



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

Document Code

SEMESTER LEARNING PLAN

Courses	CODE	Course Family	Credit Weight			SEMESTER	Compilation Date
TELECOMMUNICATIONS PRACTICUM	2020101273	Compulsory Study Program Subjects	T=0	P=0	ECTS=0	4	April 10, 2023
AUTHORIZATION	SP Developer		Course Cluster Coordinator			Study Program Coordinator	
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Learning model	Project Based Learning
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Program Learning Outcomes (PLO)	PLO study program which is charged to the course	
	Program Objectives (PO)	
	PO - 1	Able to design system components or processes to be applied in the telecommunications sector
	PO - 2	Able to design and carry out experiments in the laboratory/field as well as analyze and interpret data to strengthen the field of telecommunications engineering
	PO - 3	Able to apply modern telecommunications methods and skills needed to solve problems in the telecommunications field
	PO - 4	Able to plan, complete and evaluate tasks related to the field of telecommunications engineering

PLO-PO Matrix							
	<table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>P.O</td></tr> <tr><td>PO-1</td></tr> <tr><td>PO-2</td></tr> <tr><td>PO-3</td></tr> <tr><td>PO-4</td></tr> <tr><td>PO-5</td></tr> </table>	P.O	PO-1	PO-2	PO-3	PO-4	PO-5
P.O							
PO-1							
PO-2							
PO-3							
PO-4							
PO-5							

PO Matrix at the end of each learning stage (Sub-PO)

	<table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <th rowspan="2">P.O</th> <th colspan="16">Week</th> </tr> <tr> <th>1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>6</th><th>7</th><th>8</th><th>9</th><th>10</th><th>11</th><th>12</th><th>13</th><th>14</th><th>15</th><th>16</th> </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> <tr><td>PO-4</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-5</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																	PO-4																	PO-5																
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Short Course Description	Students can discuss the basic telecommunication concepts that underlie each experiment, identify and visualize the output of AM, FM, and PM analog modulation signals, as well as identify and visualize the output of ASK, FSK, and PSK digital modulation signals through problem based learning. Students are able to design, implement, test, and carry out troubleshooting on communication network projects carried out through project based learning.
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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. 2nd edition. Norwood : Artech House telecommunications library 3. Martin Sauter. 2006. Communication Systems for the Mobile Information Society. John Wiley & Sons 4. M.R. Karim . 2002. W-CDMA and cdma2000 for 3G Mobile Network. McGraw-Hill 					
		Supporters:					
		<ol style="list-style-type: none"> 1. Ziemer, Rodger E., 2014, Principles of communication: systems, modulation, and noise, 4th edition, USA: Wiley 2. Roger L. Freeman, Fundamentals of Telecommunications. 1999, New York: John Wiley & Sons 					
Supporting lecturer		Dr. Farid Baskoro, S.T., M.T. Miftahur Rohman, 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	Students are able to explain the practical implementation of design and construction of series and parallel passive filter lowpass telecommunications projects using software	Students are able to explain the practical implementation of design and construction of series and parallel passive filter lowpass telecommunications projects using software	Criteria: Evaluation Rubric Form of Assessment : Participatory Activities	problem based learning 1 X 50		Material: Meeting material 1 Reader: Simon Haykin. 2001. Communication Systems, 4th edition. New York: John Wiley & Sons	3%
2	Students are able to explain the practical implementation of design and construction of series and parallel passive filter highpass telecommunications projects using software	Students are able to explain the practical implementation of design and construction of series and parallel passive filter highpass telecommunications projects using software	Criteria: Evaluation Rubric Form of Assessment : Participatory Activities	problem based learning 1 X 50		Material: Meeting material 1 Reader: Simon Haykin. 2001. Communication Systems, 4th edition. New York: John Wiley & Sons	3%
3	Students are able to explain the implementation of design and construction practices for passive bandstop filter telecommunications projects using software	Students are able to explain the implementation of design and construction practices for passive bandstop filter telecommunications projects using software	Criteria: Evaluation Rubric Form of Assessment : Participatory Activities	problem based learning 1 X 50		Material: Meeting material 1 Reader: Simon Haykin. 2001. Communication Systems, 4th edition. New York: John Wiley & Sons	3%
4	Students are able to explain the practical implementation of design and construction of passive bandpass filter telecommunications projects using software	Students are able to explain the implementation of design and construction practices for passive bandpass filter telecommunications projects using software	Criteria: Evaluation Rubric Form of Assessment : Participatory Activities	problem based learning 1 X 50		Material: Meeting material 1 Reader: Simon Haykin. 2001. Communication Systems, 4th edition. New York: John Wiley & Sons	3%
5	Students are able to explain the practical implementation of design and construction of series and parallel active lowpass filter telecommunications projects using software	Students are able to explain the practical implementation of design and construction of series and parallel active lowpass filter telecommunications projects using software	Criteria: Evaluation Rubric Form of Assessment : Participatory Activities	problem based learning 1 X 50		Material: Meeting material 1 Reader: Simon Haykin. 2001. Communication Systems, 4th edition. New York: John Wiley & Sons	3%

6	Students are able to explain the practical implementation of design and construction of series and parallel active highpass filter telecommunications projects using software	Students are able to explain the implementation of design and construction practices for series and parallel active high filter telecommunications projects using software	Criteria: Evaluation Rubric Form of Assessment : Participatory Activities	problem based learning 1 X 50		Material: Meeting material 1 Reader: <i>Simon Haykin. 2001. Communication Systems, 4th edition. New York: John Wiley & Sons</i>	3%
7	Students are able to explain the implementation of design and construction practices for active bandstop filter telecommunications projects using software	Students are able to explain the implementation of design and construction practices for active bandstop filter telecommunications projects using software	Criteria: Evaluation Rubric Form of Assessment : Participatory Activities	problem based learning 1 X 50		Material: Meeting material 1 Reader: <i>Simon Haykin. 2001. Communication Systems, 4th edition. New York: John Wiley & Sons</i>	7%
8	UTS	Students are able to explain the practical implementation of design and construction of telecommunications projects	Criteria: Evaluation Rubric Form of Assessment : Test	problem based learning 1 X 50		Material: Meeting material 1 Reader: <i>Simon Haykin. 2001. Communication Systems, 4th edition. New York: John Wiley & Sons</i>	20%
9	Students are able to explain the practical implementation of design and construction of active bandpass filter telecommunications projects using software	Students are able to explain the practical implementation of design and construction of active bandpass filter telecommunications projects using software	Criteria: Evaluation Rubric Form of Assessment : Participatory Activities	problem based learning 1 X 50		Material: Meeting material 1 Reader: <i>Simon Haykin. 2001. Communication Systems, 4th edition. New York: John Wiley & Sons</i>	3%
10	Students are able to explain the implementation of design and construction practices for AM circuit telecommunications projects using software	Students are able to explain the implementation of design and construction practices for AM circuit telecommunications projects using software	Criteria: Evaluation Rubric Form of Assessment : Participatory Activities	problem based learning 1 X 50		Material: Meeting material 1 Reader: <i>Simon Haykin. 2001. Communication Systems, 4th edition. New York: John Wiley & Sons</i>	3%
11	Students are able to explain the practical implementation of design and construction of FM network telecommunication projects using software	Students are able to explain the practical implementation of design and construction of FM network telecommunication projects using software	Criteria: Evaluation Rubric Form of Assessment : Participatory Activities	problem based learning 1 X 50		Material: Meeting material 1 Reader: <i>Simon Haykin. 2001. Communication Systems, 4th edition. New York: John Wiley & Sons</i>	3%
12	Students are able to explain the practical implementation of design and construction of telecommunications projects	Students are able to explain the practical implementation of design and construction of telecommunications projects	Criteria: Evaluation Rubric Form of Assessment : Participatory Activities	problem based learning 1 X 50		Material: Meeting material 1 Reader: <i>Simon Haykin. 2001. Communication Systems, 4th edition. New York: John Wiley & Sons</i>	3%
13	Students are able to explain the practical implementation of design and construction of telecommunications projects	Students are able to explain the practical implementation of design and construction of telecommunications projects	Criteria: Evaluation Rubric Form of Assessment : Participatory Activities	problem based learning 1 X 50		Material: Meeting material 1 Reader: <i>Simon Haykin. 2001. Communication Systems, 4th edition. New York: John Wiley & Sons</i>	3%

14	Students are able to explain the practical implementation of design and construction of telecommunications projects	Students are able to explain the practical implementation of design and construction of telecommunications projects	Criteria: Evaluation Rubric Form of Assessment : Participatory Activities	problem based learning 1 X 50		Material: Meeting material 1 Reader: <i>Simon Haykin. 2001. Communication Systems, 4th edition. New York: John Wiley & Sons</i>	3%
15	Students are able to explain the practical implementation of design and construction of telecommunications projects	Students are able to explain the practical implementation of design and construction of telecommunications projects	Criteria: Evaluation Rubric Form of Assessment : Participatory Activities	problem based learning 1 X 50		Material: Meeting material 1 Reader: <i>Simon Haykin. 2001. Communication Systems, 4th edition. New York: John Wiley & Sons</i>	7%
16	UAS	Students are able to explain the practical implementation of design and construction of telecommunications projects	Criteria: Evaluation Rubric Form of Assessment : Test	problem based learning 1 X 50		Material: Meeting material 1 Reader: <i>Simon Haykin. 2001. Communication Systems, 4th edition. New York: John Wiley & Sons</i>	30%

Evaluation Percentage Recap: Project Based Learning

No	Evaluation	Percentage
1.	Participatory Activities	50%
2.	Test	50%
		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.