								Document Code

Universitas Negeri Surabaya
Vocational Faculty,
D4 Transportation Study Program

SEMESTER LEARNING PLAN

Courses		CODE		Course Family		Credit Weight			SEMESTER	Compilation Date
Engineering Mechanics		99993940103032				T=2	P=1	ECTS=4.77	1	July 16, 2024

AUTHORIZATION	SP Developer	Course Cluster Coordinator	Study Program Coordinator
	....	....	Dr. Anita Susanti, S.Pd., 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 teaches basic principles in the field of civil engineering because this course will support subsequent courses. This course teaches about the types of loads that work, the types of supports used, the principles of balance equations, and methods for completing structural analysis both analytically and graphically. This course teaches the calculation of support reactions and drawing MDN planes which describe the internal forces of a structural element. These calculations are carried out on simple girder structures, cantilevered girder structures, indirect structures, gerber structures, gerber portals, portals with simple supports, and on frame systems.

References	Main :

1. Darmali, Arief dan Ichwan. 1979. Ilmu Gaya Sipil. Jakarta: Depdikbud.[2].
2. Hibbeler, R C. 2012. Structural Analysis. New Jersey: Pearson Education Inc.[3].
3. Karyoto. 2014. Analisis Struktur Statis Tertentu. Unesa.
4. Williams, Alan. 2009. Structural Analysis: In Theory and Practice. Burlington: Elsevier.
5. International Journal of Structural Analysis and Design: New York.

Supporters:

Supporting lecturer	Arie Wardhono, S.T., M.MT., M.T., Ph.D. Purwo Mahardi, S.T., M.Sc. Meity Wulandari, S.T., M.T. Berkat Cipta Zega, S.Pd., M.Eng.

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	Getting to know: Forces and vectors, drawing units of force and length, adding forces (resultante), describing forces.	Explaining: Forces and vectors, drawing units of force and length, adding forces (resultante), describing forces.	**Criteria:** Full marks if you do the questions in accordance with theory.	Lectures, discussions and questions and answers 3 X 50			0%
2	Able to analyze two-support beams, cantilevers, draw D,N,M planes.	Explaining the various types of supports and their properties, analysis of two-supported beams, cantilevers, drawing the D,N,M planes.	**Criteria:** Full if the calculation answers are sequential and correct.	Lectures, discussions and questions and answers. Exercise 3 X 50			0%
3	Able to analyze two-support beams, cantilevers, draw D,N,M planes.	Explaining the various types of supports and their properties, analysis of two-supported beams, cantilevers, drawing the D,N,M planes.	**Criteria:** Full marks if the answers are complete, sequential and correct.	Lectures, discussions and questions and answers. Exercise 3 X 50			0%
4	Able to analyze two-support beams, cantilevers, draw D,N,M planes.	Explaining the various types of supports and their properties, analysis of two-supported beams, cantilevers, drawing the D,N,M planes.	**Criteria:** Full marks if the answers are complete, sequential and correct.	Lectures, discussions and questions and answers. Exercise 3 X 50			0%
5	Able to analyze two-support beams, cantilevers, draw D,N,M planes.	Explaining the various types of supports and their properties, analysis of two-supported beams, cantilevers, drawing the D,N,M planes.	**Criteria:** Full marks if the answers are complete, sequential and correct	Lectures, discussions and questions and answers. Exercise 3 X 50			0%
6	Able to analyze beams with indirect loads, Gerber beams	Explains how to analyze beams with indirect loads, Gerber beams	**Criteria:** Full marks if the answers are complete, sequential and correct.	Lectures, discussions and questions and answers. Exercise 3 X 50			0%
7	Able to analyze beams with indirect loads, Gerber beams	Explains how to analyze beams with indirect loads, Gerber beams	**Criteria:** Full marks if the answers are complete, sequential and correct	Lectures, discussions and questions and answers. Exercise 3 X 50			0%

No							
8	Able to analyze structures based on three joints	Explains how to analyze structures with three-joint supports	**Criteria:** Full marks if the answers are complete, sequential and correct.	Lectures, discussions and questions and answers. Exercise 3 X 50			0%
9	Master ASTT material from meetings 1 - 8 by taking the mid-semester exam (UTS)	Complete UTS questions on time and get maximum marks		3 X 50			0%
10	Able to analyze beams due to moving loads with lines of influence	Explains how to analyze beams due to moving loads with lines of influence	**Criteria:** Full marks if the answers are complete, sequential and correct	Lectures, discussions and questions and answers. Exercise 3 X 50			0%
11	Able to analyze beams due to moving loads with lines of influence	Explains how to analyze beams due to moving loads with lines of influence	**Criteria:** Full marks if the answers are complete, sequential and correct	Lectures, discussions and questions and answers. Exercise 3 X 50			0%
12	Able to calculate the forces on the frame using the Cremona method.	Explains how to calculate forces on a frame using the Cremona method.	**Criteria:** Full marks if the answers are complete, sequential and correct	Lectures, discussions and questions and answers. Exercise 3 X 50			0%
13	Able to calculate the forces on the frame using the Cremona method.	Explains how to calculate forces on a frame using the Cremona method.	**Criteria:** Full marks if the answers are complete, sequential and correct.	Lectures, discussions and questions and answers. Exercise 3 X 50			0%
14	Able to calculate the forces on a frame with balance, and Ritter,	Explain how to calculate the forces on a frame using the balance method, and Ritter,.	**Criteria:** Full marks if the answers are complete, sequential and correct.	Lectures, discussions and questions and answers. Exercise 3 X 50			0%
15	Able to calculate the forces on a frame with balance, and Ritter	Explains how to calculate forces on a frame using the balance method, and Ritter	**Criteria:** Full marks if the answers are complete, sequential and correct	Lectures, discussions and questions and answers. Exercise 3 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.