PMRF-ISSS Teaching Programme

Prime Minister Research Fellowship students' teaching requirement facilitated by the Institute of Smart Structures and Systems

Module PMRF-ISSS088/II/2024

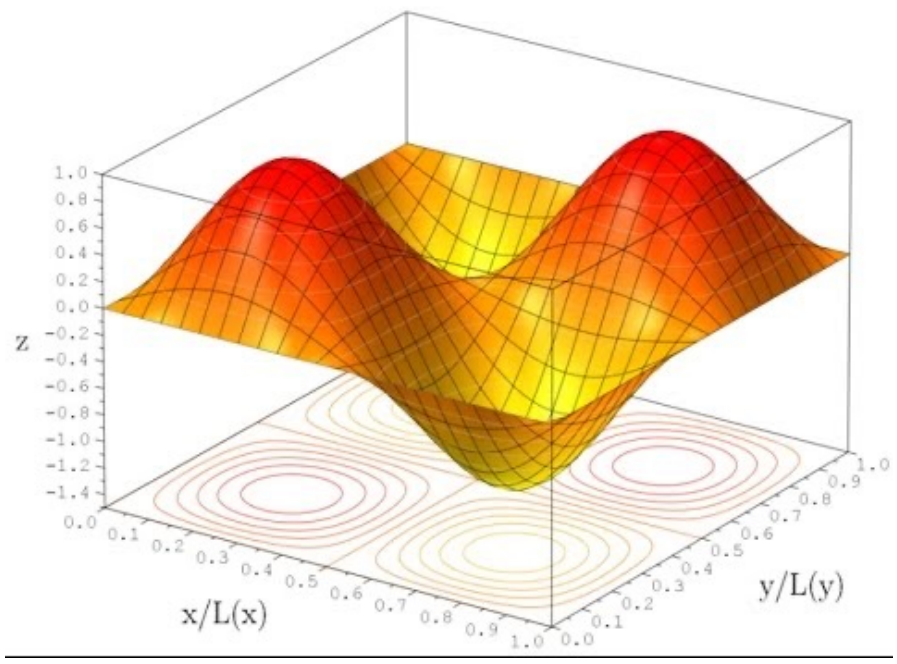
Spectral Methods for PDEs

Name of the PMRF student

Sreenivas Saurab Kumar

Required background of the students taught

Linear Algebra, Complex Analysis, ODEs and PDEs.



Details of the content of the module

There shall be five modules to this course. A brief description for each module is given below:

- **Module 1** – Polynomial approximation, Orthogonal polynomials(Fourier, Chebyshev, Legendre and Jacobi)
- **Module 2** – Numerical Integration – Quadrature formulae, Polynomial transforms, Differentiation matrices.
- **Module 3** – Strong and Weak forms; Nonlinearity and Convolution sums. Aliasing and its removal.
- **Module 4** – Methods to solve PDEs – Collocation and Galerkin methods.
- **Module 5** – Coding and implementation using Python.

Schedule of the module

Course start : 15th June, 2024

Classes on : Every Saturday, 11:00 AM to 12:30 PM.

Total lecture hours : 50 (approx.)

Meeting link : Will be shared later

Link

Contact email ID: isss.forum@gmail.com

Registration link:

https://forms.gle/5RaZdZetnPYNYwfu6