

 UNESA	Universitas Negeri Surabaya Faculty of Engineering Civil Engineering Undergraduate Study Program					Document Code																																	
SEMESTER LEARNING PLAN																																							
Courses	CODE	Course Family	Credit Weight			SEMESTER	Compilation Date																																
Road-Bridge Building Design **	2220104083		T=4	P=0	ECTS=6.36	1	July 18, 2024																																
AUTHORIZATION	SP Developer		Course Cluster Coordinator			Study Program Coordinator																																	
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Learning model	Project Based Learning																																						
Program Learning Outcomes (PLO)	PLO study program that is charged to the course																																						
	Program Objectives (PO)																																						
	PLO-PO Matrix																																						
		<div style="border: 1px solid black; width: 100px; height: 30px; margin: 0 auto; display: flex; align-items: center; justify-content: center;">P.O</div>																																					
	PO Matrix at the end of each learning stage (Sub-PO)																																						
	<table border="1" style="margin: 0 auto;"> <tr> <td rowspan="2" style="padding: 5px;">P.O</td> <td colspan="16" style="text-align: center; padding: 5px;">Week</td> </tr> <tr> <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> </table>						P.O	Week																1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
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Short Course Description	<p>This course is an application of civil engineering including highway pavement structure planning, geometric design of highways and bridges. Inventory secondary data needs according to planning requirements, identify road alignment conditions, location of complementary buildings and location of material sources, technical and environmental conditions, verification of land use conditions, base/topographic maps and geotechnical, geological and hydrological data. Hydrological and hydraulic analysis for drainage system design. Analysis of soil mechanics and geotechnical data is accommodated in the design of road complementary buildings (filling, excavation, slope stability, retaining walls). Traffic surveys, Traffic Engineering, RKL (Environmental Management Plan) and RPL (Environmental Monitoring Plan), landscape design, AMDAL, types of pavement are determined according to the established plans. The appropriate calculation method is determined according to established standards, Heaviest Axle Load, design age of the road, road materials used, climate data and road technical data, Highway pavement planning, Determination of the system, function and class of the road, Determination of Rumaja, Rumija and Ruwasja, Criteria design: plan speed, slope, minimum radius, technical geometric calculations, draft situation drawings (plans) and longitudinal cuts (profiles) made taking into account earthworks and applicable regulations, data calculations and plan drawings, situation drawings (plans) , longitudinal sections (profiles) and cross sections (cross sections), detailed drawings in accordance with applicable regulations and standards, design drawings of complementary buildings, road equipment and drainage systems in accordance with design criteria. Learning is carried out by applying a constructivist approach. The learning activity ends with planning the road pavement structure, road and bridge geometry.</p>																																						
References	Main :																																						

1. AASHTO. 1986. Guide for Design of Pavement Structures . Washington DC: American Association of State Highway and Transportation Officials.
2. Departemen Pekerjaan Umum. 1987. Petunjuk Perencanaan Tebal Perkerasan Lentur Jalan Raya dengan Metode Analisa Komponen. Jakarta: Penerbit Yayasan Badan Penerbit PU.
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4. Hendarsin, Shirley L. 2000. Penuntun Praktis Perencanaan Teknik Jalan Raya. Bandung: Politeknik Negeri Bandung, Jurusan Teknik Sipil.
5. Huang, Yang H. 1993. Pavement Analysis and Design . New Jersey: Prentice Hall.
6. Widayanti, Ari. 2013. Rekayasa Jalan Raya. Surabaya: JTS FT Unesa.
7. Departemen Pekerjaan Umum. 1997. Tata Gara Perencanaan Geometrik Jalan Antar Kota. Jakarta: Penerbit PU
8. Suri. 2003. Sistem Drainase Perkotaan yang Berkelanjutan. Semarang: Penerbit Andi.
9. Sutanto. 1992. Pedoman Drainase Jalan Raya. Jakarta: Penerbit Universitas Indonesia.
10. Construction and Building Materials Journal, homepage: www.elsevier.com/locate/conbuildmat .

Supporters:

Supporting lecturer

Muhammad Imaduddin, S.T., M.T.
Purwo Mahardi, S.T., M.Sc.
Mochamad Firmansyah Sofianto, S.T., M.Sc., 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				4 X 50			0%
2				4 X 50			0%
3				4 X 50			0%
4				4 X 50			0%
5				4 X 50			0%
6				4 X 50			0%
7				4 X 50			0%
8				4 X 50			0%
9				4 X 50			0%
10				4 X 50			0%
11				4 X 50			0%
12				4 X 50			0%
13				4 X 50			0%
14				4 X 50			0%
15				4 X 50			0%
16							0%

Evaluation Percentage Recap: Project Based Learning

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.