Self-Sponsored Workshop on

Recent Advances in Robot Technology (RART-2024)

8 - 12 July, 2024

REGISTRATION FORM

Name: ……

E-Mail: .....

Designation/Scholar No.: .....

.....

Organization: .....

(Contact No.) .....

Details of Registration Fee:
Amount: _____

Reference ID: _____

Signature of Participant:

……..

This is an Offline workshop. The participant(s) should send the scan copy of filled Registration form and payment Proof (Screen Shot) and Transaction ID on the workshop **E-mail ID: rartmanit@gmail.com**

Chief Patron

Dr. K. K. Shukla, Director, MANIT Bhopal

Patron

Dr. S. P. S. Rajput, Dean (ID & IR), MANIT Bhopal

Chairman

Dr. Rajesh Gupta (HOD)

Department of Mechanical Engineering

&

Dr. Deepak Singh Tomar (HOD)

Department of Computer Science and Engineering

Coordinators

Dr. Rajesh Purohit, Professor
Department of Mechanical, MANIT Bhopal
Email: rpurohit73@gmail.com
Contact No.: 9479953671

Dr. Deepak Kumar, Assistant Professor
Department of Mechanical Engineering,
MANIT Bhopal
Email: deepakkumaromre@gmail.com
Contact: 8294918852

Dr. Mohammad Taufik, Assistant Professor
Department of Mechanical Engineering,
MANIT Bhopal
Email: taufikmohd86@gmail.com
Contact: 8989632831

Dr. Vijay Bhaskar Semwal, Assistant Professor
Department of CSE, MANIT,
Bhopal
Email: vsemwal@gmail.com
Contact No.: 07541805885

Address for Correspondence

Dr. **Mohammad Taufik**

Assistant Professor
Department of Mechanical Engineering,
MANIT Bhopal
Email: rartmanit@gmail.com
Contact: 8989632831

Self-Sponsored Workshop on

Recent Advances in Robot Technology (RART-2024)

8 -12 July, 2024

Organized by

Department of Mechanical Engineering

&

Department of Computer Science & Engineering

Maulana Azad National Institute of Technology Bhopal -462003

(Madhya Pradesh)

Important Dates

Last date of Registration is extended till: **02 July-2024**.

About the Institute:

Maulana Azad National Institute of Technology Bhopal (An Institution of National Importance), offers various undergraduate and post graduate courses and research programs. Under the peaceful and friendly environment, MANIT is producing technocrats who are resources to Nation and the world. Our bright students with excellent technical skills have always contributed to the successes of various sections towards the technical group. The total area of campus is 650 acres and protected by boundary wall and ring road. The entire campus consists of administrative and academic building, workshop, Library and community center, Residential area accommodation for students and staff and other general amenities such as post office, Shopping complex, a School for children, dispensary, an auditorium with the capacity of 1000 persons and sports complex with vast expanse of open area.

About the Departments:

The Department of Mechanical Engineering, Maulana Azad National Institute of Technology (MANIT) Bhopal is one of the biggest departments of the institute which will touch higher strength in next few years. While managing this increased strength which is an urgent need of the nation, department is committed to well-being and all-round development of its students. The department currently runs one undergraduate & five postgraduate programmes. The Department has established state-of-the-art facilities in various laboratories. Adequate inputs of practical training, industrial tours,

The computer science and engineering department was established in the year 1986. Since the inception, it is consistently creating its place of excellence not only within the institute but among its counter parts in the country and abroad. Bright students from all the parts of the country for quality education in computer science and engineering at under graduate, post graduate, and doctoral levels are attracted. The department has highly qualified and competent faculty members, and adequate facilities to support teaching and learning activity.

About Workshop:

The joint workshop by the Department of Mechanical Engineering and the Department of Computer Science and Engineering presents an immersive exploration into the diverse realms of robotics. This comprehensive course is designed to equip participants with a profound understanding of both traditional and cutting-edge robotics concepts. Covering fundamental principles such as kinematics and dynamics, the workshop delves into specialized areas, including the intricacies of industrial manipulators, humanoid robots, mobile robots, and intelligent agents. Notably, a unique emphasis on human gait analysis for biometric identification, walking pattern generation, and the computational modeling of human joint trajectories adds a fascinating dimension. The workshop goes beyond conventional robotics by incorporating a dedicated focus on soft robotics, encompassing the development and testing of soft actuators, sensors, and robots tailored for applications in food industries and aerospace. The practical demonstration sessions ensure that participants grasp theoretical concepts and gain practical skills in implementing robotics solutions. Tailored for faculty in engineering and sciences, as well as research scholars, this workshop offers a holistic learning experience, bridging the gap between mechanical engineering and computer science while staying at the forefront of technological advancements in both traditional and soft robotics.

Course contents

- Introduction to Robotics and Robot Simulators.
- Components and mechanisms of a robotic system, sensors and actuators.
- Mathematical foundation of Robotics, Manipulator, Coordinate System, Classification, Forward and Inverse kinematics.
- Introduction to Bipedal robotics and Human Gait analysis.
- Cognitive Robotics, Human Decision Making and Brain Computer Interface.
- Cloud Robotics.
- Digital filters and Robot Hardware Control.
- Introduction, Modeling, and Fabrications Techniques of Soft Robotics
- Advancement in Humanoid Robot Technology

Resource Person:

Internal Experts:

1. Dr. Vijay Bhaskar Semwal (Assistant Professor, MANIT Bhopal)
2. Dr. Mitul Kumar Ahirwal (Assistant, Professor, MANIT Bhopal)
3. Dr. Deepak Kumar (Assistant Professor, MANIT Bhopal)
4. Dr. R. K. Chaurasiya, (Assistant Professor, MANIT Bhopal)
5. Dr. Rajesh Purohit (Professor, MANIT Bhopal)
6. Dr. Mohammad Taufik (Assistant Professor, MANIT, Bhopal)

External Experts

7. Dr. S. K. Saha, (IIT Delhi)
8. Dr. Aman Khurana (IIT Indore)
9. Dr. Leena Vachhani (IIT Bombay)
10. Dr. Anil Kumar (IIITDM Jabalpur)
11. Dr. Atul Kumar Sharma (IIT Jodhpur)
12. Dr. P.B. Sujit (IISER Bhopal)
13. Dr. P. M. Pathak (IIT Roorkee)

List of suggested books:

1. Santosh Muhkerjee, "Robotics Process Automation", Khanna Publishing
2. Craig, J.J., "Introduction to Robotics: Mechanics and Control", Pearson, New Delhi, 2009
3. Niku Saeed B., "Introduction to Robotics: Analysis, Systems, Applications", PHI, New Delhi.
4. Mittal R.K. et.al, "Robotics and Control", TMH.
5. Mark W. Spong, Seth Hutchinson, and M. Vidyasagar, "Robot Modelling and Control", John Wiley and Sons Inc, 2005
6. Shuuji Kajita, et.al, "Introduction to Humanoid Robotics", Springer
7. Robin R. Murphy, "Introduction to AI Robotics" MIT Press

Registration Details for Participants

The participants to the workshop will be faculty members, Ph.D., PG & UG students and Participants from Industry and research organizations from all over the country. All the participants will be provided a Certificate of participation.

Details of Money Transfer by net-banking: Account Name: **Director MANIT Bhopal**; Bank Name: State Bank of India Bank; Address: MANIT (MACT) Bhopal; Account No. 10020150107; IFSC Code: SBIN0001608. **In net banking money transfer please clearly mention narration in remark column as "RART-2024" otherwise it will be difficult to trace the money transfer and receipt may not be issued.** Registration fee details are as follows:

Registration Fee:

Faculty members, UG, PG and PhD students	INR 2600/-
Participants from Industry and research organizations	INR 3500/-

Registration Fee include Kit, Breakfast, Lunch and High Tea. Accommodation and dinner will be provided on payment basis as per the request of the participants.