

Focus Areas

Topics to be Covered

- MATLAB Fundamentals.
- MATLAB on Intelligent Vehicles.
- Solution of Dynamical System with MATLAB and GUI.
- Friction Induced Vibration Control of Systems with MATLAB SIMULINK.
- Multibody System Dynamics- Based Product Processes.
- Power Electronics Systems by MATLAB.
- MATLAB Simulink with experimental setup related to Snake Robot and Underwater Unmanned Vehicle.
- Nonlinear Response Analyses of Energy Harvesting Models by MATLAB.
- Neural Network & Adaptive Control with MATLAB/SIMULINK.
- Control system Design with MATLAB SIMULINK.
- MATLAB Application in Electric Vehicles.
- MEMS (Micro electro mechanical systems) with MATLAB.

Experts:

- **Prof. Santosha K Dwivedy**
Professor, Dept. of Mechanical Engg., IIT Guwahati.
- **Dr. Anindya Malas**
Asst. Professor, Dept. of Mechanical Engg., NIT Patna.
- **Dr. Suraj Jaiswal**
Post-Doc. Fellow, Dept of Mechanical Engg. LUT, Finland.
- **Dr. Raj Desai**
Post-Doc. Fellow, Intelligent Vehicles, TU Delft Univ. of Tech., Netherland.
- **Dr. Jyotindra Narayan**
Post-Doc. Associate, Brain & Behaviour Lab, Univ. of Bayreuth, Germany.
- **Dr. Praveen K. Choudhry**
Post-Doc. Fellow, Centre for Nano Science & Engg., IISc Bangalore.
- **Mr. Jagannath Samantaray**
MATHWORKS, India.
- **Mr. Krishna Reddy and Mr. Abhinav Aravind**
Decibels Lab Pvt. Ltd. Bengaluru, India.
- **Dr. Anshul Garg**
Faculty Fellow, IITG TIDF.
- **Dr. Sibananda Mohanty**
Post-Doc. Fellow (ME), IITG TIDF.
- **Mr. Ranit Roy**
Research Scholar, Dept. of Mechanical Engg. IIT Guwahati.
- **Mr. Bhavik M. Patel**
Research Scholar, Dept. of Mechanical Engg. IIT Guwahati.
- **Mr. Rahul R. Bharti**
Research Scholar, Dept. of Mechanical Engg. IIT Guwahati.

About Workshop

This 5-Day Online Workshop is on Dynamics and Control of Mechanical, Electrical and Robotic Systems through MATLAB covering both Theory and Hands-on part involving experts from Academia, Research Institutes and Industries. It will try to address the basic and advanced level coding related to various practical systems such as underwater unmanned vehicles, Intelligent vehicles, Multibody systems, Electrical and Mechatronics systems etc., which have significant impact both in the research point of view and industries. By completing this workshop, the participants will be able to explore various aspects/projects by themselves in the research field as well as in the industry demanded projects. There is a high demand of MATLAB coders across most of the research institutes and industries for various analyses of robotics, mechatronics, electrical and mechanical systems. So, we have involved many experts in the field of Mechanical, Electrical, Robotics, and Mechatronics to address the problems and their solution through MATLAB in this workshop.

Registration

Fee details:

Indian Participants: 1000 INR

Foreign Participants: 3500 INR

Registration Link:

(valid till 17/02/2023)

[https://forms.gle/Li4gshRZd9](https://forms.gle/Li4gshRZd9ZDJ6nv7)

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Technology Innovation and Development Foundation

Account Number: 39579885485

IFSC Code: SBIN0014262

Course Coordinator:

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भारतीय प्रौद्योगिकी संस्थान गुवाहाटी
INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI

CICPS and TIH Division IITG TIDF

Organizes

5-day Online Workshop from
18/02/2023 to 22/02/2023

on

Dynamics and Control of Mechanical, Electrical and Robotic Systems through MATLAB

About CICPS

Centre for Intelligent Cyber Physical Systems (CICPS) at IIT Guwahati is established to promote activities focused on Technology and Human Resource Development, located at IIT Guwahati Research Park, Research building with an objective of fostering industry-academia collaboration.

TIH Division IITG

TIH (Technology Innovation Hub) Division IITG TIDF is running various projects to develop technology for societal needs. Underwater exploration system for underwater monitoring and surveillance, intelligent tracking system for drone technology are a few to name.

Day	Date	10 AM -11.30 AM	11.40 AM -1.10 PM	2 PM -3.30 PM	3.40 PM -5.10 PM	7 PM -8.30 PM
1	18.02.2023 (Saturday)	MATLAB Fundamentals (Hands on Session) Prof. S. K. Dwivedy (Professor, Dept. of Mech. Engg. IIT Guwahati)	MATLAB on Intelligent vehicles with optimized control parameters Dr. Raj Desai (Post-Doctoral Fellow, TU Delft Univ. of Technology. Netherland)	Solution of Dynamical System with MATLAB and GUI (Hands on Session with tutorials and assignments) Dr. S. Mohanty (Post-Doc. Fellow, IITG TIDF) and Mr. R. Roy (Ph. D. Student, ME Dept., IIT Guwahati)	Friction induced vibration control of systems with MATLAB SIMULINK (Hands on Session) Dr. Anindya Malas (Assistant Professor Dept. of Mech. Engg, NIT Patna)	Multibody system dynamics-based product processes Dr. Suraj Jaiswal (Post-Doctoral Researcher, ME Dept., LUT University, Finland)
2	19.02.2023 (Sunday)		Power electronics systems with MATLAB/SIMULINK Mr. Jagannath Samantaray , (MATHWORKS, India)	MATLAB SIMULINK model with experimental setup related to Snake Robot and Underwater Unmanned Vehicle (Hands on Session) Mr. B. M. Patel & Mr. R. R. Bharti , (Ph. D. Students, ME Dept., IIT Guwahati)	Nonlinear response analyses of energy harvesting models by MATLAB (Hands on Session) Dr. A. Garg (Faculty Fellow, IITG TIDF) and Mr. R. Roy (Ph. D. Student, ME Dept., IIT Guwahati)	Neural network & adaptive control with MATLAB (Hands on Session) Dr. J. Narayan , (Post-Doctoral Associate at Brain & Behaviour Lab, Imperial College London/Uni. Bayreuth, Germany)
3	20.02.2023 (Monday)	N. A.	N. A.	N. A.	N. A.	Control system design with MATLAB SIMULINK (Hands on Session) Mr. Jagannath Samantaray (MATHWORKS, India)
4	21.02.2023 (Tuesday)	N. A.	N. A.	N. A.	N. A.	MATLAB application in the Electric Vehicles Mr. K. Reddy and Mr. A. Aravind (Decibels Lab Pvt. Ltd., Bengaluru, India)
5	22.02.2023 (Wednesday)	N. A.	N. A.	N. A.	N. A.	MEMS (Micro electro mechanical systems) with MATLAB and Solution to the assignments and evaluations Dr. P. Kumar (Post-Doc Fellow, CeNSE., IISc Bangalore) and Dr. S. Mohanty (Post-Doc. Fellow, IITG TIDF)
6	23.02.2023 (Thursday)	Valedictory Ceremony Special Talk on Entrepreneur Development Mr. Partha P. Dasgupta (Senior Fellow IITG TIDF) Chief Guest Prof. G. Krishnamoorthy , Vice Chairperson: IITG TIDF)	N. A.	N. A.	N. A.	N. A.