1. Highway Engineering – Paul H. Wright, 6th Ed.
2. Transportation Engineering and Transport Planning – L.R. Kadiyali
3. Transportation Planning and Traffic Engineering – O'Flaherty

REFERENCE SITE

http://classroom.google.com/...../.....

COURSE INFORMATION	
Course Code: EWCE 352	Credit Hour: 1.5
Course Title: Transportation Engineering Sessional	Contact Hour: 3.0

PRE-REQUISITE

EWCE 351 (Transportation Engineering)

CURRICULUM STRUCTURE

Outcome Based Education (OBE)

SYNOPSIS/ RATIONALE

In this course the students will learn to perform mix design for highway materials and capacity analysis for road traffics, which they can apply professionally.

OBJECTIVE

1. To learn testing of highway materials and mix design
2. To perform analysis on road traffic capacity

COURSE OUTCOMES & GENERIC SKILLS

No	Course Outcome	Corresponding POs	Bloom's Taxonomy*	CP	CA	KP	Assessment Methods
CO 1	Students will be able to design mixture of highway materials	PO – 2,3	C4	1,3		3	Q, R
CO 2	Students will be able to understand the parameters for quality control of highway materials	PO – 1	C2	4		1	Q, R

**Level of Bloom's Taxonomy:*

C1 - Remember C2 - Understand C3 - Apply C4 - Analyze C5 - Evaluate C6 - Create

(CP – Complex Problems, CA – Complex Activities, KP – Knowledge Profile, T – Test, PR – Project, Q – Quiz, M – Mid Term Exam, Asg – Assignment, Pr – Presentation, R – Report, F – Final Exam)

COURSE CONTENT

Testing and quality control of highway materials, bituminous mix design, roadway traffic and capacity analysis.

SKILL MAPPING (CO – PO MAPPING)

No	Course Outcome	PROGRAM OUTCOMES (POs)											
		1	2	3	4	5	6	7	8	9	10	11	12
CO1	Students will be able to design mixture of highway materials		2	3									

CO2	Students will be able to understand the parameters for quality control of highway materials	3											

(Numerical method used for mapping which indicates 3 as high, 2 as medium and 1 as low level of matching)

JUSTIFICATION FOR CO – PO MAPPING

	Mapping	Corresponding Level of Matching	Justifications
	CO1 – PO2	3	Knowledge of mathematics and engineering fundamentals has to be applied to explore the problems related to mixture needed for proposed highway construction.
	CO1 – PO3	1	Will be able to find viable solution to the problem and design the necessary mixture for proposed highway.
	CO2 – PO1	2	Knowledge of science and engineering fundamentals has to be applied to understand the parameters for quality control of highway materials.

TEACHING AND LEARNING STRATEGY

	Teaching and Learning Activities	Engagement (Hours)
	Face-to-face Learning • Lecture • Practical/ Tutorial/ Studio • Student – Centered Learning	 36 --
	Self- Directed Learning • Non-face-to-face learning • Revision of the previous lecture at home • Preparation for final examination	 3 12 3
	Formal Assessment • Continuous Assessment • Final Examination	 3 3
	Total	60

TEACHING METHODOLOGY

Lecture and Discussion, Practical/Lab sessional

COURSE SCHEDULE

		Intended Topics to be Covered	**Assessment**
Week 1	Class 1	Determination of aggregate impact value (AIV) Determination of aggregate crashing value (ACV)	

Week 2	Class 2	Determination of ten percent fines value Determination of angularity number	Quiz Test, Reports, Class participation, Viva
Week 3	Class 3	Determination of flakiness index Determination of elongation index	
Week 4	Class 4	Specific gravity of semi-solid bituminous materials	
Week 5	Class 5	Loss on heating of oil and asphaltic compounds	
Week 6	Class 6	Penetration of bituminous materials	
Week 7	Class 7	Softening point of bituminous materials	
Week 8	Class 8	Ductility of bituminous materials	
Week 9	Class 9	Flash and fire points of bituminous materials	
Week 10	Class 10	Determination of roadway capacity. Measuring saturation flow at traffic signals	
Week 11	Class 11	Standard test method for CBR of laboratory compacted soils	
Week 12	Class 12	Marshal method of mix design	
Week 13	Class 13	Final Quiz Test	
Week 14	Class 14	Viva voce	

ASSESSMENT STRATEGY

Components		Grading	CO	Bloom's Taxonomy
Continuous Assessment	Reports	20%	CO1, CO2	C2
	Class attendance and Participation	10%	CO1, CO2, CO3	C2
Quiz-1		30%	CO1, CO2	C1
Quiz-2		30%	CO1, CO2	C1
Viva voce		10%	CO1, CO2, CO3	C4
Total Marks		100%		

(CO = Course Outcome, C = Cognitive Domain, P = Psychomotor Domain, A = Affective Domain)

REFERENCES BOOKS

1. Highway Engineering – Paul H. Wright, 6th Ed.
2. Transportation Engineering and Transport Planning – L.R. Kadiyali
3. Laboratory Manual

REFERENCE SITE

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COURSE INFORMATION	
Course Code: EWCE 361	Credit Hour: 3.0
Course Title: Open Channel Hydraulics	Contact Hour: 3.0
PRE-REQUISITE	