Structural Optimization: Size, Shape, and Topology

Instructor(s): G. K. Ananthasuresh

Course description:

Prerequisites:
Multivariable calculus and programming experience in MATLAB are preferred. Familiarity with finite element analysis is recommended.

Resources:
1. NPTEL MOOC: [https://nptel.ac.in/courses/112/108/112108201/](https://nptel.ac.in/courses/112/108/112108201/)

Outcomes:
After taking this course, the student will be able to:
1. Formulate structural optimization problems in the framework of calculus of variations as well as finite-variable optimization.
2. Become familiar with principles of structural optimization and be able to solve them analytically when it is possible and computationally in most cases.
3. Read and understand the contemporary literature on structural optimization in general and topology optimization in particular.

Additional information:
This course is open to doctoral and master’s students interested in structural mechanics and optimization. Undergraduate students with sufficient background can approach the instructor for permission.

Course website: [https://mecheng.iisc.ac.in/suresh/me256/](https://mecheng.iisc.ac.in/suresh/me256/)