Established in 1961, Indian Institute of Technology Delhi is one of the premier educational institutions in the country and counted among the top institutions in the world. Situated in the National Capital, IIT Delhi has been instrumental in providing solutions to technological and societal problems through innovative academic and research activities. The institute has nearly 35 academic units that imparts knowledge on Engineering, Science, Design, Social Science, among others. IIT Delhi has been consistently placed among top academic universities around the globe. In 2018, IIT Delhi has been awarded the status of “Institution of Eminence” by Government of India which granted almost-full autonomy, leaving this institute to make its own decisions with enhanced research funding.

**DEPARTMENT OF MATHEMATICS**

The Department of Mathematics strives to be recognized for excellence among academic institutions in India and abroad. It offers BTech and Dual degree in Mathematics and Computing (MaC), and MSc Mathematics. Department offers Doctoral and Post-Doctoral research opportunity in all the major areas of mathematics, statistics and theoretical computer science. Department also offer summer research and Doctoral position under Quality improvement programme for the candidates from various institutes.

**Resource Faculty**

Prof. K. Sreenadh  
Prof. Kamana Porwal  
Prof. Debdip Ganguly  
Prof. Harish Kumar  
Dept. of Mathematics, IIT Delhi

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**Course Coordinator**

Prof. Harish Kumar

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**Contact**

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TEQIP-III Sponsored  
Online Short-term Course on  

**Partial Differential Equations: Theory and Computations**  
30<sup>th</sup> November to 4<sup>th</sup> December 2020

By  
Department of Mathematics  
Indian Institute of Technology, Delhi
Introduction
This short-term course introduces modern theoretical and computational methods for partial differential equations. It will serve as an excellent starting point for the candidates interested in PDEs theory, related numerical methods, and applications.

Course Contents:
First-order equations: Classification, Method of characteristics, general solutions, shocks, discontinuous data, generalized solutions, R-H condition.


Finite Volume Methods for Hyperbolic PDEs:

Finite Element Methods for Elliptic PDEs:

Learning Objective:
- To have a basic understanding of PDE theory.
- To understand the existence of the solution and basic properties.
- To develop the ability to design and implement stable and convergent numerical methods for a wide class of PDEs.

On successful completion of the course, the participants will be able to:
- Study the basic behavior of the PDEs and analyze the well-posedness of the given problem.
- Understand the “weak solutions” and study their existence.
- Discretize the PDEs with suitable numerical methods and study their convergence.

Participation:
- This course is designed for faculty members from all disciplines of science and engineering from TEQIP–III institutions only.
- No registration fee for TEQIP-III participants.
- Participation from outside of TEQIP-III institutions is not permitted in this course.
- Based on first come first serve basis, a maximum of 50 participants will be allowed to register for the course.

Registration
Interested faculty members at TEQIP-III institutions should register by depositing a refundable security deposit of Rs. 2000/- to the IIT Delhi CEP Account with following details:
- Name of the Account holder: IITD CEP ACCOUNT
- Account number: 36819334799
- Name of the Bank: STATE BANK OF INDIA
- Branch Address: Indian Institute of Technology, Hauz Khas, New Delhi-110016
- IFS Code: SBIN0001077
- SWIFT Code: SBININBB547
- MICR Code: 110002156
- IITD PAN no.: AAATI0393L
- GSTN: 07AAATI0393L1ZI

After paying the security deposit, please fill online registration form on the following link: https://forms.gle/rXWXPM8geePTKDGB6

Deadline for Registration: 20th November 2020

Important note: Reimbursement of refundable security deposit for the participants as well as declined participants will be processed after successful completion of the course.