Structural Analysis II - Video course

1. Introduction   **(2 lectures)**
  - Review of basic concepts
      o Equilibrium Equations
      o Constitutive Relations/Force-displacement Relations
      o Compatibility Conditions
2. Analysis of Statically Determinate Structures   **(10 lectures)**
   - SF, BM diagrams
   - Determination of forces in trusses, frames, arches, and cables
3. Principle of virtual work   **(2 lectures)**
4. Energy Principle   **(2 lectures)**
5. Maxwell's and Betti's laws   **(2 lectures)**
6. Computation of Displacements   **(8 lectures)**
   - Moment area method
   - Conjugate beam method
   - Virtual work methods
7. Introduction to statically Indeterminate Structures   **(2 lectures)**
   - Concept of static and kinematic indeterminacy
   - Determination of static and kinematic redundancy
8. Influence Lines (4 lectures)
   - Equilibrium methods
   - Muller Breslau principle
9. Force Method - Introduction and Applications   **(12 lectures)**
   - Axially loaded members
   - Plane truss
   - Beams
   - Frames

NP-TEL

NPTEL

http://nptel.ac.in

Civil Engineering

Coordinators:

Dr. P. Banerji
Department of Civil
EngineeringIIT Bombay

http://nptel.ac.in