



C.U.SHAH UNIVERSITY – Wadhwan City

FACULTY OF: -Technology and Engineering (Diploma Engineering)

DEPARTMENT OF: - Civil Engineering

SEMESTER: - IV **CODE:** -2TE04TRE1

NAME – Transportation Engineering

Teaching & Evaluation Scheme:-

Subject Code	Subject Name	Teaching Scheme (Hours)				Credits	Evaluation Scheme							
		Th	Tu	Pr	Total		Theory				Practical (Marks)		Total	
							Internal		University					
							Sessional Exam		University Exam		Pr	TW	Pr	
Marks	Hours	Marks	Hours											
2TE04TRE1	Transportation Engineering	03	02	00	05	04	30	1.5	70	03	30	20	---	150

Objectives: To understand & appreciate the importance of transportation engineering in the modern society and also apply the principles to work..

Pre-requisite: Basic knowledge of mathematics, physics and Surveying to understand and apply the designs.

Course Outlines:-

Sr. No.	Course Contents	Teaching Hours
1	Roads Introduction Importance, Advantages of Roads, Road Alignment, Types of alignment, Importance of alignment. Factors affecting alignment.	3
2	Road Geometrics Cross- section of road and its components, Function of each component, Cross-section of road as per IRC. Camber, Sight distance, Super elevation, Widening on curves, Transition curve, Road gradient, Vertical curve.	3
3	Road Drainage Importance, Purpose, Methods of Surface drainage, Methods of Sub-surface drainage.	3
4	Road Structure and Construction Types of Pavements, Functions of Pavements, Stability, Layout and construction of Earth Road. Soil stabilisation, Necessity, Principles and methods. Construction of WBM and Bitumen road. Tests on bitumen. Road side Arboriculture.	4
5	Traffic Engineering Types and purpose of Traffic survey, Traffic control devices. - Signs, Signals, Markings	3
6	Maintenance of Roads Deficiencies in Flexible Pavements. Maintenance of -Earth and Stabilized roads, WBM	3

	and Bitumen Road, Shoulders, Surface & Subsurface drainage system. Maintenance Schedule.	
7	Bridges Introduction Importance, Components, Classification. Low-cost bridge	3
8	Investigation for Bridge Selection of site, Factors affecting the selection of site. Square and skew alignment. Terms related to bridge :- Length of bridge, Linear waterway, Effective Linear waterway, Afflux, Free board, Vertical clearance, High Flood Level (HFL), Formation level, Scour, Economic span	4
9	Bridge Foundation Functions of Bridge Foundation, Types of Loading, Requirements of bridge foundation. Classification of bridge foundation- Shallow foundation, Deep foundation.	3
10	Bridge Sub-structure and Super-structure Components, Types of piers, Functions of abutment, Pier and weep holes. Importance of bearings, Types of bearings, Advantages of different bearings.	3
11	Maintenance of Bridges Deterioration of bridge structure- Factors affecting amount of Deterioration, Preventive measures. Defects in Bridge- Various types of bridge defects, Remedial measures to rectify defects. Inspection Report – Purpose, Necessity and its use, How to prepare effective and purposeful inspection report.	3
12	Railways introduction Importance, Role of Civil Engineers in construction and maintenance, Components of railway track. Railway Gauges, definition, Types, Uniformity of gauge. Cross-Section of permanent way as per IRS, Functions of various components, Method of fixing rails with prestressed concrete and wooden sleepers, Functions of rail joints.	4
13	Points, Crossings and Yards Functions of Points and crossings, Components of turnouts, Types of crossings. Functions of railway stations, Requirement of railway stations. Functions of goods and passenger yards.	3
14	Maintenance of Railway Track Introduction- Maintenance Programme. Monsoon, Pre-monsoon & Post-monsoon maintenance. Causes for maintenance, Routine maintenance, Tools for railway track maintenance, their functions. Surface defects and their remedial measures.	3

Learning outcomes:

Gain the ability to use knowledge of transportation engineering in the safe design of pavements mixes & materials.

Books Recommended:-

- Highway Engineering, **S.K.Khanna & C.R.G. Justo, Roorkee**
- Principles and Practice of Highway Engineering, **S.C.Sharma & C.C.Sharma.**
- Roads, Railway, Bridge & Tunnel Engineering, **B.L.Gupta & A.K.Gupta.**
- Traffic & Transportation Engineering, **L.R.Kadiyali.**
- Manual for Maintenance of Roads, M.O.T.(Road wing 1983)IRC.