

Marks	Grade Point	Letter Grade	Marks	Grade Point	Letter Grade
80>	4.00	A+	55-59	2.75	B-
75-79	3.75	A	50-54	2.50	C+
70-74	3.50	A-	45-49	2.25	C
65-69	3.25	B+	40-44	2.00	D
60-64	3.00	B	0-39	0.00	F



Daffodil Polytechnic Institute, Institute Code: 50238
Lesson Plan – Academic session: August,25 to January, 26

Subject Teacher : Md. Emon Khan (Jr. Instructor)
Subject Name : Transportation Engineering -1
Subject Code : 66462
Technology : Civil
Semester : 6th
Reference Book : Transportation Engg-1 (Publisher: HaqueProkashani / Technical Prokashoni)

Mark Distribution (for 150 Marks)			
Theory Marks		Practical Marks	
Midterm	10	PC	25
Class test	05	PF	25
Quiz test	05	-	-
Final	80	-	-
Total	100	Total	50

INTENTION

To provide the students with an opportunity to acquire knowledge, skills and attitude in the area of Transportation Engineerin-1. Focus on various Transportation Engineering themes, such as, Transport, Classify transportation, road, Rail, Airport, and more .incorporating other subject- such as construction process, estimating & costing –into construction process 2 will help hold our students interest in the subject.

SHORT DESCRIPTION

Modes of transportation and history of road development; Highway planning; Road alignment and survey; Highway geometrics; Subgrade soil; Highway materials, Construction of road formation & classification of road; Low cost road; Water bound macadam road; Bituminous road; Cement concrete road; Hill road; Highway drainage; Traffic control; Road arboriculture; Highway machinery; Highway failures & maintenance; Highway bridges & culverts; Planning of airport; Geometric standard in airport, airport building & warehouses.

Lectur e	Chapter	Supporting Equipment	Topic	Benefits
01	Understand the modes of transportation and history of road development.	Laptop, Projector. https://www.youtube.com/watch?v=rPL4B1keV10	1.1 Classify transportation. 1.2 Explain the importance of transportation. 1.3 Mention the benefits of good road system.	1. To know about Transport. 2. To know about Classify transportation

			1.4 Describe in brief the history of road development. 1.5 Mention the characteristics of important early roads. 1.6 Describe the macadam and tenfold road construction.	
02	Understand the concept of highway planning.	Laptop, Projector. https://www.youtube.com/watch?v=gzASKiq2u8	2.1 Explain the importance of highway planning. 2.2 Mention the objectives of highway planning. 2.3 Classify the road according to location & functions: 2.4 Mention the objectives of road planning & survey.	1. To know about highway planning. 2. To know about road according to location & functions
Assignment-01		Base on Lecture 01-02 & Class note		Submit within next two days
03	Understand the concept of alignment of road and survey	Laptop, Projector. https://www.youtube.com/watch?v=HWFO4rKZwNI	3.1 Define alignment of road. 3.2 Mention the fundamental principles of alignment of road. 3.4 Mention the factors that controls the selection of alignment of road. 3.5 Describe the reconnaissance survey for a road construction. 3.6 Describe the preliminary survey, final location survey and soil survey for a road construction. 3.7 Mention the points to be considered in fixing location of a new urban road.	1. To know aborted-alignment of road 2. To know about concept of alignment of road and survey
Quiz Test		Theory Base.	Chapter- 1, 3.	Students are able to known about Classify transportation, road development, alignment of road, new urban road.
Lab Report- 01		Measuring Tap, Ranging Rod, etc. https://www.youtube.com/watch?v=PCNblrOAGuw	Setting an alignment of a new road.	To know about alignment of a new road.
06	Understand the principles of highway geometric.	Laptop, Projector. https://www.youtube.com/watch?v=tIkBEky7WsY	4.1 Classify the highway geometric into broad categories such as: a) Cross-sectional elements (camber, super elevation) b) Visibility c) Horizontal / Vertical curves d) Road intersections 4.2 State the meaning of friction. Mention the factors that affect friction of coefficient. 4.3 Define the terms skid and slip.	1. To know about highway geometric. 2. To know about factors that affect the highway geometrics.

			4.4 Describe the factors that affect the highway geometrics.	
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07	Understand the concept of highway cross-section.	Laptop, Projector. https://www.youtube.com/watch?v=CVXkB51tFAo	5.1 State the meaning of right of way. 5.2 Mention the factors on which the width of pavements depend. 5.3 State the terms in relation to road construction: formation width, side slope, berm, embankment, cutting, shoulder, carriage way width, Footpath, cycle track, parking lanes, median strip, curb. 5.4 State the meaning of camber. 5.5 Explain the necessity of camber. 5.6 Describe the procedure of providing camber in road.	1. To know about right of way. 2. To know the camber in road	
Class Test-01		Theory Base.	Chapter- 4, 5.	Students are able to know about camber, super elevation, Road intersections, highway geometrics, right of way.	
09	Understand the concept of sight distance.	Laptop, Projector. https://www.youtube.com/watch?v=PMbv2aPrs8	6.1 State the reaction time and reaction distance. 6.2 State the braking time and braking Distance. 6.3 Classify the various types of sight distances. 6.4 Describe each type of sight distances.	1. To know about reaction time and reaction distance 2. To know the stopping sight distance and passing sight distance.	

			6.4 Solve problems on stopping sight distance and passing sight distance.		
Lab Report- 02		Coarse aggregate, Sieve set, Electric Balance. https://www.youtube.com/watch?v=TW81wQnObcs	Perform the test of grading of coarse aggregate	To know about the test of grading of coarse aggregate	
11	Understand the concept of curve, superelevation & gradient.	Laptop, Projector. https://www.youtube.com/watch?v=Dj06aUJ9Wjc	7.1 State the meaning of curve. 7.2 Classify the various types of curves used in highway. 7.3 Mention the reasons for extra widening of road on curve. 7.4 State the meaning of super elevation. 7.5 Describe the method of providing super elevation on site. 7.6 Solve the problems on super elevation. 7.7 State the meaning of gradient.	1. To know about meaning of curve 2. To know the various types of curves used in highway	
12	Understand the concept of highway intersections	Laptop, Projector. https://www.youtube.com/watch?v=yITr127KZtQ	8.1 Define intersection of roads. 8.2 Mention the purposes of intersection of roads. 8.3 Classify the level intersection of roads. 8.4 Mention the advantages and disadvantages of each type of intersections and grade separations. 8.5 Define underpass and Overpass.	1. To know about intersection of roads 2. To know the underpass and Overpass	
Quiz Test- 02		Practical Base.	Chapter- 7, 8.	Students are able to know about reaction time and reaction distance, stopping sight distance and passing sight distance, intersection of roads, underpass and Overpass.	

Assignment-02		Base on Lecture Previous two & Class note		Submit within next two days	
14	Understand the characteristics of sub-grade soil of highway.	Laptop, Projector. https://www.youtube.com/watch?v=4AZTAhQGqYc	9.1 Define the term sub-grade in highway. 9.2 Describe the characteristics of different sub-grade soil. 9.3 Mention the suitable sub-grade for various types of highway construction. 9.4 Describe the procedure of improving sub-grade soil for road construction. 9.5 Describe construction of road in water logged area	1. To know about sub-grade in highway. 2. To know the construction of road in water logged area	
Class Test- 02		Practical Base.	Chapter- 09,	Students are able to know about sub-grade in highway, different sub-grade soil, construction of road in water logged area.	
16	Review Class	Before Mid Exam	Problem Solution and Important Tropic Discussion Before Mid Syllabus.	Be confident for mid exam	
Midterm Exam					
17	Understand the characteristics of different materials suitable for highway construction	Laptop, Projector. https://www.youtube.com/watch?v=blvVXERs7dg	10.1 Mention the advantages and limitations of aggregates for highway construction. 10.2 List the tests required for aggregates used for highway construction. 10.3 Describe different types of bituminous materials for road construction. 10.4 State the properties of bituminous materials. 10.5 List the standard tests on bituminous materials.	1. To know about the advantages and limitations of aggregates for highway construction. 2. To know the standard tests on bituminous materials	
18	Understand the concept of road formation and	Laptop, Projector. https://www.youtube.com/watch?v=msZWBaEy6Sk	11.1 Describe the procedure of earth work in cutting, filling and compaction of soil. 11.2 Describe the turning used in road embankment.	1. To know about the procedure of earth work in cutting, filling and compaction of soil.	

	classification of roads.		11.3 List the field tests needed to find out the good quality of compaction of Soil for road construction. 11.4 Classify the road on the basis of materials, volume of traffic, type of traffic, number of lanes, direction of movement of traffic, area they traverse, cost of roads and rigidity of roads. 11.5 Mention the factors influencing the selection of types of base and surfacing of road.	2. To know turning used in road embankment.	
19	Understand the construction of low cost road	Laptop, Projector. https://www.youtube.com/watch?v=MgvUDs5tcu0	12.1 Classify the various types of low cost roads. 12.2 Describe the construction procedure of earthen road. 12.3 Describe the construction procedure of gravel road. 12.4 Describe the construction procedure of soil stabilized road.	1. To know about the various types of low cost roads. 2. To know the construction procedure of earthen road, Gravel road and soil stabilized road	
Class Test-04		Theory Base	Chapter-11, 12.	Students are able to know about procedure of earth work in cutting, filling and compaction of soil, construction procedure of earthen road, Gravel road and soil stabilized road	
Lab Report- 03		Cork Board, Marker, Measuring tape, glue, Etc. https://www.youtube.com/watch?v=7bD7r3pGull	Prepare the models of different types of traffic signs	To know about the models of different types of traffic signs	
22	Understand the construction of Water Bound Macadam (WBM) road.	Laptop, Projector. https://www.youtube.com/watch?v=MgvUDs5tcu0	13.1 Define water bound macadam road. 13.2 Describe the preparation of sub-grade for construction of WBM road. 13.3 Describe the spreading of coarse aggregate for construction of WBM road. 13.4 Describe the spreading of fillers in the construction of WBM road.	1. To know about water bound macadam road 2. To know the spreading of coarse aggregate for construction of WBM road	

			13.5 Describe the method of rolling the road in the construction of WBM road. 13.6 Describe the finishing of the surface and shoulders in the construction of WBM road. 13.7 Mention the advantages and disadvantages of WBM road.		
23	Understand the construction of Bituminous road	Laptop, Projector. https://www.youtube.com/watch?v=MgvUDs5tcu0	14.1 Define bituminous road. 14.2 Classify the different types of bituminous road. 14.3 List the materials used in the bituminous pavement. 14.4 Describe the specification of the materials used for bituminous pavement. 14.5 Describe the construction procedure of bituminous road. 14.6 Define the seal coat, tack coat and prime coat. 14.7 State the terms bituminous carpet, bituminous concrete, sheet asphalt and mastic asphalt. 14.8 Mention the advantages and disadvantages of bituminous road	1. To know about bituminous road. 2. To know the advantages and disadvantages of bituminous road	
24	Understand the construction of Cement Concrete road	Laptop, Projector. https://www.youtube.com/watch?v=uMgy5XgKOww	15.1 Describe the construction procedure of cement concrete (CC), submergible Road in hoar areas and reinforced cement concrete (RCC) road. 15.2 List and explain the joints for CC and RCC road with their specification and sketches. 15.3 Describe joint fillers & sealers in CC road and RCC road. 15.4 Mention the functions of reinforcement & dowel bars in CC and RCC road. 15.5 Mention the advantages & disadvantages of CC and RCC road. 15.6 Distinguish between flexible and rigid pavement.	1. To know about construction procedure of cement concrete (CC), submergible Road in hoar areas and reinforced cement concrete (RCC) road 2. To know between flexible and rigid pavement	
Assignment-03		Base on previous two Lecture & Class note		Submit within next two days	

25	Understand the concept of hill road.	Laptop, Projector. https://www.youtube.com/watch?v=ELzTygJbZYE	16.1 Mention the special points to be considered for alignment of hill road. 16.2 Define the terms: village path or track, bridle path, motor road, hill road, salient curves, re-entrant curve, hair pin bend, corner bend, trace cut. 16.3 State the meaning of retaining wall and breast wall. 16.4 Mention the causes of land slide. 16.5 Mention the preventive measures of land slide.	1. To know about alignment of hill road. 2. To know preventive measures of land slide	
26	Understand the concept of highway drainage	Laptop, Projector. https://www.youtube.com/watch?v=H1WuuUAUSmE	17.1 Mention the requirements of highway drainage. 17.2 Mention the factors which control the design of highway drainage system. 17.3 Mention the effects of improper drainage. 17.4 Describe the highway drainage system. 17.5 Classify the highway drainage. 17.6 Define cross-drainage work. 17.7 Classify cross-drainage works	1. To know about requirements of highway drainage. 2. To know cross-drainage work	
27	Understand the concept of traffic signs	Laptop, Projector. https://www.youtube.com/watch?v=TW81wOnObcs	18.1 Classify the different types of traffic signs. 18.2 Explain the importance of traffic signs. 18.3 Mention the utility of traffic studies. 18.4 Mention the utility of traffic regulations. 18.5 Mention the utility of traffic signs	1. To know about alignment of hill road. 2. To know preventive measures of land slide	
28	Understand the concept of road arboriculture	https://www.youtube.com/watch?v=uMqy5XgKOww	19.1 State the meaning of arboriculture. 19.2 Explain the purpose of plantation on road sides. 19.3 Describe the process of tree planting, pastern of tree planting and protectionof trees on road sides.	1. To know about meaning of arboriculture. 2. To know purpose of plantation on road sides	

30	Understand the machineries used for construction of roads & highways	Laptop, Projector. https://www.youtube.com/watch?v=GZV9nRUNA8E	20.1 List the machineries used for cleaning the site, earth cutting, earth removing, consolidating and grading in highway construction. 20.2 List the machineries used for crushing road metals. 20.3 List the machineries used for construction of bituminous road. 20.4 List the machineries used for construction of CC & RCC road	1. To know about machineries used for cleaning the site, earth cutting, earth removing, consolidating and grading in highway construction 2. To construction of CC & RCC roadknow	
Quiz Test-04		Theory Base	Chapter-20	Students are able to known about machineries used for crushing road metals, construction of CC & RCC road.	
Lab Report-04			Visit of a Fly Over/Overpass/Underpass/interse ction grade separation.	To know about Fly Over/Overpass/Un derpass/interse ction grade separation	
33	Understand the causes of failures of roads & highways, Understand the maintenance of highway	https://www.youtube.com/watch?v=uMqy5XgKOww	21.1 Describe the sub-grade, base and wearing course failures. 21.2 Mention the typical failures of flexible pavement. 21.3 Mention the causes of failures of CC & RCC road. 21.4 Mention the typical failures of CC & RCC road. 22.1 Explain the significance of routine maintenance of highways. 22.2 Classify the maintenance work of road. 22.3 Describe the maintenance of (a) Earthen road. (b) Water bound macadam road. (c) Bituminous road. (d) CC & RCC road. 22.4 Mention the causes for corrugations and wavy surfaces. 22.5 Mention the remedies for corrugations and wavy surfaces	1. To know about sub-grade, base and wearing course failures 2. To know maintenance work of road.	
34	Understand the standard of geometrics used in airport.	Laptop, Projector. https://www.youtube.com/watch?v=uMqy5XgKOww	25.1 Explain the terms: runway, taxiway, aprons, runway orientation, pattern & grade. 25.2 Distinguish between runway and taxiway. 25.3 State the meaning of heliport.	1. To know about terms: runway, taxiway, aprons, runway orientation, pattern & grade	

			25.4 Mention the functions of terminal building. 25.5 Distinguish between heliport and airport.	2. To know meaning of heliport.	
35	26 Understand the concept of airport building & warehouse.	Laptop, Projector. https://www.youtube.com/watch?v=6fiFttw6zII	26.1 Mention the functions of airport building. 26.2 Mention the facilities to be provided in airport building. 26.3 State the meaning of warehouse. 26.4 State the importance of warehouse.	1. To know about functions of airport building. 2. To know importance of warehouse.	
Last Class	Review Class	After Mid Exam	Problem Solution and Important Tropic Discussion all Syllabus.	Be confident for Final exam.	
	Presentation	Laptop, projector	Short presentation by individual student.	Be confident on practical life.	
Final Exam					