



**Universitas Negeri Surabaya  
Faculty of Engineering,  
Mechanical Engineering Education 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>											
Machine Elements I	8320302024		T=2 P=0 ECTS=3.18	2	July 18, 2024											
<b>AUTHORIZATION</b>	<b>SP Developer</b>		<b>Course Cluster Coordinator</b>		<b>Study Program Coordinator</b>											
	.....		.....		Ir. Wahyu Dwi Kurniawan, S.Pd., M.Pd.											
<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>	<b>PO Matrix at the end of each learning stage (Sub-PO)</b>															
	P.O	Week														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
<b>References</b>	<b>Main :</b>															
	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.															
	<b>Supporters:</b>															
<b>Supporting lecturer</b>	Novi Sukma Drastiawati, S.T., M.Eng.															
<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 explain the understanding of force, mass, nominal load and working load as well as moment of effort and power.	1.Explain force and mass 2.Explain nominal load and workload 3.Explain the moment of effort and power	<b>Criteria:</b> Activeness and mastery of material	Lectures, discussions, exercises 3 X 50			0%
2	Students are able to explain the understanding of center of gravity, moment of inertia and moment of resistance	1.Explain the center of gravity 2.Explain the moment of inertia and the moment of resistance	<b>Criteria:</b> activeness and mastery of material	Lectures, discussions, exercises 3 X 50			0%
3	Students are able to explain their understanding of rivet construction	Explain rivet construction	<b>Criteria:</b> activeness and mastery of the material	Lectures, discussions, exercises 3 X 50			0%
4	Students are able to explain their understanding of damage to rivet joints and calculations for rivet construction	1.Explain damage to rivet joints 2.Explain rivet construction calculations	<b>Criteria:</b> activeness and mastery of the material	Lectures, discussions, exercises 3 X 50			0%
5	Students are able to explain their understanding of welding construction	Explain welding construction	<b>Criteria:</b> activeness and mastery of the material	Lectures, discussions, exercises 3 X 50			0%
6	Students are able to explain their understanding of welding joint calculations	Explain the calculation of welded joints	<b>Criteria:</b> activeness and mastery of the material	Lectures, discussions, exercises 3 X 50			0%
7	Students are able to explain their understanding of general threads and the forms of thread damage	1.Explain general things about threads 2.Explain the form of thread damage	<b>Criteria:</b> activeness and mastery of material	Lectures, discussions, exercises 3 X 50			0%
8	Sub Summative Exam	Sub Summative Exam	<b>Criteria:</b> see rubric	Sub Summative Exam 3 X 50			0%
9	Students are able to explain the understanding of shrinkage and compression connections	Explain the calculation of shrinkage joints. Explain the calculation of compression joints	<b>Criteria:</b> activeness and mastery of the material	Lectures, discussions, exercises 3 X 50			0%
10	Students are able to explain the understanding of shrinkage and compression connections	Explain the calculation of shrinkage joints. Explain the calculation of compression joints	<b>Criteria:</b> activeness and mastery of the material	Lectures, discussions, exercises 3 X 50			0%
11	Students are able to explain the understanding of pegs and axles	1.Explains peg and shaft connections in general 2.Explain peg connections 3.Explain the types of longitudinal and transverse post connections	<b>Criteria:</b> activeness and mastery of material	Lectures, discussions, exercises 3 X 50			0%

12	Students are able to explain the understanding of V-belts and pulleys	1.Explaining V-belts 2.Explain pulleys	<b>Criteria:</b> activeness and mastery of the material	Lectures, discussions, exercises 3 X 50			0%
13	Students are able to explain the understanding of shrinkage and compression connections	1.Explain shrinkage joints 2.Explain compression connections	<b>Criteria:</b> activeness and mastery of the material	Lectures, discussions, exercises 3 X 50			0%
14	Students are able to explain the understanding of V-belt transmission	Explains V-belt transmission	<b>Criteria:</b> activeness and mastery of the material	Lectures, discussions, exercises 3 X 50			0%
15	Students are able to explain the understanding of rotation belts	1.Explain shift belt transmission 2.Calculate the belt size	<b>Criteria:</b> activeness and mastery of material	Lectures, discussions, exercises 3 X 50			0%
16	Students are able to explain their understanding of roller chain transmission	1.Explain roller chain transmission 2.Calculate the shaft size	<b>Criteria:</b> activeness and mastery of the material	Lectures, discussions, exercises 3 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.
- 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.