



Module PMRF-ISSS033/2022

Variational Methods and Introduction to Linear Finite Element Method

Name of the PMRF student

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Indian Institute of Science, Bengaluru

Intended Audience for the course:

3rd / 4th year UG students and 1st year
PG students of Mechanical
Engineering, Civil Engineering,
Aerospace Engineering

Online session coordinator

Will be chosen from the list of registrants

Details of the content of the module

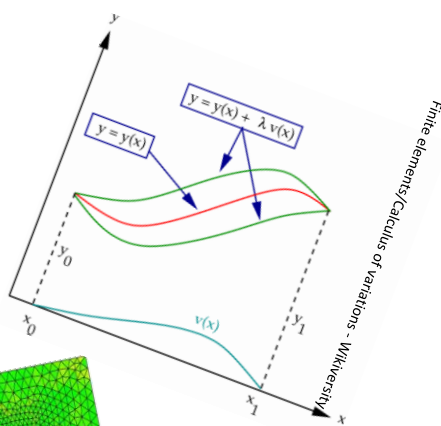
This is an introductory level course on Finite Element Method (FEM), the most popular and widely used numerical method to solve boundary and initial value problems. This course will give some insights into the theory of FEM which is developed using Calculus of Variation (CoV) and use that to solve some of the common 1-D and 2-D problems.

Module 1: Variational Calculus and Minimization Problems

Module 2: One Dimensional Finite Element Formulation

Module 3: Finite element formulation for 2-D and 3-D boundary value problems (scalar field problems)

Euler - Lagrange Equation
$$\frac{\partial f}{\partial y} - \frac{d}{dx} \left(\frac{\partial f}{\partial \dot{y}} \right) = 0$$



Schedule of the module

Start Date: 15th Oct. 2022

Class Schedule: Every Saturday 11 am – 12 noon

Teaching Mode: Online Live Classes

Last date to register: 10th Oct. 2022

Meeting link : Will be shared later

Registration link: <https://forms.gle/GDFrY5rxfbzPG2f87>



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