	Universitas Negeri Surabaya Faculty of Engineering, Mechanical Engineering Undergraduate Study Program	Document Code

SEMESTER LEARNING PLAN

Courses		CODE	Course Family	Credit Weight			SEMESTER	Compilation Date
Engineering Mechanics II		2120102047		T=2	P=0	ECTS=3.18	3	July 18, 2024

AUTHORIZATION	SP Developer	Course Cluster Coordinator	Study Program Coordinator
	....	....	Ir. Priyo Heru Adiwibowo, S.T., M.T.

Learning model	Case Studies

Program Learning Outcomes (PLO)	PLO study program that is charged to the course
	Program Objectives (PO)
	PLO-PO Matrix

	P.O

PO Matrix at the end of each learning stage (Sub-PO)

P.O	Week															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Short Course Description	This course provides an understanding of the properties of supports, analysis of normal forces, moments of trusses in certain static and statically indeterminate theories, tensile, compressive, shear, bending and torsion stresses, thermal, Hooke's law, elastic line equations, and diagram methods. Mohr's circle.

References	Main :

1. [1] Bear, F.P. dan Johnston, E.R. 1987. Statika. (Mekanika untuk Insinyur), Jakarta: Erlangga.
2. [2] Heinz Frick. 1991. Mekanika Teknik 1 (Statika dan Kegunaanya). Yogyakarta: Kanisius.
3. [3] Timoshenko, S. dan Young, D.H. 1990. Mekanika Teknik. Jakarta: Erlangga.

Supporters:

Supporting lecturer	Dr. Djoko Suwito, M.Pd. Ir. Priyo Heru Adiwibowo, 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 analyze the properties of supports and normal forces	Analyze the properties of supports and normal forces	**Criteria:** 1.a. Presence 2.b. Active in question and answer 3.c. Seriousness in attending lectures 4.d. Compliance with the answer key	lecture, discussion, questions and answers, exercises and assignments 2 X 50				0%
2	Students are able to analyze bending moments in certain static and statically indeterminate theories	Analyzing bending moments in statically certain and statically indeterminate theories	**Criteria:** 1.a. Presence 2.b. Activeness in attending lectures 3.c. Compliance with the answer key	Lectures, discussions, questions and answers, exercises and assignments 2 X 50				0%
3	Students are able to calculate the twisting moment	Calculating the twisting moment	**Criteria:** 1.a. Presence 2.b. Activeness in attending lectures 3.c. conformity with the answer key	Lectures, discussions, questions and answers, exercises and assignments 2 X 50				0%
4	Students are able to calculate tensile and compressive stresses	Calculate tensile and compressive stress	**Criteria:** 1.a. Presence 2.b. Activeness in attending lectures 3.c. Compliance with the answer key	Lectures, discussions, questions and answers, exercises and assignments 4 X 50				0%
5	Students are able to calculate tensile and compressive stresses	Calculate tensile and compressive stress	**Criteria:** 1.a. Presence 2.b. Activeness in attending lectures 3.c. Compliance with the answer key	Lectures, discussions, questions and answers, exercises and assignments 4 X 50				0%
6	Students are able to analyze skeletal reaction actions in static and statically indeterminate theory	Analyzing skeletal reaction actions in static and statically indeterminate theories	**Criteria:** 1.a. Presence 2.b. Activeness in attending lectures 3.c. Compliance with the answer key	lecture, discussion, questions and answers, exercises and assignments 2 X 50				0%
7	Students are able to analyze torsional moments of compressive and tensile stress	Analyze the torsional moment of compressive and tensile stress	**Criteria:** 1.a. Presence 2.b. Activeness in attending lectures 3.c. conformity with the answer key	Lectures, discussions, questions and answers, exercises and assignments 2 X 50				0%
8	Sub Summative Exam	Sub Summative Exam	**Criteria:** conformity with the answer key	Sub Summative Exam 2 X 50				0%
9	Students are able to analyze shear and thermal stress	Analyzing shear and thermal stress	**Criteria:** 1.a. Presence 2.b. Activeness in attending lectures 3.c. conformity with the answer key	Lectures, discussions, questions and answers, exercises and assignments 4 X 50				0%

10	Students are able to analyze shear and thermal stress	Analyzing shear and thermal stress	**Criteria:** 1.a. Presence 2.b. Activeness in attending lectures 3.c. conformity with the answer key	Lectures, discussions, questions and answers, exercises and assignments 4 X 50			0%
11	Students are able to determine the stress-strain relationship in Hooke's law and the elastic line equation	Determine the stress-strain relationship in Hooke's law and the elastic line equation	**Criteria:** 1.a. Presence 2.b. Activeness in attending lectures 3.c. conformity with the answer key	Lectures, discussions, questions and answers, exercises and assignments 4 X 50			0%
12	Students are able to determine the stress-strain relationship in Hooke's law and the elastic line equation	Determine the stress-strain relationship in Hooke's law and the elastic line equation	**Criteria:** 1.a. Presence 2.b. Activeness in attending lectures 3.c. conformity with the answer key	Lectures, discussions, questions and answers, exercises and assignments 4 X 50			0%
13	Students are able to determine the stress-strain relationship using the Mohr's circle law method	Determine the stress-strain relationship using the Mohr's circle method	**Criteria:** 1.a. Presence 2.b. activeness in attending lectures 3.c. conformity with the answer key	Lectures, discussions, questions and answers, exercises and assignments 4 X 50			0%
14	Students are able to determine the stress-strain relationship using the Mohr's circle law method	Determine the stress-strain relationship using the Mohr's circle method	**Criteria:** 1.a. Presence 2.b. activeness in attending lectures 3.c. conformity with the answer key	Lectures, discussions, questions and answers, exercises and assignments 4 X 50			0%
15	Students are able to analyze stress-strain cases using the Mohr circle method	analyzed the stress-strain case in the mohr circle method	**Criteria:** 1.a. Presence 2.b. Activeness in attending lectures 3.c. conformity with the answer key	Lectures, discussions, questions and answers, exercises and assignments 2 X 50			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.