



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

Document Code

## SEMESTER LEARNING PLAN

<b>Courses</b>	<b>CODE</b>	<b>Course Family</b>	<b>Credit Weight</b>			<b>SEMESTER</b>	<b>Compilation Date</b>
Electric Driving	2020103111		T=3	P=0	ECTS=4.77	7	July 18, 2024
<b>AUTHORIZATION</b>		<b>SP Developer</b>			<b>Course Cluster Coordinator</b>		<b>Study Program Coordinator</b>
		.....			.....		Dr. Lusia Rakhmawati, S.T., M.T.
<b>Learning model</b>	<b>Case Studies</b>						
<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>						
		P.O					
<b>Short Course Description</b>	This electric driving course will study electric driving, how to control it, various types of electric driving controls, the working principles of synchronous motors, asynchronous motors and dc motors. Apart from that, this course also discusses how servo motors work and how to control them.						
<b>References</b>	<b>Main :</b>						
	1. Bimal K Bose. 2002. Modern Power Electronics and AC Drives. Prentice Hall International Inc. 2. Dewan SB dan Slemo GR. Power Semiconductor Drivers. John Wiley and Sons, New York. 3. Muhammad H Rashid. 1993. Power Electronics: Circuits, Devices, and Application , 2nd Edition. Prentice Hall International Inc. 4. W.D. Stevenson Jr. 1982. Elements of Power System Analysis , 4th edition . McGraw Hill.						
	<b>Supporters:</b>						
<b>Supporting lecturer</b>	Prof. Dr. Joko, M.Pd., M.T. Yuli Sutoto Nugroho, S.Pd., M.Pd.						
<b>Week-</b>	<b>Final abilities of each learning stage (Sub-PO)</b>	<b>Evaluation</b>		<b>Help Learning, Learning methods, Student Assignments, [ Estimated time]</b>		<b>Learning materials [ References ]</b>	<b>Assessment Weight (%)</b>
		<b>Indicator</b>	<b>Criteria &amp; Form</b>	<b>Offline ( offline )</b>	<b>Online ( online )</b>		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

1	Students are able to understand electric driving.	<ol style="list-style-type: none"> <li>1.Explains electric driving.</li> <li>2.Explain the block diagram of electrical steering</li> <li>3.Explain the classification of electric driving</li> <li>4.Explain electric motors</li> <li>5.Explain Power Modulator</li> <li>6.Explain the components of electric driving.</li> </ol>		Lectures, discussions and questions and answers 3 X 50			0%
2	Students are able to understand electric driving.	<ol style="list-style-type: none"> <li>1.Explains electric driving.</li> <li>2.Explain the block diagram of electrical steering</li> <li>3.Explain the classification of electric driving</li> <li>4.Explain electric motors</li> <li>5.Explain Power Modulator</li> <li>6.Explain the components of electric driving.</li> </ol>		Lectures, discussions and questions and answers 3 X 50			0%
3	Students are able to understand the controls of electric driving	<ol style="list-style-type: none"> <li>1.Explain the various types of electric steering controls</li> <li>2.Explain speed control in electric driving</li> <li>3.Explain voltage control in electric driving</li> <li>4.Explain current control in electric driving</li> </ol>		Lectures, questions and answers and discussions 3 X 50			0%
4	Students are able to understand synchronous drives and asynchronous drives	<ol style="list-style-type: none"> <li>1.Explain synchronous electric motors.</li> <li>2.Explain the control of a synchronous electric motor.</li> <li>3.Explain asynchronous electric motors.</li> <li>4.Explain the control of asynchronous electric motors</li> </ol>		Lectures, discussions and questions and answers 3 X 50			0%

5	Students are able to understand synchronous drives and asynchronous drives	1.Explain synchronous electric motors. 2.Explain the control of a synchronous electric motor. 3.Explain asynchronous electric motors. 4.Explain the control of asynchronous electric motors		Lectures, discussions and questions and answers 3 X 50			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.