PMRF-ISSS Teaching Programme

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

Module PMRF-ISSS088/II/2025

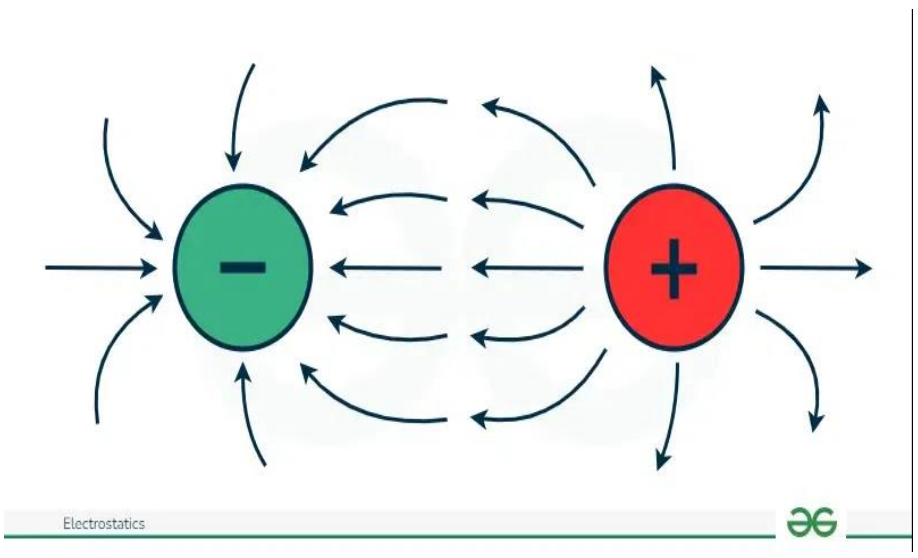
Crash Course on Electrostatics

Name of the PMRF student

Soumyadeep Chowdhury

Required background of the students taught

Electrical Engineering (Undergraduates and Postgraduates), Physics (Undergraduates and Post Graduates)



Details of the content of the module

1. Basics of Electrostatics
2. Coulomb's Law
3. Electric Field, Electric Potential due to point charge, line charge, volume charge
4. Gauss Law
5. Electrostatic Energy, Electric field due to a dipole, quadrupole.
6. Polarisation in Dielectrics
7. Introduction to Maxwells' Equations
8. Numerical Computation of Electric Fields : Solution of Laplace, Poisson Equations using Finite Difference Method, Finite Element Method, Charge Simulation Methods
9. MATLAB code for visualization of electric field lines for different charge distributions, numerical computation of electric fields.

Schedule of the module

Every Friday 7pm-9pm (Total 10 hours)

Start Date: 5th September 2025

End Date : 3rd October 2025 (Tentatively)

Meeting link : https://teams.microsoft.com/l/meetup-join/19%3ameeting_NWE4YjRhMTYtNWEwMy00NmJlLThhN2EtNjZmODAwZDNjZjg5%40thread.v2/0?context=%7b%22Tid%22%3a%226f15cd97-f6a7-41e3-b2c5-ad4193976476%22%2c%22Oid%22%3a%22bc67e6b9-e3ea-4cf7-babb-233d02430d15%22%7d

Contact email ID: isss.forum@gmail.com

Registration link: https://forms.gle/DMBcbAG6BF2B8d1BA