

ICE
C815

Analysis & Design of Smart Materials and Structures - Web course

COURSE OUTLINE

Contents:
Introduction to smart materials and their applications; coupled field systems; hysteresis typical of smart structures and systems; limit analysis; analysis of standard forms of the smart components such as cables, wires, axial members, beams, frames, etc; analysis of smart structural systems such as VGTS, material selection and design of structural members.

COURSE DETAIL

Sl. No	Topic	Hours
1.	Introduction to smart materials	3
2.	Electro and magneto-statics	3
3.	Mechanics of materials	3
4.	Piezoelectric materials	3
5.	Electroactive polymers and electrostrictive materials	3
6.	Shape memory alloys	3
7.	Magnetic materials	3
8.	Smart composites	3
9.	Thermodynamics of coupled problems	3
10.	Computational techniques for coupled problems	6
11.	Design methodology	3
12.	Design of smart systems	6
13.	Practical applications	3



NPTEL

<http://nptel.iitm.ac.in>

Mechanical Engineering

Pre-requisites

Strength of Materials

Coordinators:

Dr. A. Arockiarajan
Department of Applied Mechanics IIT
Madras