



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

Document Code

SEMESTER LEARNING PLAN

Courses	CODE	Course Family	Credit Weight			SEMESTER	Compilation Date																																										
Highway Engineering	8320502197		T=2	P=0	ECTS=3.18	0	July 18, 2024																																										
AUTHORIZATION		SP Developer		Course Cluster Coordinator		Study Program Coordinator																																											
			Dr. Gde Agus Yudha Prawira Adistana, 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																																																
		<table border="1" style="margin: auto;"> <tr> <td style="width: 50px; height: 20px;">P.O</td> <td colspan="16"></td> </tr> </table>						P.O																																									
	P.O																																																
PO Matrix at the end of each learning stage (Sub-PO)																																																	
	<table border="1" style="margin: auto;"> <tr> <td rowspan="2" style="width: 30px; height: 20px;">P.O</td> <td colspan="16" style="text-align: center;">Week</td> </tr> <tr> <td style="width: 20px;">1</td> <td style="width: 20px;">2</td> <td style="width: 20px;">3</td> <td style="width: 20px;">4</td> <td style="width: 20px;">5</td> <td style="width: 20px;">6</td> <td style="width: 20px;">7</td> <td style="width: 20px;">8</td> <td style="width: 20px;">9</td> <td style="width: 20px;">10</td> <td style="width: 20px;">11</td> <td style="width: 20px;">12</td> <td style="width: 20px;">13</td> <td style="width: 20px;">14</td> <td style="width: 20px;">15</td> <td style="width: 20px;">16</td> </tr> </table>																P.O	Week																1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
P.O	Week																																																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16																																	
Short Course Description	Learn about trace measurements for new road routes and road improvements, transportation infrastructure and facilities, road transport legislation, road standards and benefits, road classification, road cross-section, vehicles: types of vehicles, visibility. Highway geometric planning: Highway geometric planning criteria, horizontal alignment and vertical alignment, combined alignment.																																																
References	Main :																																																
	<ol style="list-style-type: none"> 1. AASHTO. 1984. A Policy on Geometric Design of Highways and Streets. Washington D.C: AASHTO. 2. Anonim, 1970. Peraturan Perencanaan Geometrik Jalan Raya. Jakarta: Dirjen Bina Marga. 3. Anonim, 1979. Manual dan Kapasitas Jalan Indonesia (MKJI:) 4. .Institution of Highways and Transportation with The Department of Transport 5. Bandung: Nova.Sukirman, Silvia. 1999. Perencanaan Geometrik Jalan. 6. Oglesby, CH., Hicks, RG. 1982. Highway Engineering. Singapore: John Wiley & Sons. 7. Soeparno, 2009, Geometrik Jalan Raya, Surabaya: JTS 13FT Unesa. 																																																
	Supporters:																																																
Supporting lecturer	Drs. Andang Widjaja, S.T., M.T. Purwo Mahardi, S.T., M.Sc. Amanda Ristriana Pattisina, 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	Able to understand the concept and meaning and history of Highways in general.	<ol style="list-style-type: none"> 1.Explain the meaning of roads in general. 2.Tells about the history of the highway 3.Explain the objectives of geometric road planning. 4.Explain the geometric function of highway planning. 	Criteria: Activeness in the teaching process	Presentations, questions and answers, discussions and reflections. 2 X 50 project based field study			0%																																										

2	Students understand Road Classification in accordance with regulations and legislation	<ol style="list-style-type: none"> 1.Explain the classification of highways according to Bina Marga 2.Explain the classification according to highway class 3.Explain the Road Network System 4.Explain the classification of roads according to their development authority. 	Criteria: Activeness in the teaching process	Presentations, questions and answers, discussions and reflections. 4 X 5 project based field study			0%
3	Students understand Road Classification in accordance with regulations and legislation	<ol style="list-style-type: none"> 1.Explain the classification of highways according to Bina Marga 2.Explain the classification according to highway class 3.Explain the Road Network System 4.Explain the classification of roads according to their development authority. 	Criteria: Activeness in the teaching process	Presentations, questions and answers, discussions and reflections. 4 X 5 project based field study			0%
4	Highway Geometric Planning Criteria	<ol style="list-style-type: none"> 1.Explains the 13 considerations in highway geometric planning 2.Explains standards and planned vehicle groups 3.Explain the composition/characteristics of traffic 4.Explain about passenger car units (SMP) and passenger car equivalents (EMP) 5.Explains the Volume and Capacity of road traffic. 6.Explaining the Level of Service (LOS) of Highways 	Criteria: Activeness in the teaching process	Presentation, Q&A, discussion and reflection 4 X 50			0%
5	Highway Geometric Planning Criteria	<ol style="list-style-type: none"> 1.Explains the 13 considerations in highway geometric planning 2.Explains standards and planned vehicle groups 3.Explain the composition/characteristics of traffic 4.Explain about passenger car units (SMP) and passenger car equivalents (EMP) 5.Explains the Volume and Capacity of road traffic. 6.Explaining the Level of Service (LOS) of Highways 	Criteria: Activeness in the teaching process	Presentation, Q&A, discussion and reflection 4 X 50			0%
6	Able to explain viewing distance	<ol style="list-style-type: none"> 1.Can define viewing distance 2.Explain the factors that influence visibility on straight roads 3.Describe visibility at road curves 	Criteria: Activeness in the teaching process	Presentations, questions and answers, discussions and reflections. 2 X 50 project based field study			0%
7	Able to explain horizontal alignment in highway geometric planning.	<ol style="list-style-type: none"> 1.Explain in general about Horizontal alignment 2.Explains 3 (three) types of Bends: 1). FC, 2). SCS., 3) SS, in highway alignment planning 3.Explaining transition curves in types of curves 4.Explains about super elevation at highway bends 5.Explain about widening the road at the corner 6.Discuss examples of Horizontal Alignment planning questions 	Criteria: Activeness in the teaching process	Presentations, questions and answers, discussions and reflections. Field study based on a 4 X 50 project			0%

8	Able to explain horizontal alignment in highway geometric planning.	<ol style="list-style-type: none"> 1.Explain in general about Horizontal alignment 2.Explains 3 (three) types of Bends: 1). FC, 2). SCS., 3) SS, in highway alignment planning 3.Explaining transition curves in types of curves 4.Explains about super elevation at highway bends 5.Explain about widening the road at the corner 6.Discuss examples of Horizontal Alignment planning questions 	Criteria: Activeness in the teaching process	Presentations, questions and answers, discussions and reflections. Field study based on a 4 X 50 project			0%
9	UTS	-	Criteria: -	- 2 X 50			0%
10	Able to explain the slope of the highway	<ol style="list-style-type: none"> 1.Define road grade 2.Explaining Relative Ramps on highways 3.Explain the characteristics of the vehicle, 4.maximum and minimum slopes and the critical length of the slope 5.Explain the climbing lane on the highway. 	Criteria: Activeness in the teaching process	Presentations, questions and answers, discussions and reflections. 2 X 50 project based field study			0%
11	Able to explain Vertical Alignment	<ol style="list-style-type: none"> 1.Defining Vertical Alignment in general 2.Explaining Convex Vertical Curves on Highways 3.Explaining Concave Vertical Curves in Highways 4.Discuss examples of questions regarding Vertical Curve planning 	Criteria: Activeness in the teaching process	Presentations, questions and answers, discussions and reflections. And task 4 X 50			0%
12	Able to explain Vertical Alignment	<ol style="list-style-type: none"> 1.Defining Vertical Alignment in general 2.Explaining Convex Vertical Curves on Highways 3.Explaining Concave Vertical Curves in Highways 4.Discuss examples of questions regarding Vertical Curve planning 	Criteria: Activeness in the teaching process	Presentations, questions and answers, discussions and reflections. And task 4 X 50			0%
13	Able to explain Super Elevation Diagrams around corners	<ol style="list-style-type: none"> 1.Defining Super elevation diagrams in general 2.Explains the method for achieving Super elevation 3.Explain how to make Superelevation diagrams using ASSHTO and Bina Marga (BM) 4.Discusses examples of making Super elevation diagrams 	Criteria: Activeness in the teaching process	Presentations, questions and answers, group discussions and reflections. 2 X 50 project based field study			0%
14	Combined Bends and Alignment Coordination Alignment Coordination	<ol style="list-style-type: none"> 1.Defines Joint Bends and Alignment Coordination in general 2.Explain about one-way combined bends on highways 3.Explains the combined U-turn curve on the highway 4.Explain the conditions for combining several horizontal and vertical alignment elements and cross sections. 	Criteria: Activeness in the teaching process	Presentations, questions and answers, discussions and reflections. Field study based on a 4 X 50 project			0%
15	Combined Bends and Alignment Coordination Alignment Coordination	<ol style="list-style-type: none"> 1.Defines Joint Bends and Alignment Coordination in general 2.Explain about one-way combined bends on highways 3.Explains the combined U-turn curve on the highway 4.Explain the conditions for combining several horizontal and vertical alignment elements and cross sections. 	Criteria: Activeness in the teaching process	Presentations, questions and answers, discussions and reflections. Field study based on a 4 X 50 project			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.