MAPPING OF COURSE OUTCOMES (COs) TO PROGRAMME OUTCOMES (POs), METHOD OF DELIVERY, ASSESSMENT AND STUDENT LEARNING TIME

Name of Lecturer : Brig Gen Munir (Retd), Col Kabir and Maj Ahad

Course Code and Title : EWCE 351: Transportation Engineering

Faculty/Department : Faculty of Civil Engineering/ Department of EWCE Level 3 :

Academic Session : 2022 Term 1 :

Sl No	COURSE OUTCOMES (COs)	PROGRAMME OUTCOMES (POs)												Bloom's taxonomy domain/level	Range of Complex Problems	Delivery methods	Asse t t
		PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12				
1	Able to **identify** different geometric features of highways including **applying** solutions to common geometric challenges	√												C1/C2	P1/	Lectures/ Tutorials/PBL	Pop C CT, I and I exam
2	**Illustrate** the properties and **select** appropriate road construction materials.	√												C1/C2		Lectures/ Tutorials/PBL	CT, I and I exam
3	Able to **recognize** the rudiments of traffic engineering and **design** traffic two phase traffic signal, street lighting and parking facilities.	√												C2/C3/C4		Lectures/ Tutorials/PBL	CT, I and I Exan
4	Able to **demonstrate** various types of pavements, their components & functions including **design** of pavement.		√											C1/C2		Lectures/ Tutorials/PBL	Pop C CT, I and I Exan
5	Able to **forecast travel demands** using contemporary methods for effective transportation planning.	√												C1/C2			

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Level of Bloom's Taxonomy:

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

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Note: 40 notional hours = 1 Credit

COMPONENTS	TEACHING AND LEARNING ACTIVITIES	STUDENT LEARNING TIME (SLT)
Face to Face	Lecture (4 hours/week x 14 weeks)	56
Guided Learning	Tutorial/ Assignments (4 hours/week x 5 weeks)	20
Independent Learning	Individual learning (1-hour lecture ≈ 1-hour learning) Preparation for tests and examination	48 30
Assessment	Pop Quiz/Class Test/Mid-Term Exam Final examination	3 3
	TOTAL SLT	160
	CREDIT = SLT/40	4

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	COURSE PRO FORMA

IMPORTANT:
Contents of Syllabus shall not be changed without the Academic Council's approval. Changes to the other items can be approved at the Department/Faculty level.

Faculty Department	Civil Engineering EWCE
Program	Bachelor of Science in Civil Engineering
Course Code* Course Title*	EWCE 351 Transportation Engineering
Course Pre-requisite(s)/ Minimum Requirement(s)	Nil
Student Learning Time (SLT)* Credit*	160 4
Learning Outcomes*	At the end of the course, students are able to: 1. Explore the problems related to different geometric features of the highways including finding solutions to common challenges encountered. 2. Understand different transportation systems, their functions, different modes, including identifying transportation scenario in Bangladesh. 3. Understand the fundamentals of traffic engineering & transportation planning. They will also be able to plan and design two phase traffic signal, road sign, marking. 4. To acquire knowledge on characteristics, functions and types of pavements including latest development. 5. To design flexible and rigid pavements using standard method. 6. To select appropriate road construction materials. Estimate optimum bituminous content by mix design method.
Transferable Skills	NONE
Synopsis of Course Contents	Introduction to transportation engineering, geometrical design of highways, element of design, cross-section elements, curves and sight distances. Introduction to intelligent transportation system. Transport planning, concepts, scope and hierarchy, process, goals and objectives, inventories, socio-economic activities, land use-transport interaction, travel demand forecasting. Introduction to pavement materials, flexible and rigid pavement: pavement components and functions. Traffic engineering: fundamentals of traffic engineering, vehicle and traffic characteristics, traffic control devices and systems.

	COURSE PRO FORMA

Method of Delivery (lecture, tutorial, workshop, etc)	Lecture, Tutorial, PBL
Assessment Methods* Methodologies for Feedback on Performance	Continuous assessment : 40% Final examination : 60% 1. Discussions in class 2. Returning graded assignments and tests 3. Final grades are announced
Academic Year Level/Term	2022 3/1
Course Code Course Title Credit Medium of Instruction Course Pre-requisite(s)/ Minimum Requirement(s)	EWCE 351 Transportation Engineering 4.0 English Nil
Main Reference	1. "Pavement Analysis and Design: Yang H. Huang 2nd edition 2. "Highway Engineering" by – Paul H. Wright (7th Edition) 3. "Transportation Engineering and Transport Planning" by – L.R. Kadiyali 4. "Transportation Planning and Traffic Engineering" by – O'Flaherty . 5. "A Policy on Geometric Design of Highways and Streets", American Association of State Highways and Transportation Officials, Washington, D. C., 2001. 6. "Traffic and Highway Engineering", - N. J. Garber and L. A. Hoel, West Publishing Company, MN, 2010. 7. "Highway capacity manual", transportation research reports, national research council, Washington D.C., 2000. 8. "Introduction to Transportation Engineering", by - Tom V. Mathew and K V Krishna Rao, NPTEL May 24, 2006 9. "Transportation Engineering and Planning" by- C. S. Papacostas 10. "Introduction to Transportation Engineering" by James H. Bakes 11. "Principles of Highway Engineering and Traffic Analysis" by - Fred L. Mannering 12. "Traffic Engineering Design" by - Mike Slin and others 13. " Transportation Engineering : An Introduction" by- C. John Khisty and B. Kent Lall (3rd edition) 14. Strategic Transport Plan and revised Strategic Transport Plan 15. Geometric Design Standard for Roads and Highways department Government of Bangladesh

	COURSE PRO FORMA

Teaching Materials/ Equipment	Power point presentation, white board, References and lecture notes
Learning Strategies	Lecture, tutorial, Problem Based Learning (PBL)
Student Learning Time (SLT)	Face to face:56 hours Guided learning: 15 hours Independent learning: 58 hours Assessment: 5 hours
Soft Skills	Critical Thinking and Problem Solving Skills: CT1, CT2 and CT3 Team Work Skills: Nil
Lecturer Room Telephone/e-mail	Brig Gen (LPR) Munir Tower 1, Room – 718 01678034398 /muniruzzaman@ce.mist.ac.bd/ shah2713@gmail.com
Lecture Session: Day/Time Venue Tutorial/Quiz Session: Day/Time Venue	Refer to department time table Refer to department time table
Important Dates	Test: Refer to department time table Examination : Refer examination time table

LEC SCHEDULE (Brig Munir)

Weeks	Lectures	**Intended topics to be covered**

1	1	Introduction to Course and OBE, Traffic parameter, congestion, safety
2	2	Traffic parameter, congestion, safety
3	3	Traffic Volume Study
4	4	Speed and Delay Study
5	5	Vehicle and traffic characteristics
6	6	Parking Study
7	7	Traffic Control Device
8	8	Traffic signal
9	9	Traffic signal
10	10	Pavement Types and Function
11	11	Pavement Types and Function
12	12	Wheel Load & Pavement design Requirement
13	13	AASHTO Method of Pavement Design
14	14	RHD Method of Pavement Design and Wrap UP