MANJARA CHARITABLE TRUST

RAJIV GANDHI INSTITUTE OF TECHNOLOGY, MUMBAI

RGIT's ROBOTICS CLUB

REPORT OF ACADEMIC YEAR 2022-23

Established in July 2018, RGIT's Robotics Club is the very first official Robotics committee of the institute. We abide by the mission to acquaint students of our institute with the current trends of Robotics and Automation in the Industries by providing sufficient practical exposure and opportunities, which will enhance their knowledge along with developing technical as well as soft skills thus in creating skilled individuals for the betterment of the society and country.

Today, Robotics is a rapidly growing field, as we continue to research, design and build new robots that serve various practical purposes including domestic, commercial and military. The RGIT Robotics Club strives to stimulate interest in robotics among the students of the institute. Besides making a serious endeavour to spread knowledge on Robotics and its diverse applications, it also stands by the subtle acronym of TEAM - 'Together Everyone Accomplishes More'. Well defined goals, an organized and disciplined work structure and motivated members are the features of the club.

Website: www.rgitsroboticsclub.co.in

Email ID: rgitsroboticsclub@gmail.com

Conveners: Prof. A.V. Gotmare

Program Outcomes (PO) Engineering Graduates will be able to:

PO1 **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2 **Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3 **Design/development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4 **Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5 **Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.

PO6 **The engineer and society**: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7 **Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8 **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9 **Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10 **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11 **Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12 **Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

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RAJIV GANDHI INSTITUTE OF TECHNOLOGY, MUMBAI

(Permanently Affiliated to University of Mumbai)

Department of Mechanical Engineering

Vision

To create competent technical professionals in Mechanical Engineering with ethical behaviour and environment consciousness.

Mission

1. To provide contemporary and cutting-edge technical education in Mechanical Engineering.
2. To provide an ambience which nurtures research ideas in futuristic domains of Mechanical Engineering.
3. To initiate project based learning and practical exposures in the area of Mechanical Engineering.
4. To direct faculties in research and consultancy / advisory roles.
5. To establish strong linkages with well-known national and international technical institutes.
6. To promote the culture of imbibing environmental care and eco-friendly designs.
7. To become a department of aspiration & choice.

Program Educational Objectives (PEOs)

PEO1: To prepare the stakeholder to exhibit leadership qualities with demonstrable attributes in lifelong learning to contribute to the societal needs.
PEO2: To make ready the stakeholder to pursue higher education for professional development.
PEO3: To help the stakeholder to acquire the analytical and technical skills, knowledge, analytical ability attitude and behavior through the program.
PEO4: To prepare the stakeholders with a sound foundation in the mathematical, scientific and engineering fundamentals.
PEO5: To motivate the learner in the art of self-learning and to use modern tools for solving real life problems and also inculcate a professional and ethical attitude and good leadership qualities.
PEO6: To prepare the stake holder to able to Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

Program Specific Outcomes (PSOs)

PSO1:Successful Career and Entrepreneurship: Graduates will be able to understand the social-awareness and environmental wisdom along with ethical responsibility to have a successful career and to sustain passion and zeal for real-world applications using optimal resources as an entrepreneur.
PSO2: Hobbies and Career: Graduates have nurtured their hobbies which are useful in their specific chosen career.

Sr.	Activity Name No.	Type of Activity	Date	Remarks
1.	E-Yantra	Competition	September 2022	Completed 3 stages
2.	Robocon 2022-23	Competition	January 2022	Completed 2 stages
3.	E-Yantra MOOC	Training Course	January 2023	Completed

CORE TEAM 2022-23

SR. NO.	NAME	DEPARTMENT	DESIGNATION	YEAR
1.	Prachit Yedare	EXTC	President	B.E
2.	Akshata Teli	EXTC	Vice-President	B.E
3.	Niyati Vaidya	Mechanical Engg.	Vice-President and Programming Head	B.E
4.	Aryan Bhalerao	Mechanical Engg.	Design Head	B.E
5.	Varun Sakalkale	Mechanical Engg.	Jt. Design Head	T.E
6.	Chintan Mahale	Mechanical Engg.	Jt. Design Head	T.E
7.	Rishabh Maurya	Mechanical Engg.	Jt. Design Head	T.E
8.	Archit Biswas	Computer Engg.	Jt. Programming Head	T.E
9.	Yash Gala	EXTC	Jt. Programming Head	S.E
10.	Chinmay Jadhav	Computer Engg.	Digital Creative Head	T.E
11.	Shreyash Jadhav	Computer Engg.	Marketing Head	B.E
12.	Neha Kadam	EXTC	Electronics Head	B.E
13.	Nandita Attawar	EXTC	Electronics Head	T.E
14.	Rutika Awale	EXTC	Jt. Electronics Head	T.E
15.	Ayush Somaiya	EXTC	Jt. Electronics Head	S.E

EVENTS THROUGHOUT THE YEAR (2022-2023)

1. E-Yantra 2022-23

e-Yantra Robotics Competition (eYRC) is a unique annual competition by IITB. Selected teams are given a robotic kit complete with accessories and video tutorials to help them learn basic concepts in embedded systems and microcontroller programming. The team has completed the first two tasks of the theme “Functional RoadBot (FB)” which extensively used the intricacies of Robot Operating System (ROS) and IoT to control robots from a remote location. The competition is completely simulation-based. We participated with only one team which was as follows,

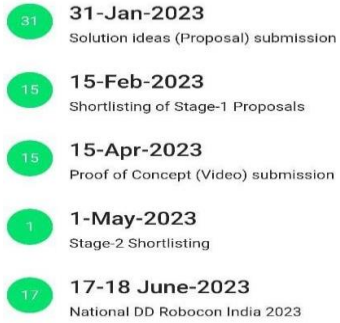
Sr. No.	Name	Year-Dept	Team
1	Niyati Vaidya (Leader)	BE-Mech	Programming
2	Swapnil Bhisale	BE-Instru	Electronics
3	Siddhi Sawant	BE-EXTC	Programming
4	Rutuja Kotkar	BE-EXTC	Programming

2. DD ROBOCON 2022-23

DD-Robocon is a part of the Asia-Pacific Robot Contest (ABU Robocon). This event is aimed to build the technical skills of undergraduate engineering students of our country. IIT Delhi hosts DD-Robocon 2021 on behalf of Door Darshan (DD).

The competition is divided into three stages at the domestic level, where the first stage is the submission of design files and documents specifying details of both robots. Our design was approved and we proceeded to the next stage – Proof of concept.

In this stage, we had submitted videos of our working robots performing the tasks allotted to them. Unfortunately, we could not clear this stage.

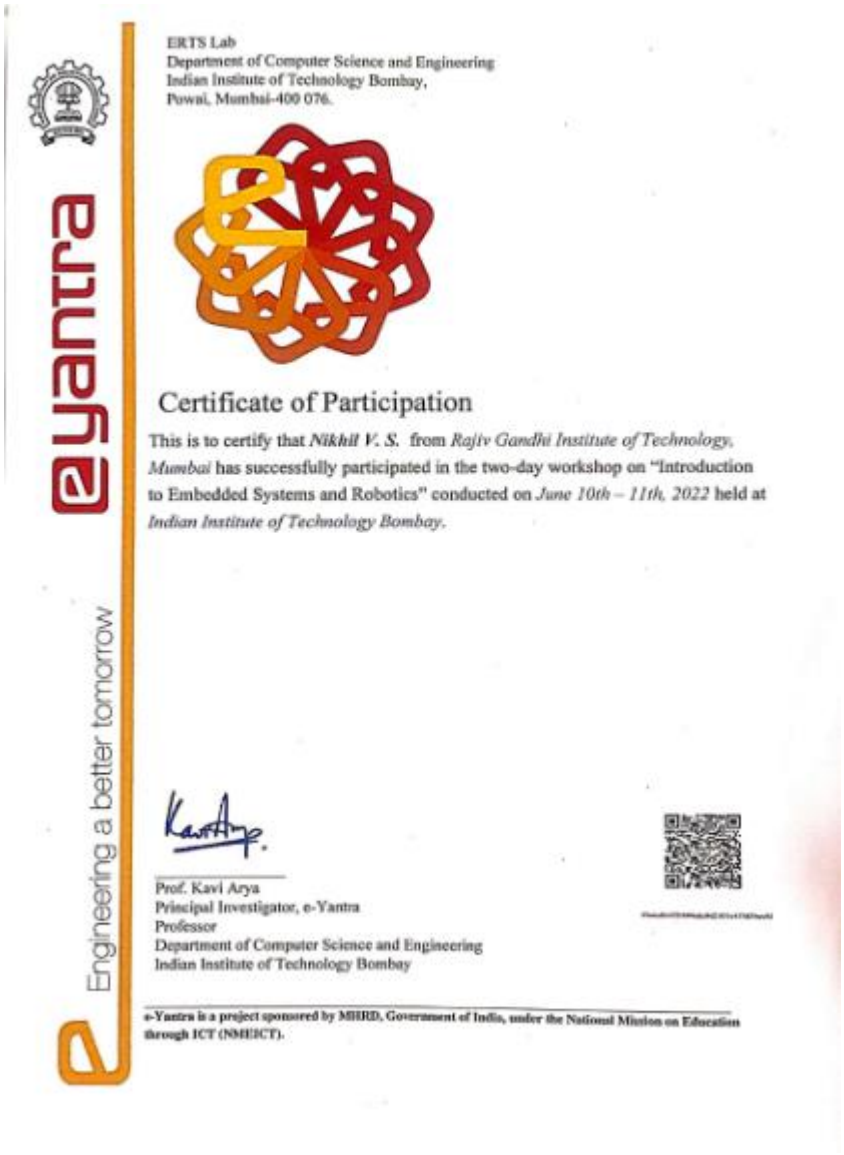


3. E-Yantra MOOC Training

e-Yantra MOOC is an online platform developed to offer Massive Open Online Courses (MOOCs) for students/working professionals from varying backgrounds. A selection test was conducted online for all interested students to avail of this training to our students. The syllabus had 3 topics, i.e., C-Programming, Basic Electronics, Logical Reasoning, and Aptitude.

All the selected students had a great experience. They were provided with recorded lessons with weekly tasks and assessments. These tasks and assignments helped them better understand the content of the course. It also helped them realize how they could apply the concepts they learned about in real-life projects.

Sample certificate:



ERTS Lab
Department of Computer Science and Engineering
Indian Institute of Technology Bombay,
Powai, Mumbai-400 076.

Certificate of Participation

This is to certify that *Nikhil V. S.* from *Rajiv Gandhi Institute of Technology, Mumbai* has successfully participated in the two-day workshop on "Introduction to Embedded Systems and Robotics" conducted on *June 10th – 11th, 2022* held at *Indian Institute of Technology Bombay.*

Prof. Kavi Arya
Principal Investigator, e-Yantra
Professor
Department of Computer Science and Engineering
Indian Institute of Technology Bombay

e-Yantra is a project sponsored by MHRD, Government of India, under the National Mission on Education through ICT (NMEICT).

e-yantra
Engineering a better tomorrow