



**Universitas Negeri Surabaya
Vocational Faculty,
D4 Transportation Study Program**

**Document
Code**

SEMESTER LEARNING PLAN

Courses	CODE	Course Family	Credit Weight	SEMESTER	Compilation Date																																																		
Mapping and Practicum	3930103041	Mapping	T=2 P=1 ECTS=4.77	1	July 16, 2024																																																		
AUTHORIZATION		SP Developer	Course Cluster Coordinator	Study Program Coordinator																																																			
		R. Endro Wibisono, S.Pd., M.T.	R. Endro Wibisono, S.Pd., M.T.	Dr. Anita Susanti, S.Pd., M.T.																																																			
Learning model	Case Studies																																																						
Program Learning Outcomes (PLO)	PLO study program that is charged to the course																																																						
	PLO-7	Able to carry out work and entrepreneurship in the field of land transportation engineering technology professionally.																																																					
	PLO-11	Able to internalize ethics, norms and laws in carrying out work.																																																					
	Program Objectives (PO)																																																						
	PO - 1	Able to apply logical, critical, innovative, quality and measurable thinking in identifying, implementing and evaluating independently and coordinating groups to solve technical and non-technical problems and able to communicate verbally and in writing. Able to apply the principles of mechanics, mathematics and engineering concepts to the technical design process, drawing measurement results, and design in the field of land transportation engineering technology. Able to carry out design work, implementation, supervision, documentation of work in the field of land transportation engineering technology according to applicable standards by prioritizing principles occupational and environmental security and safety systems (SMK3L). Able to internalize ethics, norms and laws in carrying out work. Master the principles, applications, technical references, procedures and work standards (SOP) in the Mapping laboratory and studio																																																					
	PLO-PO Matrix																																																						
		<table border="1" style="margin: auto;"> <tr> <td style="padding: 5px;">P.O</td> <td style="padding: 5px;">PLO-7</td> <td style="padding: 5px;">PLO-11</td> </tr> <tr> <td style="padding: 5px;">PO-1</td> <td style="padding: 5px;"></td> <td style="padding: 5px;"></td> </tr> </table>				P.O	PLO-7	PLO-11	PO-1																																														
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PO Matrix at the end of each learning stage (Sub-PO)																																																							
	<table border="1" style="margin: auto;"> <tr> <td style="padding: 5px;">P.O</td> <td colspan="16" style="padding: 5px;">Week</td> </tr> <tr> <td style="padding: 5px;"></td> <td style="padding: 5px;">1</td><td style="padding: 5px;">2</td><td style="padding: 5px;">3</td><td style="padding: 5px;">4</td><td style="padding: 5px;">5</td><td style="padding: 5px;">6</td><td style="padding: 5px;">7</td><td style="padding: 5px;">8</td><td style="padding: 5px;">9</td><td style="padding: 5px;">10</td><td style="padding: 5px;">11</td><td style="padding: 5px;">12</td><td style="padding: 5px;">13</td><td style="padding: 5px;">14</td><td style="padding: 5px;">15</td><td style="padding: 5px;">16</td> </tr> <tr> <td style="padding: 5px;">PO-1</td> <td style="padding: 5px;"></td><td style="padding: 5px;"></td> </tr> </table>				P.O	Week																	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	PO-1																
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PO-1																																																							
Short Course Description	Course Description Students are able to understand azimuth and coordinates; determining the position of points on the field using a polygon, binding to the front, binding to the back at a horizontal angle using a theodolite; understand situation mapping.																																																						
References	Main :																																																						
	1. Referensi Takasaki, M., dkk.. 1983. (alih bahasa oleh M. Yusuf Gayo, dkk). Pengukuran Topografi Dan Teknik Pemetaan. Penerbit P.T. Pradnya Paramita. Jakarta. Wongsojtjtro, S.. 1993. Ilmu Ukur Tanah. Penerbit Kanisius: Yogyakarta. Ridwan, M. 2015. Pengukuran Horisontal dan Pemetaan Situasi. Penerbit unipres: Unesa. Mansur Muhamadi. 1987. Ilmu Ukur Tanah I. Surabaya: Fatek Widya. Zulfahmi Amir. 1998. Dasar-Dasar Pengukuran Terristris dan Pemetaan Situasi. Padang: Jurusan Teknik Sipil Fakultas Teknik Universitas Andalas.																																																						
	Supporters:																																																						
Supporting lecturer	Amanda Ristriana Pattisnai, S.T., M.T. R. Endro Wibisono, S.Pd., 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	Able to explain Map Knowledge, Cartesian Coordinate System, Knowledge of tools.	explains Map Knowledge, Cartesian Coordinate System, Tool Knowledge.	Criteria: Full marks are obtained if you explain Map Knowledge, Cartesian Coordinate System, Tool Knowledge. Correct Form of Assessment : Participatory Activities, Tests	Lectures, discussions, questions and answers and practical demonstrations in the 3 X 50 field			20%
2	Able to make straight lines, right angles in the field, distances and make maps with simple tools	Create straight lines, right angles in the field, distances and create maps with simple tools	Criteria: 1.Full marks are obtained if you make a straight line, right angle on the field, distance and 2.Making maps using really simple tools	Creating straight lines, right angles in the field, distances and making maps with the simple tool 3 X 50			0%
3	Calculate the accuracy of the height difference of the spirit level. Explain the measurement accuracy and height difference.	Accuracy of measurements with a spirit level plane and determining the height difference with a flat surface.	Criteria: Full marks are obtained if the measurement accuracy with a spirit level plane and determining the height difference with a level plane. Correct	Lectures, discussions, questions and answers and practical demonstrations in the 3 X 50 field			0%
4	Able to determine longitudinal and profile measurements	Calculating longitudinal flat profile measurements. Explaining longitudinal flat profile measurements. Calculating profile flat profile measurements	Criteria: Full marks are obtained if the height calculation is correct	Lectures, discussions, questions and answers and practical demonstrations in the 3 X 50 field			0%
5	Able to determine longitudinal and profile measurements	Calculating the measurement of a flat longitudinal profile. Explaining the measurement of a flat longitudinal profile. Calculating the measurement of a flat profile profile	Criteria: Full marks are obtained if the height calculation is correct	Lectures, discussions, questions and answers and practical demonstrations in the 3 X 50 field			0%
6	Able to determine height differences using trigonometry	1. Determine the height difference using trigonometry	Criteria: 1.Full marks are obtained if you determine the difference in height with 2.Trigonometry is correct	Lectures, discussions, questions and answers and practical demonstrations in the 3 X 50 field			0%
7	Able to determine azimuth and point coordinates	1. Determine the azimuth of two fixed points 2. Determine the azimuth from the initial azimuth 3. Determine the coordinates of the points	Criteria: Full marks are obtained if the image azimuth angle is correct, the value of the azimuth angle and the distance between two points remain correct	Lectures, discussions, questions and answers and practical demonstrations in the 3 X 50 field			0%
8	USS (2 x 50)	-	Criteria: -	- 3 X 50			0%

9	Able to determine azimuth and coordinates	1. Determine the azimuth of two fixed points 2. Determine the azimuth from the initial azimuth 3. Determine the coordinates of the points	Criteria: Full marks are obtained for all questions answered correctly	Lectures, discussions, questions and answers and practical demonstrations in the 3 X 50 field			0%
10	Able to determine the coordinates of closed polygon points	1. Determine the azimuth 2. Determine the difference in abscissa (DX) 3. Determine the difference in ordinates (DY) 4. Determine the coordinates of the point	Criteria: Full marks are obtained if the azimuth angle image is correct and the azimuth angle value is correct	Lectures, discussions, questions and answers and practical demonstrations in the 3 X 50 field			0%
11	Able to determine the coordinates of closed polygon points	1. Determine the azimuth 2. Determine the difference in abscissa (DX) 3. Determine the difference in ordinates (DY) 4. Determine the coordinates of the point	Criteria: Full marks are obtained if the coordinates of the points of the polygon are closed and the writing layout and completeness of the report are correct	Lectures, discussions, questions and answers and practical demonstrations in the 3 X 50 field			0%
12	Able to determine the coordinates of open polygon points	1. Determine the azimuth 2. Determine the difference in abscissa (DX) 3. Determine the difference in ordinates (DY) 4. Determine the coordinates of the point	Criteria: Full marks are obtained if the image azimuth angle is correct, the value of the azimuth angle and the point coordinates are correct	Lectures, discussions, questions and answers and practical demonstrations in the 2 X 50 field			0%
13	Able to determine the coordinates of open polygon points	1. Determine the azimuth 2. Determine the coordinates of the assistance points, namely point D and point E 3. Determine the coordinates of the point you are looking for	Criteria: Full marks are obtained if the point coordinates of the front binding and the writing layout and completeness of the report are correct	Lectures, discussions, questions and answers and practical demonstrations in the 2 X 50 field			0%
14	Able to determine the volume of embankment excavation, basic frame points, detailed points and situation mapping contours, and draw a situation map	1. volume of embankment excavation, Determine the basic frame points by means of: closed polygon, open polygon, forward binding and backward binding 2. Determine detailed points using: perpendicular coordinates, polar coordinates and trilateration 3. Determine contour lines using radial, profile, path and raster (box) methods 4. Draw a situation map	Criteria: Full marks are obtained if the coordinates of the points from the backward binding and the writing layout and completeness of the report are correct. The situation mapping image at a certain scale matches the original form.	Lectures, discussions, questions and answers and practical demonstrations in the 2 X 50 field			0%
15	Able to determine Arc Making and detailed points in the field	1. Determine Arc Making and detail points on the field	Criteria: Full marks are obtained if you can make arcs and detail points in the field correctly.	Lectures, discussions, questions and answers and practical demonstrations in the 2 X 50 field			0%
16							0%

Evaluation Percentage Recap: Case Study

No	Evaluation	Percentage
1.	Participatory Activities	10%
2.	Test	10%
		20%

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.