

Course 16. Structural Analysis 2 (Video Course)

Faculty Coordinator(s) :

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Detailed Syllabus :

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| 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 | |