# ME 253 (JAN) 3:0 Vibrations of Plates and Shells

Shell coordinates, infinitesimal distances in curved shells, equations of motion for general shell structures using Hamilton's principle, specialization to commonly occurring geometries, detailed study of flat plates, rings, cylindrical shells and spherical shells, natural frequencies and modes, Rayleigh-Ritz and Galerkin methods, response to various types of loads (point forces, moments, moving loads), transient and harmonic loads, combination of structures using receptance.

**Instructor:** V. R. Sonti
**References**
1. Text Book: Vibrations of Shells and Plates by Werner Soedel
2. Instructor's notes.
**Pre-requisites**
A reasonable mathematical background that can be expected from an engineering undergraduate degree.
**Additional information**
This course is open to doctoral and master's students interested in vibrations of continuous systems.
**Course objectives**
After taking this course, the students will be able to:
1. Derive Equations of Motion for standard geometries.
2. Find modeshapes, resonances and the vibration response in a closed form to systems with standard geometries to various types of forces.
**Course website: to be announced**