

Devi Ahilya University, Indore, India			
Institute Of Engineering & Technology			
Subject code and name	Type	L-T-P	Credits
VLR6C2 : Transportation Engineering - I	L	T	P
	PC	3-1-1	4+1(P)

Objective of the subject:

- To know about railway planning and geometric design of railways.
- To know about highway planning and geometric design of roads.
- To know about highway maintenance and public transportation systems.

Prerequisite(s):

COURSE CONTENTS

Unit I: Railway: Introduction, Rails, Sleepers, Rail fastenings. fish bolts, spikes, bearing plates, chain keys, check and guard rails, Requirement of good ballast, various materials used as ballast, quantity of ballast, different methods of plate laying, material trains, calculation of materials required, relaying of track.

Unit II: Railway: Geometric Design, Station & Yards; Points and Crossings & Signaling and interlocking: Formation, cross sections, Super elevation, Equilibrium, Cant and Cant deficiency, various curves, speed on curves. Types, locations, general equipment, layouts, marshaling yards, Definition, layout details, design of simple turnouts, Types of signals in stations and yards, principles of signaling and inter-locking.

Unit III:

Highway Planning and Alignment

Different modes of transportation , historical Development of road construction, Highway Development in India , Classification of roads, Road pattern , Highway planning in India, Highway alignment , Engineering Surveys for alignment , Highway project.

Unit IV:

Geometric Design of Highways

The highway crosses sectional elements, Sight Distance ,Types of sight distances, Design of horizontal alignments , Super elevation, Widening of Pavements on horizontal curves- transition Curves, Design of Vertical alignments, Gradients- summit and Valley Curves.

UNIT V:

Highway Maintenance and Public Transportation

Importance of highway drainage ,Surface Drainage, Subsurface drainage , Road construction in water logged areas, maintenance of various roads, History and present state of public transportation, role of public transportation in urban development, transit systems, route development.

REFERENCES

1. Khana .S.K, Justo .C.E.G – “Highway Engineering,” Nemchand & Bros, Rookies. 2001.
2. Chakroborty, P. and A. Das Principles of Transportation Engineering, Prentice Hall of India Pvt. Ltd, New Delhi, India, 2005.
3. Rangwala SC; Railway Engineering; Charotar Publication House, Anand
4. Railway Engineering by Arora & Saxena - Dhanpat Rai & Sons
5. Kadiyali .L.R, “Traffic Engineering And Transport Planning”, Khanna publishers, Delhi,2009.
6. Ministry of Road Transport and Highways. Specifications for Road and Bridge Works, Fourth Edition, Indian Roads Congress, New Delhi, India, 2001.
7. IRC Codes of Practices
8. Jotin Khisty C. and B. Kent Lall. Transportation Engineering – An Introduction, Third Edition. Prentice Hall of India Pvt. Ltd, New Delhi, India, 2002.
9. Rao G.V. Principles of Transportation and Highway Engineering, Tata McGraw-Hill Publishing Company Ltd., New Delhi, India, 1996.
10. McShane, W.R. and R.P. Roess Traffic Engineering, Prentice Hall, New Jersey, USA, 1990.

Course Outcomes: At the end of the course, the student will be able to:

1. Design railway geometrics
2. Plan highway networks
3. Design highway geometrics.
4. Understand the principles of construction and maintenance of highways