

		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																																									
Access Radio Network		2020102332			T=0	P=0	ECTS=0	5 July 18, 2024																																									
AUTHORIZATION		SP Developer		Course Cluster Coordinator		Study Program Coordinator																																											
			Dr. Lusia Rakhmawati, S.T., M.T.																																											
Learning model	Project Based Learning																																																
Program Learning Outcomes (PLO)	PLO study program that is charged to the course																																																
	Program Objectives (PO)																																																
	PLO-PO Matrix																																																
		<table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="width: 50px; text-align: center;">P.O</td> <td colspan="16"></td> </tr> </table>							P.O																																								
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	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: 30px; text-align: center;">P.O</td> <td colspan="16" style="text-align: center;">Week</td> </tr> <tr> <td style="width: 20px; text-align: center;">1</td> <td style="width: 20px; text-align: center;">2</td> <td style="width: 20px; text-align: center;">3</td> <td style="width: 20px; text-align: center;">4</td> <td style="width: 20px; text-align: center;">5</td> <td style="width: 20px; text-align: center;">6</td> <td style="width: 20px; text-align: center;">7</td> <td style="width: 20px; text-align: center;">8</td> <td style="width: 20px; text-align: center;">9</td> <td style="width: 20px; text-align: center;">10</td> <td style="width: 20px; text-align: center;">11</td> <td style="width: 20px; text-align: center;">12</td> <td style="width: 20px; text-align: center;">13</td> <td style="width: 20px; text-align: center;">14</td> <td style="width: 20px; text-align: center;">15</td> <td style="width: 20px; 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	16
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Short Course Description	The aim of the radio access network course is to study design techniques for radio links in point to point services that work in the 1-100 GHZ range, which includes 1-100GHz radio propagation, LOS radio links, over the horizon radio links, . basic satellite communication systems - analog systems, digital communications via satellite, system design above 10 GHZ																																																
References	Main :																																																
	1. Roger L Freeman. Radio system design for telecommunication (1-100 GHz). John wiley & Son																																																
	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	Students are able to study Radio propagation 1-100 GHz	1. describe LOS in free space 2. describe the effects of the atmosphere on propagation 3. describe the effects of diffraction, ground reflection 4. describes fading	Criteria: Activeness and accuracy of answers	Discussion, PPT, questions and answers 2 X 50			0%
2	Students are able to study Radio propagation 1-100 GHz	1. describe LOS in free space 2. describe the effects of the atmosphere on propagation 3. describe the effects of diffraction, ground reflection 4. describes fading	Criteria: Activeness and accuracy of answers	Discussion, PPT, questions and answers 2 X 50			0%
3	students are able to learn Line of sight radio link	1. describe planning and site selection 2. describe path profile, reflection, path analysis, 3. describe fade margin estimation 4. describe noise analysis of FM5 radio links. describe digital radio systems	Criteria: Activeness and accuracy of answers	discussion, PPT and questions and answers 2 X 50			0%
4	students are able to learn Line of sight radio link	1. describe planning and site selection 2. describe path profile, reflection, path analysis, 3. describe fade margin estimation 4. describe noise analysis of FM5 radio links. describe digital radio systems	Criteria: Activeness and accuracy of answers	discussion, PPT and questions and answers 2 X 50			0%
5	students are able to study the Horizon radio link	1. describe tropospheric scatterer propagation 2. describes link performance calculations 3. describes digital transhorizon links		discussion, PPT 2 X 50			0%
6	students are able to study the Horizon radio link	1. describe tropospheric scatterer propagation 2. describes link performance calculations 3. describes digital transhorizon links		discussion, PPT 2 X 50			0%

7	study the basic principles of satellite communications on analog systems	1. describe the satellite system 2. describe the budget link 3. describes the INTELSAT system		2 X 50			0%
8	study the basic principles of satellite communications on analog systems	1. describe the satellite system 2. describe the budget link 3. describes the INTELSAT system		2 X 50			0%
9	UTS			2 X 50			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

- 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.

