Activities, Practice/Performance</p>	<p>1. Understand the meaning of telecommunications</p> <p>2. Know the history of telecommunications</p> <p>3. Know telecommunications standards</p> <p>4. Know the 2x50 telecommunications standards organization</p>		<p>Material: 1. Understand the meaning of telecommunications</p> <p>2. Know the history of telecommunications</p> <p>3. Know telecommunications standards</p> <p>4. Know telecommunications standards organizations</p> <p>Reader: <i>Simon Haykin. 2001. Communication Systems, 4th edition. New York: John Wiley & Sons</i></p>	4%
3	Shows Telecommunication Networks		<p>Form of Assessment : Participatory Activities</p>	<p>Describe the Local Area Network</p> <p>2. Show the Trunk network</p> <p>3. Describe the telecommunications network</p>		<p>Material: Describing a Local Area Network</p> <p>2. Showing a Trunk network</p> <p>3. Describing a telecommunications network</p> <p>Reader: <i>Simon Haykin. 2001. Communication Systems, 4th edition. New York: John Wiley & Sons</i></p>	4%
4	Shows Telecommunication Networks		<p>Form of Assessment : Participatory Activities</p>	<p>Describe the Local Area Network</p> <p>2. Show the Trunk network</p> <p>3. Describe the telecommunications network</p>		<p>Material: Describing a Local Area Network</p> <p>2. Showing a Trunk network</p> <p>3. Describing a telecommunications network</p> <p>Reader: <i>Simon Haykin. 2001. Communication Systems, 4th edition. New York: John Wiley & Sons</i></p>	4%
5	Shows information signals carried via telecommunication networks	according to the Grading Rubric	<p>Criteria: according to the Grading Rubric</p> <p>Form of Assessment : Participatory Activities, Tests</p>	<p>Describes the source coding method: Pulse Code Modulation</p> <p>2. Shows other source coding methods: APCM, DPCM, DM, ADPCM, speech coding GSM</p>		<p>Material: Describes the source coding method: Pulse Code Modulation</p> <p>2. Shows other source coding methods: APCM, DPCM, DM, ADPCM, GSM speech coding</p> <p>Reader: <i>Simon Haykin. 2001. Communication Systems, 4th edition. New York: John Wiley & Sons</i></p>	4%

6		according to the Grading Rubric	Form of Assessment : Participatory Activities	1. Shows copper cable 2. Shows coaxial cable 3. Shows radio transmission 4. Shows satellite transmission		Material: . Shows copper cable 2. Shows coaxial cable 3. Shows radio transmission 4. Shows satellite transmission Reader: <i>Simon Haykin. 2001. Communication Systems, 4th edition. New York: John Wiley & Sons</i>	4%
7		according to the Grading Rubric	Form of Assessment : Participatory Activities	1. Shows copper cable 2. Shows coaxial cable 3. Shows radio transmission 4. Shows satellite transmission		Material: . Shows copper cable 2. Shows coaxial cable 3. Shows radio transmission 4. Shows satellite transmission Reader: <i>Simon Haykin. 2001. Communication Systems, 4th edition. New York: John Wiley & Sons</i>	4%
8	UTS		Form of Assessment : Participatory Activities, Tests				20%
9	Students can analyze Digital Loop Carriers and Digital Switching	according to the Grading Rubric	Criteria: according to the Grading Rubric Form of Assessment : Participatory Activities	Chapter 6 Digital Networks		Material: Chapter 6 Digital Networks Reader: <i>Simon Haykin. 2001. Communication Systems, 4th edition. New York: John Wiley & Sons</i>	4%
10	Students can study and analyze types of Signaling Techniques	according to the Grading Rubric	Criteria: according to the Grading Rubric Forms of Assessment : Participatory Activities, Project Results Assessment / Product Assessment	Chapter 7 Signaling		Material: Chapter 7 Signaling Reader: <i>Simon Haykin. 2001. Communication Systems, 4th edition. New York: John Wiley & Sons</i>	4%
11	Students can analyze designing link budget requirements for Long-Distance Networks	according to the Grading Rubric	Criteria: according to the Grading Rubric Forms of Assessment : Participatory Activities, Project Results Assessment / Product Assessment	Chapter 8 Local and Long-Distance Networks		Material: Chapter 8 Local and Long-Distance Networks Reader: <i>Simon Haykin. 2001. Communication Systems, 4th edition. New York: John Wiley & Sons</i>	5%
12	Students can analyze designing link budget requirements for Long-Distance Networks	according to the Grading Rubric	Criteria: according to the Grading Rubric Forms of Assessment : Participatory Activities, Project Results Assessment / Product Assessment	Chapter 8 Local and Long-Distance Networks		Material: Chapter 8 Local and Long-Distance Networks Reader: <i>Simon Haykin. 2001. Communication Systems, 4th edition. New York: John Wiley & Sons</i>	5%
13	Students are able to analyze Radio Systems and Satellite Communications		Form of Assessment : Participatory Activities	Chapter 9 Concepts in Transmission Transport		Material: Chapter 9 Concepts in Transmission Transport Library: <i>Simon Haykin. 2001. Communication Systems, 4th edition. New York: John Wiley & Sons</i>	5%

14	1. Students are able to analyze Radio Systems and Satellite Communications 2. Students can analyze Coding, Errors in Data Transmission and Binary Transmission and the Concept of Time		Form of Assessment : Participatory Activities	Chapter 9 Concepts in Transmission Transport	chapter 10 Data communication	Material: Chapter 9 Concepts in Transmission Transport Library: <i>Simon Haykin. 2001. Communication Systems, 4th edition. New York: John Wiley & Sons</i>	3%
15	1. Students are able to analyze Radio Systems and Satellite Communications 2. Students can analyze Coding, Errors in Data Transmission and Binary Transmission and the Concept of Time		Form of Assessment : Participatory Activities	Chapter 9 Concepts in Transmission Transport	chapter 10 Data communication	Material: Chapter 9 Concepts in Transmission Transport Library: <i>Simon Haykin. 2001. Communication Systems, 4th edition. New York: John Wiley & Sons</i>	3%
16	UAS		Form of Assessment : Participatory Activities, Tests				23%

Evaluation Percentage Recap: Case Study

No	Evaluation	Percentage
1.	Participatory Activities	65.5%
2.	Project Results Assessment / Product Assessment	7%
3.	Practice / Performance	4%
4.	Test	23.5%
		100%

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.