



**Knowledge Network of
Indian Institute of Technology, Gandhinagar
Under TEQIP-II Initiative**

Summer School on Structural Analysis

Structural Analysis is a foundation course for many depth course in engineering curriculum and it plays a crucial role in solving real life problems and design. This is the reason why most of the industries and academics later on look for students with good background in this subject. A set of important topics from Structural Analysis will be covered in this summer school to provide the students with better foundation in it and discuss the pedagogy with the participating faculty members.

Topics for discussion

Concept of stress, concept of strain, stress-strain relation, combining stress equilibrium, transition from generalized framework to conventional centerline approach, double intergration and associated methods, moment area method, conjugate beam method, energy methods (strain energy and complimentary strain energy), energy theorems (Castigliano's and Maxwell-Betti), unit load method, virtual work principle (virtual strain energy and complimentary virtual strain energy), idea of force-based and displacement-based approaches, moment distribution method, slope deflection method, flexibility and stiffness matrix concepts, direct stiffness method, introduction to elastic buckling.

Tentative schedule for this summer school

- (a) Morning session: Lectures for 3-4 hours
- (b) Afternoon session: Tutorial session for 1-2 hours

Presenters: (Instructors)

1. Prof. Dhiman Basu (IIT Gandhinagar)
 2. Prof. Gaurav Srivastava (IIT Gandhinagar)
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