THEORY AND DESIGN OF PLATES AND SHELLS

Course Code: 13CE2213 **L P C**
4 0 3

Course Educational Objectives:

1. To impart the knowledge on elastic of plastic foundations.
2. To familiarize the student with energy methods for plate and shells

Course Outcomes:

1. Student acquire the ability to analyze plate and shells using energy methods.
2. The student will demonstrate the ability to design folded plates and diaphragms.

UNIT – I

Plate equation in Cartesian and polar co-ordinates for Isotropic plates, Analysis of rectangular and circular plates with different boundary conditions and loadings.

UNIT – II

Energy methods in Analysis of plates - Orthotropic plates

UNIT – III

Plates on elastic foundation.

UNIT – IV

Classification of shells - Membrane and bending theory for singly curved and doubly curved shells - Various approximations Design of cylindrical shells, hyperbolic paraboloidal shells, conoids

UNIT – V

Analysis of folded plates - Design of diaphragms

TEXT BOOKS

1. Timoshenko, S. and Wernewsky, *"Theory of plates and shells"*, 2nd Edition, Kriegar, 1961.
2. Ramaswamy, G.S., *"Design and Construction of Shells"*, 1st Edition, Mc Graw Hill, 1999.

REFERENCES

1. Flugge, W., *"Stresses in shells"*, 2nd Edition, Springer, 2000.
2. Varghee P.C., *"Design of Reinforced Concrete shells and folded plates,* 1st Edition, PHI Publishers, November, 2011.
3. Bandgopadhayag J.N. *"Tier shall Structures", classical and modern analysis",* 1st Edition, New age International (P) Ltd., reprint 2008.

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