PMRF-ISSS Teaching Programme

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

Module PMRF-ISSS067/2023

Abstract Algebra I

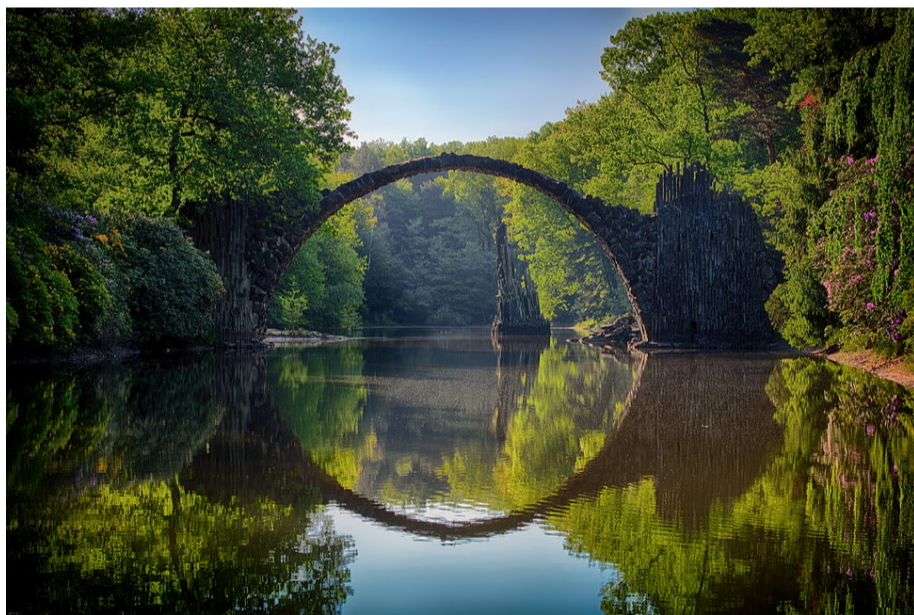**Name of the PMRF student**

Pavan Subhaschandra Karjol

Required background of the students taught

Basic understanding of sets. High school mathematics.

Online session coordinator

Will be chosen from the list of registrants

Details of the content of the module

- Module 1 – Introduction to algebraic structures and their significance. Definition and examples of groups and their properties. Subgroups, cyclic groups, and permutation groups.

- Module 2 – Group homomorphisms and isomorphisms. Cosets, Lagrange's Theorem, and normal subgroups. Quotient groups and group actions.

- Module 3 – Introduction to rings and ring elements. Integral domains, ideals, and quotient rings. Polynomial rings. Factorization in integral domains.

- Module 4 – Euclidean domains, principal ideal domains, and unique factorization domains

- Module 5 – Real-world applications of abstract algebra in cryptography and coding theory.

Schedule of the module

Start Date: Dec 14, 2023
Details of the content of the module
Live lectures will be conducted (or recorded lectures uploaded) on Tuesdays and Thursdays from 11:00 AM to 1:00 PM (20 Lectures)

End Date: Tentatively by Mar 14, 2024

Total lecture hours : 40 (approx.)

Meeting link : Will be shared later

Link

Contact email ID: isss.forum@gmail.com

Registration link:
https://forms.gle/sgwuSB3B5uX7toxG9