

		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										
High Voltage Engineering		8320102194				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																		
	Program Objectives (PO)																		
	PLO-PO Matrix																		
	<table border="1" style="margin: auto;"> <tr> <td style="width: 10%;"></td> <td style="width: 10%; text-align: center;">P.O</td> <td colspan="8"></td> </tr> </table>											P.O							
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Short Course Description	Electrical equipment in operation can suffer from ac, dc or impulse voltages. A high voltage test is absolutely necessary both during fabrication and when installed in the field to ensure the reliability of the equipment. For this purpose, high voltage generation and measurement techniques are needed. This course is an elective course in the electrical power systems concentration which discusses how to generate, measure and test high voltages both ac, dc and impulse.																		
	<p>References Main :</p> <ol style="list-style-type: none"> 1. Bonggas L. Tobing. Dasar Pengujian Tegangan Tinggi. PT.Gramedia, Jakarta. 2. Kuffel E dan Zaengl W S. 1988. High Voltage Engineering. Pergamon Press. 3. Abdel Salam M Anis H Morshedy A Radwan R. 2000. High Voltage Engineering. Marcell Dekker. 4. Artono Arismunandar. 1982. Teknik Tegangan Tinggi Suplemen. Ghalia Indonesia: Jakarta. 5. Dieter Kind. 1985. High Voltage Insulation Technology. Friedr Vieweg & Sons Braunschweig/Wiesbaden. <p>Supporters:</p>																		
Supporting lecturer	Prof.Dr. Tri Wrahatnolo, M.Pd., M.T. Dr. Subuh Isnur Haryudo, 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	Explains the basics of high voltage engineering	<ol style="list-style-type: none"> 1.Explain the basic meaning of high voltage engineering. 2.Explain the problems of high voltage engineering. 3.Explains the basics of high voltage testing. 	Criteria: The score is 1 to 4	Lectures, discussions and questions and answers 2 X 50		0%
2	Explains techniques for generating and testing high frequency AC high voltages	<ol style="list-style-type: none"> 1.Explain the need and function of high frequency AC high voltage testing 2.Explain how to generate high frequency alternating high voltage 3.Explains high frequency alternating high voltage testing techniques 	Criteria: The score is 1 to 4	Lectures, discussions and questions and answers 2 X 50		0%
3	Explains techniques for generating and testing high frequency AC high voltages	<ol style="list-style-type: none"> 1.Explain the need and function of high frequency AC high voltage testing 2.Explain how to generate high frequency alternating high voltage 3.Explains high frequency alternating high voltage testing techniques 	Criteria: The score is 1 to 4	Lectures, discussions and questions and answers 2 X 50		0%
4	Explains DC high voltage generation and testing techniques	<ol style="list-style-type: none"> 1.Explain the need and function of testing 2.Explain how to generate high voltage DC 3.Explains DC high voltage testing techniques 	Criteria: The score is 1 to 4	Lectures, discussions and questions and answers 2 X 50		0%

5	Explains DC high voltage generation and testing techniques	1.Explain the need and function of testing 2.Explain how to generate high voltage DC 3.Explains DC high voltage testing techniques	Criteria: The score is 1 to 4	Lectures, discussions and questions and answers 2 X 50			0%
6	Explains techniques for generating and testing high voltage impulses	1.Explain the need and function of testing 2.Explain how to generate high voltage impulses 3.Explain high impulse voltage testing techniques	Criteria: The score is 1 to 4	2 X 50			0%
7	Explains techniques for generating and testing high voltage impulses	1.Explain the need and function of testing 2.Explain how to generate high voltage impulses 3.Explain high impulse voltage testing techniques	Criteria: The score is 1 to 4	2 X 50			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.