



6-Days Short-Term Course on **Inverse Problems and Imaging Techniques**

Sponsored by TEQIP

Indian Institute of Technology Indore (Celebrating 10th Anniversary)

Date: February 21-27, 2019, (Sunday break), Venue: Helium Building (Room: SB 309), IIT Indore

Objectives:

The study of inverse problems and imaging techniques is an exciting area, not only because of the mathematical intricacies but also for the scope of this area in our daily life. Such problems have potential applications in medical imaging, seismic imaging, oil-exploration and other fields. The major goal is to understand properties of an object from its response (to certain probing methods) measured on the boundary.

Determining the properties of the objects often correspond to determination of unknown coefficients in a partial differential equation (PDE) or inversion of certain maps or transforms. The mathematical tools required in this kind of study ranges over harmonic and microlocal analysis, theory of PDE, numerical methods for differential equations.

At the end of the course, the participants are expected to:

- have an understanding of the mathematical techniques used in the field of image reconstruction and inverse problems
- be aware of the state-of-the-art in the fields of inverse problems and imaging
- have an overview of the numerical techniques used in imaging.

Participants:

The course is designed for

- Faculties, Scientists and Engineers in Mathematics / Physics / Electrical / Computer Science / Bioscience and Biomedical.
- Professionals involved in Electrical / Computer Science / Bioscience and Biomedical.
- Research scholars and students in the relevant fields.

Course Modules:

- Basic theory of Fourier series, Fourier transforms and Radon transforms.
- Introduction to inverse problems
- Mathematical introduction to Image reconstruction techniques
- Mathematical theory of Electrical Impedance Tomography (EIT)
- Calderon type inverse problems

Course Coordinators:

Dr. Ashisha Kumar and Dr. Anupam Pal Choudhury,
Discipline of Mathematics, IIT Indore

Speakers:

- 1- Dr. Venkateswaran P. Krishnan (TIFR-Centre for Applicable Mathematics, Bangalore)
- 2- Dr. Ashisha Kumar (Discipline of Mathematics, IIT Indore)
- 3- Dr. Anupam Pal Choudhury (Discipline of Mathematics, IIT Indore)

Certificate:

Participants who successfully complete the course will be awarded a certificate.

Registration:

There is **no fee for participants from TEQIP sponsored colleges**. The nominations along with the registration forms must be sent through their coordinator to the address below. Email confirmation in advance is suggested.

For other participants, the fee (per participant) is **Rs. 2,000** (Two Thousand Only) **for professionals** and **Rs. 1,500/-** (One Thousand Five Hundred Only) **for students**. Registration fee includes course material, tea & working lunches.

MODE OF PAYMENT: Link for the payment through **paytm portal** is available on IIT Indore website (steps for the payment are mentioned on the next page). **Evidence of payment should be emailed in advance to confirm the participation.**

Accommodation:

Accommodation may be available at hostels of IIT Indore on payment basis. Candidates can check the availability on Email: hostel@iiti.ac.in and Phone: 07324-306583.

Contact Persons and Organizers:

Dr. Md. Aquil Khan, Dr. Ashisha Kumar, Dr. Anupam Pal Choudhury (Discipline of Mathematics, IIT Indore), Simrol, Indore- 453552, India

E-mail: aquilk@iiti.ac.in, akumar@iiti.ac.in, anupampcmath@iiti.ac.in

(O): 07324-306506 / 07324-306968;

Ph. (M): 09200240992 / 7259978079.



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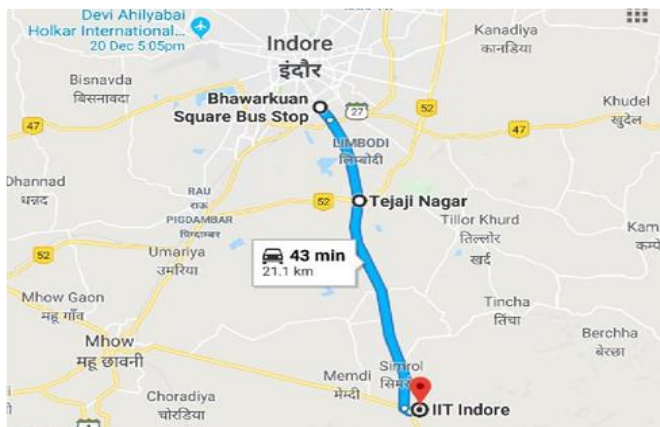
How to Reach IIT Indore

IIT Indore is located at Simrol, Khandwa Road to reach IIT Indore from the airport or railway station, you may use one of the prepaid taxi service or AICTSL Bus No. M19 (frequently plying from Bhawarkuan Square via Tejaji Nagar towards IIT Indore, Simrol).

- From Indore Railway Station /Bus stand:
Distance is ~ 24.4 Kms and travel time is ~ 50 min.
- From Indore Airport
Distance is ~ 35.3 Kms and travel time is ~ 1 hour.
- From Bhopal via Chartered Bus
Distance is ~ 200 Kms and travel time is ~ 3-4 hours.

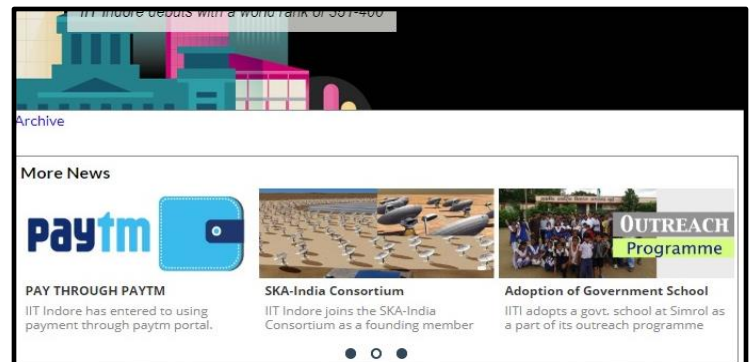
Note: Please ask your driver to follow the way via

Tajaji Nagar, which is the shortest route to reach Simrol (IIT Indore) from Indore Railway Station or Indore Airport (Devi Ahilyabai Holkar Airport).

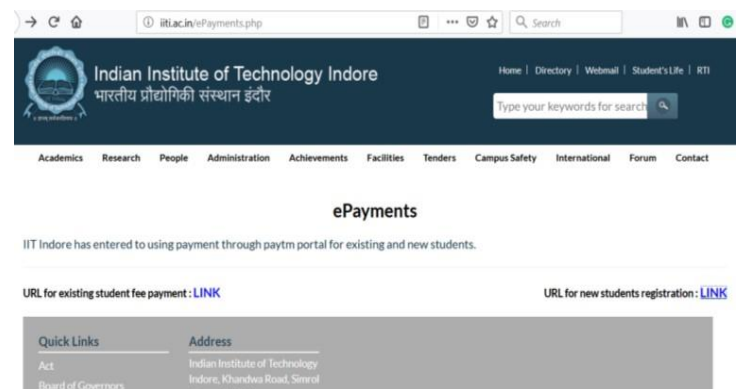


How to Pay: Through Paytm Portal:

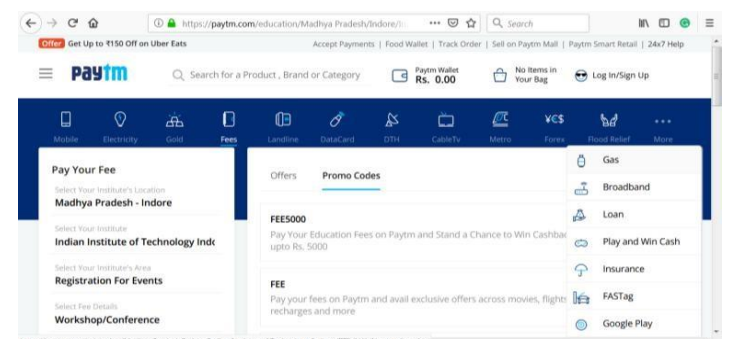
- Step- 1: IIT Indore website → Paytm Portal



- Step- 2: Click on URL for new students registration LINK



- Step- 3: Select → Registration for Events → Workshop/Conference → Other Details → Proceed





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1.	Name of the Person:	
2.	Designation:	
3.	Academic Qualification:	
4.	Name of Institution / Organization:	
5.	Address for Communication:	
6.	Phone:	
7.	Email:	
8.	Online Payment Details: Link for the payment through <u>Paytm Portal</u> is available on IIT Indore website	
	• Amount:	
	• Online-Payment Ref. No.:	
	• Transaction Date:	
	• Bank etc. Details:	
Evidence of payment should be emailed in advance to confirm the participation.		
Place:		Date:
Signature of Participant:		
Approval / Permission from Institution / Organization:		
We approve the above application as a participant for the above short course, which is being organized by IIT Indore on 21 th to 27 th February 2019.		
Authorized Signatory		Institute/Organization Seal

Note: To confirm the participation in advance, scan copy of the filled form can be emailed to anupampcmath@iiti.ac.in