

		<b>Universitas Negeri Surabaya</b> <b>Faculty of Engineering,</b> <b>Electrical Engineering Undergraduate Study</b> <b>Program</b>					<b>Document</b> <b>Code</b>																																		
<b>SEMESTER LEARNING PLAN</b>																																									
<b>Courses</b>		<b>CODE</b>	<b>Course Family</b>	<b>Credit Weight</b>			<b>SEMESTER</b>	<b>Compilation Date</b>																																	
Electric Power System Analysis		2020103421		T=3	P=0	ECTS=4.77	5	July 18, 2024																																	
<b>AUTHORIZATION</b>		<b>SP Developer</b>		<b>Course Cluster Coordinator</b>			<b>Study Program Coordinator</b>																																		
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<b>Learning model</b>	Case Studies																																								
<b>Program Learning Outcomes (PLO)</b>	<b>PLO study program that is charged to the course</b>																																								
	<b>Program Objectives (PO)</b>																																								
	<b>PLO-PO Matrix</b>																																								
		<table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="width: 100px; height: 30px;">P.O</td> </tr> </table>								P.O																															
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	<b>PO Matrix at the end of each learning stage (Sub-PO)</b>																																								
	<table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td rowspan="2" style="width: 30px; height: 20px;">P.O</td> <td colspan="16" style="text-align: center;">Week</td> </tr> <tr> <td style="width: 20px; height: 20px;">1</td> <td style="width: 20px; height: 20px;">2</td> <td style="width: 20px; height: 20px;">3</td> <td style="width: 20px; height: 20px;">4</td> <td style="width: 20px; height: 20px;">5</td> <td style="width: 20px; height: 20px;">6</td> <td style="width: 20px; height: 20px;">7</td> <td style="width: 20px; height: 20px;">8</td> <td style="width: 20px; height: 20px;">9</td> <td style="width: 20px; height: 20px;">10</td> <td style="width: 20px; height: 20px;">11</td> <td style="width: 20px; height: 20px;">12</td> <td style="width: 20px; height: 20px;">13</td> <td style="width: 20px; height: 20px;">14</td> <td style="width: 20px; height: 20px;">15</td> <td style="width: 20px; height: 20px;">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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<b>Short Course Description</b>	Students can discuss the basic concepts of electric power system analysis, identify components and disturbances of the electric power system, differentiate various internal and external disturbances, determine and examine power flow studies in STL, explain the stability of electric power systems, identify losses in STL by calculating potential losses in the STL by optimizing the STL with compensation, deducing the stability of the electric power system, categorizing transmission losses, classifying various disturbances in the electric power system, and exploring the latest developments in electric power system analysis technology using the case method in lectures.																																								
<b>References</b>	<b>Main :</b>																																								
	1. 1. Stevenson, William D, 1984. Analisis Sistem Tenaga Listrik, Jakarta. Penerbit Erlangga 2. Grainger John J. and Stevenson, William D 1994, Power System Analysis. Singapore. McGraw – Hill 3. Turan Gonen, 1999, Electrical McGraw – Hill																																								
	<b>Supporters:</b>																																								
	1. 1. Lazaar, Irwin. 1980. Electrical System Analysis and Design for Industrial Plants. New York. McGraw – Hill Book Company																																								
<b>Supporting lecturer</b>																																									
<b>Week-</b>	<b>Final abilities of each learning</b>	<b>Evaluation</b>		<b>Help Learning, Learning methods, Student Assignments, [ Estimated time]</b>			<b>Learning materials [ References]</b>	<b>Assessment Weight (%)</b>																																	

	stage (Sub-PO)	Indicator	Criteria & Form	Offline ( <i>offline</i> )	Online ( <i>online</i> )	1	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1							0%
2							0%
3							0%
4							0%
5							0%
6							0%
7							0%
8							0%
9							0%
10							0%
11							0%
12							0%
13							0%
14							0%
15							0%
16							0%

#### Evaluation Percentage Recap: Case Study

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.