

PCI4I102 HIGHWAY & TRAFFIC ENGINEERING (3-0-1)

Module-I

Modes of transportation, importance of highway transportation, history of road construction. Principle of highway planning, road development plans, highway alignments requirements, engineering surveys for highway location.

Geometric design- Design controls, highway cross section elements, cross slope or camber, road width, road margins, typical cross sections of roads, design speed, sight distance, design of horizontal and vertical alignments, horizontal and vertical curves.

Module-II

Highway Materials:- Properties of subgrade , sub-base , base course and surface course materials , test on subgrade soil, aggregates and bituminous materials.

Traffic Engineering:- definition , fundamentals of traffic flow , traffic management, prevention of road accidents , elements of transport planning , highway drainage

Module-III

Design of Highway Pavements: Flexible pavements and their design, review of old methods, CBR method, IRC:37-2012, equivalent single wheel load factor, rigid pavements, stress in rigid pavement, IRC design method (IRC:58-2011).

Module-IV

Highway Construction: Construction of various layers, earthwork, WBM, GSB, WMM, various types of bituminous layers, joints in rigid pavements, Hot Mix Plants, Construction of Rigid Pavements

Highway Maintenance: Various type of failures of flexible and rigid pavements.

Text Books:

1. Highway Engineering, by S.K.Khanna and CEG Justo, Nem Chand & Bros.
2. Transportation Engineering-Highway Engineering by C Venkatramaiah, Universities Press.
3. A course in Highway Engineering by Dr. S.P. Bindra, Dhanpat Rai Publications.

Reference Books:

1. Principles of Highway Engineering and Traffic Analysis by Mannering Fred L., Washburn Scott S. and Kilaresk Walter P., Wiley India Pvt. Ltd
2. Traffic Engineering and Transportation Planning by Kadiyali, L.R.,Khanna Publishers
3. Transportation Engineering and Planning by Papacostas, C.S. and Prevedouros, P.D.,Prentice Hall.