



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 Network	8320102257	Compulsory Study Program Subjects	T=2 P=0 ECTS=3.18	5	July 17, 2024
AUTHORIZATION	SP Developer		Course Cluster Coordinator		Study Program Coordinator
		Dr. Nur Kholis, S.T., M.T.

Learning model | Project Based Learning

Program Learning Outcomes (PLO)	PLO study program that is charged to the course																																																																																																	
	PLO-8	Have extensive knowledge in the fields of general knowledge, social and humanities (General).																																																																																																
	PLO-10	Have a responsible character and be committed to professional ethics (General/SSC4.6).																																																																																																
	Program Objectives (PO)																																																																																																	
	PO - 1	Understand the basic concepts of telecommunications and data networks and be able to understand their configuration and performance.																																																																																																
	PO - 2	Can identify various telecommunication network mechanisms and determine network requirements according to service requirements.																																																																																																
	PO - 3	Can comprehensively explain telecommunications network architecture and communication layers.																																																																																																
	PLO-PO Matrix																																																																																																	
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PO-3																																																																																																		
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">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> <tr> <td>PO-2</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> <tr> <td>PO-3</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																	PO-2																	PO-3																
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Short Course Description | This course studies the basic concepts of telecommunications and data networks including telephone techniques, network interconnectivity, network components, switching systems, queuing models, routing mechanisms, mobile communication networks, numbering and addressing techniques.

References

Main :

1. Tarmo Anttalainen, Introduction to telecommunication Network Engineering & Artech House
2. Indra Wijaya, Communication Networks, Fundamental Concept and Key Architecture & Mc Graw Hill
3. Valdar, Andy. Understanding Telecommunications Networks. 2006. The Institution of Engineering and Technology, Herts, UK.

Supporters:

Supporting lecturer | Prof. Dr. I Gusti Putu Asto Buditjahjanto, S.T., M.T.
 Pradini Puspitaningayu, S.T., M.T., Ph.D.

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	Understand telecommunications electronic circuits including oscillator, modulator, filter and amplifier circuits	· Explain the block diagram of telecommunications. · Interpret the working principles of oscillator, filter, amplifier circuits · Demonstrate the working principles of analog and digital modulators.	Criteria: Full marks are obtained if you do all the questions correctly	Lectures, discussions, presentations 3 X 50			0%
2	Understand and be able to simulate and also be able to analyze oscillator, filter and amplifier circuits.	· Can simulate oscillator, filter and amplifier circuits using multisim software. · Can create oscillator, filter, amplifier circuits with direct measurements. · And can make analysis of practical results	Criteria: Full marks are obtained if you do all the questions correctly	Lectures, discussions, presentations 3 X 50			0%
3	Understand and be able to simulate and also be able to analyze AM, FM and PM analog module circuits	· Can simulate AM, FM, PM analog modulator circuits using multisim software. · Can carry out practical work and direct measurements of simulated software · And can make analysis of practical results	Criteria: Full marks are obtained if you do all the questions correctly	Lectures, discussions, presentations 3 X 50			0%
4	Understand and be able to simulate and also be able to analyze AM, FM and PM analog module circuits	· Can simulate AM, FM, PM analog modulator circuits using multisim software. · Can carry out practical work and direct measurements of simulated software · And can make analysis of practical results	Criteria: Full marks are obtained if you do all the questions correctly	Lectures, discussions, presentations 3 X 50			0%
5	Can simulate and also analyze circuits, input and output digital modulation, ASK, FSK, PSK	· Can simulate ASK, FSK, PSK digital modulator circuits using multisim software · Can carry out practical work and direct measurements of the simulated software · And can make analysis of practical results	Criteria: Full marks are obtained if you do all the questions correctly	Lectures, discussions, presentations 3 X 50			0%
6	Can simulate and also analyze circuits, input and output digital modulation, ASK, FSK, PSK	· Can simulate ASK, FSK, PSK digital modulator circuits using multisim software · Can carry out practical work and direct measurements of the simulated software · And can make analysis of practical results	Criteria: Full marks are obtained if you do all the questions correctly	Lectures, discussions, presentations 3 X 50			0%
7							0%
8							0%
9							0%
10							0%
11							0%
12							0%

13							0%
14							0%
15							0%
16							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.**