

## CE 532: Structural Analysis II

### Course Description:

Analysis of indeterminate structural problems by the consistent deformation and generalized direct displacement methods. Direct stiffness method for 2-D frames, grids, 3-D frames. Special topics for the stiffness method.

### Course Topics

- Arches
  - Uniform loading, optimal shape
- Cables
  - Horizontal and incline, equivalent stiffness
- Displacement methods
  - Truss, beams, frames, matrix formulation
- Stiffness distribution
  - Truss beam, diagrids, outrigger, nonlinear analysis
- Nonlinear Analysis: Special Topics
- Dynamic Analysis
  - MDOF
- Stiffness Calibration
  - Periodic loading, seismic loading
- Tuned Mass Dampers
  - undamped/undamped, undamped/damped, damped/damped
- Base Isolation
  - periodic/seismic excitations, rubber bearing design