

Universitas Negeri Surabaya Faculty of Engineering Civil Engineering Undergraduate Study Program

Document Code

SEMESTER LEARNING PLAN

Courses		CODE	Course Famil		y Credit Weight		SEMESTER	Compilation Date		
Road Pavement Engineering		2220102127			T=2	P=0	ECTS=3.18	7	July 18, 2024	
AUTHORIZATION		SP Developer	SP Developer		Course Cluster Coordinator			Study Program Coordinator		
								Yogie Risdianto, S.T., M.T.		
Learning model	Case Studies									
Program	PLO study program that is charged to the course									
Learning Outcomes	Program Objectives (PO)									
(PLO)	PLO-PO Matrix									
	P.O									
	PO Matrix at the end	of each learning stage (Sub-F	PO)							
	F	P.0		We	Week					
		1 2 3 4 5	6 7	8 9	10) :	11 12	13 14 3	15 16	
Short Course Description	constructivist approach strength coefficient. Pla Analysis Method), Over of subgrade: CBR, sub DDT. Carrying capacity road pavement layers: asphalt classification, a and spreading. Aggre analytical/graphical mit development and role. pavement. Learning is damage and road main the Bina Marga methour rigid pavement layers. CBR, correlation betwe Types of road pavement properties, asphalt proor implementation of the n aggregate specification highways, history of dev	nds with an exercise in planning anned traffic load. Regional factor flay planning and gradual layer cor- grade reaction modulus (k), subgr. of each hard layer. Factors that asphalt, aggregate, filler. Types sphalt inspection, asphalt specifica- grade as a hard layer materia ing of aggregates. cross-secti- This course is an introduction to le carried out by applying a construc- tenance. Relative strength coeffici- d (Component Analysis Method), Bearing capacity of subgrade: CB en CBR, k and E, DDT. Carrying of anixture in the field and spreading. A s, analytical/graphical mixing of a velopment and role. This course is	g the Highway rs. Flexible pa nstruction, p S ade stiffness n t influence roa of asphalt and ations, asphalt l: types of a on of highway arning activitie tivist approach ent. Planned t Overlay planni R, subgrade r ayers: asphalt tion, asphalt in yggregate as a ggregate as a	ys Meth vernent tresses nodulus ad paver l techno selection ggregat ys, high s ending . Rigid ps and ng and eaction inh hard la ross-section	od, R plann in flexi (E), pl ment p logy, a n and e, ag way c g with bavem id. Rei gradu modul ayer. jate, f jate, f a, aspl yer ma	oad c ing us ble ar annec lannir aspha mixing grega lassifi an exc ent pl gional al lay us (k) Facto iller. T nalt sp terial:	lamage and sing the Bina nd rigid paver d CBR, correla ng. Types of i lt properties, j, implementa te inspection cation, defini ercise in plani anning using factors. Flexi er constructio n, subgrade st prs that influer ypes of aspl becifications, i types of aggi	road mainten Marga metho nent layers. Be ation between road pavemen asphalt produ tion of the mix n, aggregate tion of highwa ning the thickn the Highways ble pavement n, p Stresses iffness modulunce road paver nalt and techn asphalt selecti regate, aggreg	arice. Relative d (Component aaring capacity CBR, k and E, t Materials for ction process, ture in the field specifications, ays, history of ess of highway Method, Road planning using in flexible and s (E), planned ment planning, ology, asphalt on and mixing, ate inspection,	
References	Main :									

 AASHTO. 1986. <i>Guidefor Design of Pavement Structures</i>. Washington DC: American Association ofState Highway and Transportation Officials. [2]. Departemen Pekerjaan Umum. 1987. Petunjuk PerencanaanTebal Perkerasan Lentur Jalan Raya dengan Metode Analisa Komponen. Jakarta:Penerbit Yayasan Badan Penerbit PU. [3]. DepartemenPekerjaan Umum. Direktorat Jenderal Bina Marga. Pedoman Perencanaan PerkerasanKaku (Beton Semen). [4]. Hartom. 1988. Beton Semen sebagai Salah Satu Alternatif Perkerasan Jalan. SeminarPerencanaar dan Pelaksanaan<i>RigidPavement</i>. Surabaya: ITS. [5]. Hendarsin, Shirley L. 2000. Penuntun Praktis Perencanaan Teknik Jalan Raya. Bandung:Politeknik Negeri Bandung, Jurusan Teknik Sipil. [6]. Huang, Yang H. 1993. <i>Pavement Analysis andDesign</i>. New Jersey: Prentice Hall. [7]. Roestaman. Dasar-dasar Pelaksanaan Perkerasan Kaku (Rigid Pavement). Makalah Seminar. [8]. Sukirman, Slivia. 1995. PerkerasanLentur Jalan Raya. Bandung: Penerbit Nova. [9]. Undang-Undang RI No. 38 Tahun 2004 tentang Jalan. [10]. Widayanti,Ari. 2004. Perencanaan Perkerasan Jalan Raya. Surabaya: JTS 13 FT 13 Unesa. [11]. Widayanti,Ari. 2013. Rekayasa JalanRaya. Surabaya: JTS 13 FT 13 Unesa. [12]. Constructionand Building Materials Journal, homepage: www.elsevier.com/locate/conbuildmat. 								
	Supporters:							
Support	ting Purwo Mahardi, s	S.T., M.Sc.						
lecturer Week-		Evaluat	ion	Lear Studer	lp Learning, ning methods, nt Assignments, stimated time]	Learning materials	Assessment Weight (%)	
	(Sub-PO)	Indicator	Indicator Criteria & Form		Online (online)	- References]	weight (70)	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
1	Understand the definition of highway, history of development and role of highway, classification of highways, highway cross-section.	State the definition of highway, history of development and role of highway, classification of highways, cross- section of highways.	Criteria: Full marks are obtained if you do all the questions correctly.	Discussion presentation and question and answer. 2 X 50			0%	
2	Get to know road pavement materials: asphalt aggregate filler.	Mention road pavement materials: asphalt aggregate filler.	Criteria: Full marks are obtained if you do all the questions correctly.	Discussion presentation and question and answer. 2 X 50			0%	
3	Get to know the types of asphalt and their technology, the properties of asphalt, the process of making asphalt, the asphalt classification, the asphalt specifications.	Able to mention types of asphalt and technology, properties of asphalt, process of making asphalt, asphalt classification, asphalt specifications.	Criteria: Full marks are obtained if you do all the questions correctly.	Discussion presentation and question and answer. 2 X 50			0%	
4	Carry out asphalt inspection.	Able to carry out asphalt inspections.	Criteria: Full marks are obtained if you do all the questions correctly.	Discussion presentations and exercises. 2 X 50			0%	
5	Selecting and mixing asphalt, implementing the mixture in the field and spreading it.	Able to select and mix asphalt. Be able to mention the implementation of mixtures in the field and spreading.	Criteria: Full marks are obtained if you do all the questions correctly.	Discussion presentations and exercises. 2 X 50			0%	
6	Getting to know aggregate as a hard layer material: types of aggregates checking aggregates	Be able to state aggregate as a hard layer material: types of aggregate, aggregate inspection, aggregate specifications, aggregate mixing	Criteria: Full marks are obtained if you do all the questions correctly.	Discussion presentation and question and answer. 2 X 50			0%	

7	Get to know the types of highway pavement.	Be able to name the types of road pavement. Able to identify types of highway pavement. Able to differentiate between types of road pavement.	Criteria: Full marks are obtained if you do all the questions correctly.	Discussion presentation and question and answer. 2 X 50		0%
8	-	-	Criteria:	- 2 X 50		0%
9	Understand the factors that influence flexible pavement planning.	Be able to mention the factors that influence the planning of flexible road pavement.	Criteria: Full marks are obtained if you do all the questions correctly.	Question and answer discussion presentation. 2 X 50		0%
10	Recognizing stress in flexible and rigid pavement layers. Bearing capacity of subgrade: CBR subgrade reaction modulus (k) subgrade stiffness modulus (E) CBR correlation plan between CBR k and E DDT.	Be able to state the relationship between stresses in flexible and rigid pavement layers. Bearing capacity of subgrade: CBR modulus of subgrade reaction (k) modulus of subgrade stiffness (E) CBR planned correlation between CBR k and E DDT.	Criteria: Full marks are obtained if you do all the questions correctly.	Question and answer discussion presentation. 2 X 50		0%
11	Understand the bearing capacity of each hard layer, relative strength coefficient, planned traffic load and regional factors.	Be able to explain the bearing capacity of each hard layer. Be able to relate relative strength coefficients. Capable of planned traffic loads and regional factors.	Criteria: Full marks are obtained if you do all the questions correctly.	Question and answer discussion presentation. 2 X 50		0%
12	Planning flexible pavement using the Bina Marga Method (Component Analysis Method).	Able to calculate the thickness of flexible pavement using the Bina Marga Method (Component Analysis Method).	Criteria: Full marks are obtained if you do all the questions correctly.	Presentation, question and answer discussion, exercises and assignments. 2 X 50		0%
13	Planning overlay and gradual layer construction using the Bina Marga Method (Component Analysis Method).	Able to calculate the thickness of overlay pavement. Able to calculate the thickness of gradual layer construction pavement using the Bina Marga Method (Component Analysis Method).	Criteria: Full marks are obtained if you do all the questions correctly.	Presentation, question and answer discussion, exercises and assignments. 2 X 50		0%
14	Understand the factors that influence highway rigid pavement planning.	Be able to mention the factors that influence rigid pavement planning	Criteria: Full marks are obtained if you do all the questions correctly.	Question and answer discussion presentation. 2 X 50		0%
15	Planning rigid pavement using the Highways Method.	Able to calculate the thickness of rigid pavement using the Bina Marga Method.	Criteria: Full marks are obtained if you do all the questions correctly.	Presentation, question and answer discussion, 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
 - 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.
 Program Objectives (PO) are abilities that are specifically described from the PLO assigned to a course, and are specific to the average of the plane study of the second state of
 - 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.