PMRF-ISSS Teaching Programme

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

Module PMRF-ISSS024/2023
Numerical Methods for Solving PDEs
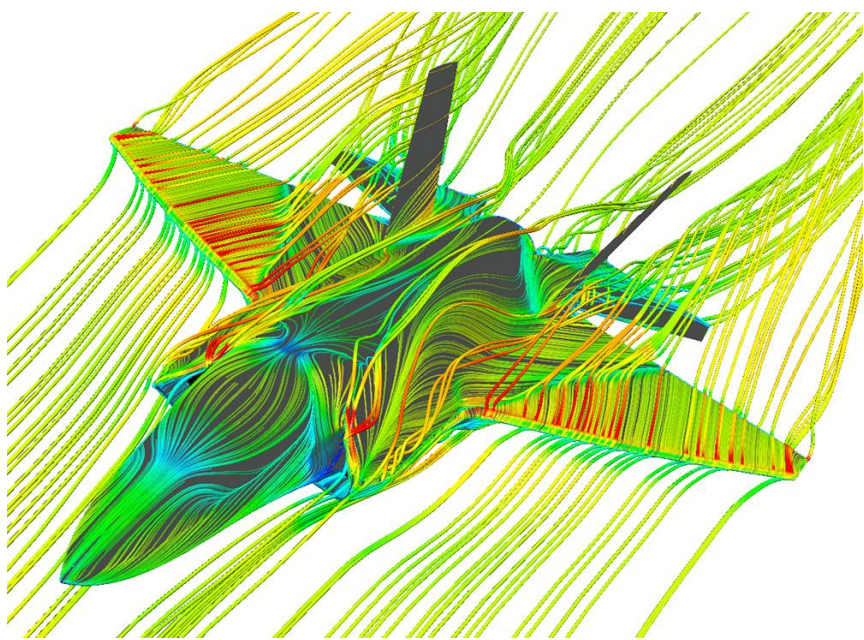

Name of the PMRF student

Kain Dipendrasingh

Required background of the students taught

An undergraduate level course on Linear Algebra and Differential Equations is required.

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 "Numerical Methods for Solving PDEs". The course will cover following topics:

Module 1:
Classification of PDEs,
Elliptic PDEs : 1-D steady heat diffusion equation, BVP, Matrix norms, Diagonal Dominance, Advection Diffusion Equation.

Module 2:
Parabolic PDEs, Explicit & Implicit Euler schemes, Von-Neumann stability analysis, Consistency, convergence and Modified PDE.

Module 3:
Hyperbolic PDEs, 1-D wave equation, FTBD, FTCD, etc. schemes and their stability analysis, Dissipation and Dispersion errors.

Module 4:
Brief introduction to Finite Volume Method (FVM), and Finite Element Method (FEM).

Schedule of the module

Course starts : 16th August, 2023

Course ends : 30th November, 2023

Classes on : Friday

Timings : 7:00 pm to 8:30 pm

(Depending on need, extra classes can be organized on weekends)

Meeting link : Will be shared later

Link

Contact email ID: isss.forum@gmail.com

Registration link:
https://forms.gle/uBqpgWBgFjte7M9N8