



Module PMRF-ISSS008/2022

Partial Differential Equations in Fluid Flow and Heat Transfer

Name of the PMRF student

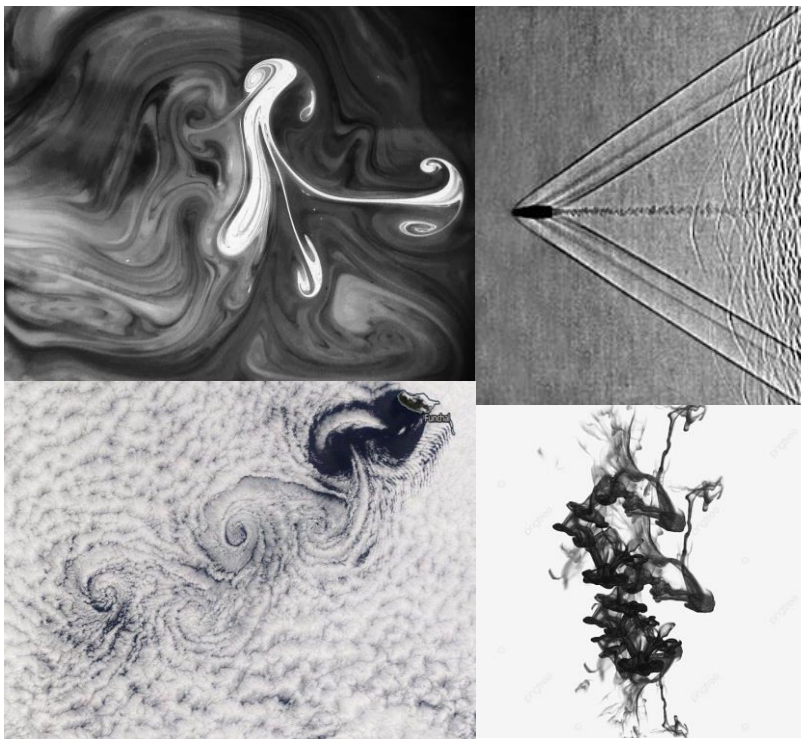
Joita Chakraborty

Required background of the students taught

Mechanical Engineering,
Aerospace Engineering,
Chemical Engineering,
Civil Engineering

Online session coordinator

Will be chosen from the list of registrants



Details of the content of the module

This is an introductory course on partial differential equations (PDEs) governing various fluid flow and heat transfer problems. This course will help the students to develop conceptual understanding of PDEs and explore different techniques to solve them.

1. Review of Ordinary Differential Equations
2. Derivation of mass, momentum and energy conservation equations
3. Classification of Partial Differential Equations: Parabolic, Hyperbolic and Elliptic
4. Unsteady fluid flow between two parallel plates (Couette Flow)
5. Unsteady fluid flow through pipe
6. Impulse motion of flat plate parallel to itself (Stokes first problem)
7. Unsteady heat conduction equation in cartesian, cylindrical and spherical coordinates
8. Unsteady heat conduction with internal heat generation
9. Linear and non-linear convection equation

Schedule of the module

Timings: Every Thursday 7:00 PM– 8:30 PM

Course Starts on 10th May 2022

Meeting link & WhatsApp group link : Will be shared after registration

Registration link: <https://forms.gle/yjKSCADQNxbVeB727>



Contact email ID: issf.forum@gmail.com