RAJIV GANDHI PROUDYOGIKI VISHWAVIDYALAYA, BHOPAL

Credit Based Grading System

Civil Engineering, VII-Semester

Elective-III CE-7004 (1) Pavement Design

Unit -I.
Equivalent Single Wheel Load (ESWL): Definition, calculation of ESWL, repetition of loads and their effects on the pavement structures.

Unit -II.
Flexible Pavements:Component parts of the pavement structures and their functions, stresses in flexible pavements, Stress distribution through various layers, Boussinesque's theory , Burmister's two layered theory, methods of design, group index method, CBR method, Burmister's method and North Dakota cone method.

Unit -III.
Rigid Pavements: Evaluation of subgrade, Modulus-K by plate bearing test and the test details, Westergaard's stress theory stresses in rigid pavements, Temperature stresses, warping stresses, frictional stresses, critical combination of stresses, critical loading positions.

Unit -IV.
Rigid pavement design: IRC method, Fatigue analysis, PCA chart method, joints, design and construction & types, AASHTO Method, Reliability analysis.

Unit -V.
Evaluation and Strengthening of Existing Pavements:Benkleman beam method, Serviceability Index Method.Rigid and flexible overlays and their design procedures.

Reference Books:-

1.   Principles of pavement design by E.J.Yoder& M.W. Witczak
2.   AASHO, "AASHO Interim Guide for Design of Pavement Structures", Washington, D.C.
3.   Portland Cement Association, Guidlines for Design of Rigid Pavements, Washington
4.   DSIR, Conc. Roads Design & Construction
5.   Srinivasan M. "Modern Permanent Way"