

AMS04 BRIDGE ENGINEERING

UNIT-1 SUPERSTRUCTURES

- 1.1 Bridge decks – Structural forms and behavior- Choices of superstructure types-
- 1.2 Behaviour and modeling of bridge decks- Simple beam model
- 1.3 Plate model- Grillage method
- 1.4 Finite Element method
- 1.5 Different types of superstructure (RCC and PSC); Longitudinal Analysis of Bridge.
- 1.6 Transverse Analysis of Bridge- Temperature Analysis
- 1.7 Distortional Analysis- Effects of Differential settlement of supports
- 1.8 Reinforced earth structures

UNIT-2 DESIGN OF STEEL BRIDGES

- 2.1 Design of Truss Bridges
- 2.2 Design of Plate girder bridges.

UNIT-3 SUBSTRUCTURE, BEARINGS AND EXPANSION JOINTS, PARAPETS AND RAILINGS

- 3.1 Substructure- Pier; Abutment- Wing walls
- 3.2 Importance of Soil-Structure Interaction
- 3.3 Types of foundations- Open foundation- Pile foundation- Well foundation
- 3.4 Simply supported bridge-Continuous Bridge-
- 3.5 Bearings and Expansion Joints
- 3.6 Different types of bridge bearings and expansion joints
- 3.7 Parapets and Railings for Highway Bridges

Reference Books:

1. Phatak D.R., Bridge Engineering, Satya Prakashan, New Delhi, 1990.
2. Ponnuswamy S., Bridge Engineering, Tata McGraw-Hill, New Delhi, 1996.
3. Rajagopalan. N. Bridge Superstructure, Alpha Science International, 2006