

INDIAN INSTITUTE OF TECHNOLOGY INDORE

DEPARTMENT OF MATHEMATICS

Organizes

Short-Term Course under AICTE-QIP scheme

on

Implementation of Numerical Methods using MATLAB

January 03-08, 2022

Sponsored by Sponsored by Quality Improvement Programme (QIP), AICTE



ABOUT IIT INDORE

Indian Institute of Technology Indore, located in Madhya Pradesh, known as IIT Indore, is an institute of national importance established by the Government of India in 2009. Recently, IIT Indore debuted with a rank of 201-250 in the Times Higher Education World University Rankings 2022, 2nd among Indian institutes in CS. The department of mathematics at IIT Indore had started in July 2009. The faculty members of the department are well equipped to conduct high-quality research in both pure and applied mathematics, and are also engaged in interdisciplinary research activities. For collaborative research, interested researchers are encouraged to contact the concerned faculty. The department is actively engaged in organizing various research activities. For more details, please visit: math.iiti.ac.in/.

COURSE OVERVIEW

Programming with MATLAB is an efficient tool for implementing numerical techniques in solving problems arising in various fields of science and engineering. This involves designing methods that give approximate but accurate numeric results, which is useful in cases where the exact solution is prohibitively expensive or impossible to obtain/compute. This short-term course will introduce participants to the concepts, methods and tools for implementation of numerical methods using MATLAB. This QIP course will cover the convergence, accuracy, stability, and computational complexity of the numerical methods, computer graphics, roots of a polynomial, numerical solution of a system of algebraic equations. We will also discuss how one can explore the Numerical differentiation, numerical integration and Numerical solution to ODEs & PDEs in MATLAB.

TARGET PARTICIPANTS

This course is tailor-made for the faculty members and researchers (PG/PhD level) from the disciplines of Applied Mathematics, Computer Science, Electrical, Mechanical and Civil Engineering. The course will enhance the understanding of basic concepts of some special functions and their latest advancements. The course will help the participants implement the numerical techniques to solve the ODEs and PDEs using an efficient tool: the MATLAB Programming.

REGISTRATION FEE:

- ❖ **AICTE Colleges:** There is no fee for faculty/scientist participants from AICTE sponsored colleges/institutes. A certificate of AICTE recognition of the Institute from the Head of the Department (the format is provided in page 3) must be uploaded at the time to online application through the below link on or before **December 25, 2021**.
- ❖ **Non-AICTE Colleges:** ₹3500 for faculty members/ scientists/ PhD/ Post-Doc and ₹7000 for participants from industries.
 - For Online Payment: <http://www.iiti.ac.in/page/e-payments>
 - Bank Transfer: Beneficiary Name: Registrar IIT Indore; Bank Name: Canara bank; A/C: 1476101027440; IFSC: CNRB0006223; Branch: IIT Indore, Khandwa Road, Simrol, Indore.
 - Transfer details need to be uploaded at the time to online application through the below link on or before **December 25, 2021**.
- ❖ For any queries, please contact santanu@iiti.ac.in.

COURSE FACULTY

- Prof. Gopal Chandra Shit (Jadavpur University)
- Prof. Ganti S. Murthy (IIT Indore)
- Dr. Santanu Manna (IIT Indore)
- Dr. Bapan Ghosh (IIT Indore)
- Dr. Abhirup Datta (IIT Indore)
- Dr. Somnath Dey (IIT Indore)
- Dr. Parimal Kar (IIT Indore)
- Dr. Aekta Aggarwal (IIT Indore)
- Dr. Bidyasagar Kumbhakar (NIT Meghalaya)

COURSE MODULE

This is an active learning-based course that comprises of lectures, and tutorials.

MODULE-1: Introduction to MATLAB and its use in advance research problems

MODULE-2: Implementation of matrices and linear system of equations using MATLAB, and their use in solving real-life research problems

MODULE-3: MATLAB scripts for diagonalization of matrices, eigenvalues and eigenvectors, Caley-Hamilton theorem, and their use in research problems

MODULE-4: Polynomial, numerical solution of a system of algebraic equations and computer graphics using MATLAB and their use in research problems

MODULE-5: Implementation of numerical differentiation and numerical integration using MATLAB and their applications

MODULE-6: Numerical solution to ODEs using MATLAB and its application in recent research problems

MODULE-7: PDEs using MATLAB in advance research problems

MODULE-8: A session on NEP

ONLINE REGISTRATION LINK:

<https://shorturl.at/ruN02>

REGISTRATION DEADLINE: December 25, 2021

MODE OF THE PROGRAM: Completely Online Mode

CERTIFICATE

Participants completing the course successfully will be awarded e-Certificate.

ADDRESS FOR CORRESPONDENCE

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2.	Designation:	
3.	Email:	
4.	Mobile No.	
5.	Name of the Organization/Institutes	
6.	Name of the Department/Centre/School	
7.	Is your institute a AICTE funded Institute (Yes/NO)	
8.	Category (GEN/OBC/SC/ST/Others)	
9.	Organization/Institutes Identity card No. (Please attached the copy)	
10.	Certificate of AICTE Recognition of the Institute (see the format at page 3)	
11.	Payment details (for participants from non AICTE colleges/institutes)	
	Amount:	
	Payment Ref. No:	
	Transaction Data:	
	Bank etc. Details:	
Place:		Date:
Signature of Participant:		

Note: (1) If you submit the application through the online link then no need to send this form.

(2) If you are applying by email then please scan the filled application with certificate of AICTE recognition (page-3) and send to santanu@iiti.ac.in



Certificate of AICTE Recognition

Certified that (Name of College/Institute)

..... as well as the Academic Department to which

Mr./Ms ./Dr./Prof.

Designation..... Department

..... belongs are recognized by AICTE.

Signatures
Head of the Department

OFFICE SEAL