



Universitas Negeri Surabaya
Faculty of Engineering,
Mechanical Engineering Education Undergraduate Study
Program

Document
Code

SEMESTER LEARNING PLAN

Courses	CODE	Course Family	Credit Weight	SEMESTER	Compilation Date		
Machine Elements II	8320302025		T=2 P=0 ECTS=3.18	3	July 18, 2024		
AUTHORIZATION	SP Developer		Course Cluster Coordinator	Study Program Coordinator			
	Ir. Wahyu Dwi Kurniawan, S.Pd., M.Pd.			
Learning model	Case Studies						
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: 30px; height: 30px;">P.O</td></tr> </table>					P.O
P.O							
Short Course Description	This course contains elements of 13 machine elements: pins, shafts, gears, clutches and brakes, bearings.						
References	Main :						
	1. Sularso, Kiyokatso Suga ; Dasar Perencanaan dan pemilihan elemen mesin, P.T. Pradnya Paramita Jakarta , 1983. 2. Spotts. MF, Design of machine of Element, Prentice hall , USA, 2000. 3. Shigley Mischke, Mechanical Engineering Design, McGraw Hill, USA, 2000. 4. Supadi Hs, Buku ajar Elemen Mesin, Jurusan T.Mesin F.Teknik UNESA, Surabaya 2008.						
	Supporters:						
Supporting lecturer	Novi Sukma Drastiawati, S.T., M.Eng. Dany Iman Santoso, 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 their understanding of Stake.	1.Explains the construction and calculation of longitudinal pegs 2.Explain the construction and calculation of transverse pegs	Criteria: see rubric	Lectures, discussions, exercises 2 X 50			0%
2	Students are able to explain the understanding of axle shafts	1.Explain the construction of axle shafts 2.Explain how to calculate axle size	Criteria: see rubric	Lectures, discussions, exercises 2 X 50			0%
3	Students are able to explain their understanding of transmission shaft loads and the moments they experience	1.Explain the meaning and load of transmission shafts 2.Explains the calculation of moments in the transmission process	Criteria: see rubric	Lectures, discussions, exercises 2 X 50			0%
4	Students are able to explain their understanding of calculating transmission shaft sizes	Explains the calculation of transmission shaft sizes and criteria	Criteria: see rubric	Lectures, discussions, exercises 2 X 50			0%
5	Students are able to explain their understanding of the construction and calculation of the size of gear parts	1.Explain the construction of gears 2.Explains the calculation of gear parameters	Criteria: see rubric	Lectures, discussions, exercises 2 X 50			0%
6	Students are able to explain the understanding of fixed clutches and rigid clutches	1.Explain about fixed clutch 2.Explain about rigid coupling	Criteria: see rubric	Lectures, discussions, exercises 2 X 50			0%
7	Students are able to explain their understanding of rubber tire clutches	Explain about rubber tire couplings	Criteria: see rubric	Lectures, discussions, exercises 2 X 50			0%
8	Sub Summative Exam	Sub Summative Exam	Criteria: see rubric	Sub Summative Exam 2 X 50			0%
9	Students are able to explain their understanding of fluid coupling	Explains the construction and how to select a fluid coupling	Criteria: see rubric	Lectures, discussions, exercises 2 X 50			0%
10	Students are able to explain the understanding of claw clutches	Explains the construction and planning of claw clutches	Criteria: see rubric	Lectures, discussions, exercises 2 X 50			0%
11	Students are able to explain the understanding of plate clutches, cones and freewheels	1.Explain about clutch plates 2.Explain about cone clutch 3.Explain about freewheel	Criteria: see rubric	Lectures, discussions, exercises 2 X 50			0%

12	Students are able to explain the understanding of single block and double block brakes	1.Explains single block brakes 2.Explains double block brakes	Criteria: see rubric	Lectures, discussions, exercises 2 X 50			0%
13	Students are able to explain the understanding of drum brakes, disc brakes and band brakes	1.Explain about drum brakes 2.Explain about disc brakes 3.Explain about band brakes	Criteria: see rubric	Lectures, discussions, exercises 2 X 50			0%
14	Students are able to explain the understanding of sliding bearings	1.Explain the classification and materials of sliding bearings 2.Explains the planning and lubrication of sliding bearings	Criteria: see rubric	Lectures, discussions, exercises 2 X 50			0%
15	Students are able to explain their understanding of the types, properties and materials of rolling bearings	1.Explain the types and properties of rolling bearings 2.Explain about rolling bearing materials	Criteria: see rubric	Lectures, discussions, exercises 2 X 50			0%
16	Students are able to explain the calculation and lubrication of rolling bearings	1.Explain the calculation of rolling bearings 2.Explain the lubrication of rolling bearings	Criteria: see rubric	Lectures, discussions, exercises 2 X 50			0%

Evaluation Percentage Recap: Case Study

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.

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.