Objective of the Course:
To enable the student analyse and design thin shell structures including domes, hyperbolic, paraboloid, elliptic and cylindrical shells.

UNIT-I:
Bending of Long Rectangular Plates to a Cylindrical Surface
Differential equation for cylindrical bending of plates – Uniformly loaded rectangular plates with simple supported edges and with built in edges.

UNIT-II:
Pure bending of plates

UNIT-III:
Simply supported rectangular plates under sinusoidal loading
Naviers solution and its application to concentrated load – Levy’s solution for uniformly distributed load or hydrostatic pressure.

UNIT-IV
Introduction to Shells
Parametric representation of a surface; The first quadratic form; Equation to the normal of a surface; The second quadratic form; Principal curvatures, Gauss curvature, and lines of curvature; Some definitions; Classification of shell surfaces.

UNIT-V
Cylindrical shells
Membrane theory of cylindrical shells; Bending theory of cylindrical shells loaded Symmetrically – Approximate solution by Schorer’s method, Beam method of analysis

TEXT BOOKS:

REFERENCE BOOKS:
2. “Stresses in Shells” by Flugge, Blaisdell Publishing Co, 1966