



MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY

Kalitheerthalkuppam, Madagadipet, Puducherry - 605 107

## DEPARTMENT OF ROBOTICS AND AUTOMATION

### NEWSLETTER- February- 2023

#### About the Department:

The Department was started in the year 2020, our department is one of the newest departments to our college. Robotics and Automation is the new program for Engineering, Robotics and Automation is a multi-disciplinary program, it involves electrical, electronics, mechanical, computer science and AI techniques of robotics. Robotics and Automation Engineering is one of the emerging multi-disciplinary areas transforming conventional practices in industry to digitalization which plays a crucial role in the Prime Minister's Call 'MAKE IN INDIA', 'DIGITAL INDIA' and INDUSTRY 4.0. Robotics and Automation plays a major role in manufacturing units, medical science, space, etc., with the rapidly advancing process of inclusion of robots from Industry to the Social Arena, the functional requirement of the robots and corresponding human expectations has increased tremendously. However, in order to fully comprehend the complexities of such robot design, one needs to possess an over-all idea of the field.

#### **Vision**

To be a centre of excellence in the field of Robotics and Automation by providing excellent education, training, research and inculcating human values to cater the needs of the industries and society.

#### **Mission**

- **Higher Order Thinking:** To equip the students with higher order thinking and technical skills in Robotics and Automation through effective teaching learning methodologies.
- **Competency:** To educate and train the students with state of art technologies, industry institute interaction and promote research in the field of Robotics and Automation.
- **Continuous learning:** To provide an ambience that facilitate self learning, collaborative learning and acquire multidisciplinary knowledge.
- **Entrepreneurship:** To encourage the students by nurturing creativity and innovation to launch start-ups and promote entrepreneurship.

#### **PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)**

- **PEO1: Employability:** Our Graduates shall be suitably employed with professional competency and knowledge of modern tools.

- **PEO2: Higher Education:** Our Graduates shall be capable to pursue higher studies/research in the field of engineering and management.
- **PEO3: Entrepreneurship:** Our Graduates shall be prepared for a successful career by meeting ever increasing demands required by Robotics and Automation profession and enable them to become an entrepreneur.
- **PEO4: Professional and Ethical values:** Our Graduates cultivate professional and ethical attitudes with effective communication skills, team work and multidisciplinary approach related to engineering issues.

### **Program outcomes (POs)**

<b>POs</b>	<b>DESCRIPTION</b>
<b>PO1</b>	<b>Engineering knowledge:</b> Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
<b>PO2</b>	<b>Problem analysis:</b> Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
<b>PO3</b>	<b>Design/development of solutions:</b> 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.
<b>PO4</b>	<b>Conduct investigations of complex problems:</b> 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.
<b>PO5</b>	<b>Modern tool usage:</b> Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
<b>PO6</b>	<b>The engineer and society:</b> 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.
<b>PO7</b>	<b>Environment and sustainability:</b> Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
<b>PO8</b>	<b>Ethics:</b> Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
<b>PO9</b>	<b>Individual and team work:</b> Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
<b>PO10</b>	<b>Communication:</b> 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.
<b>PO11</b>	<b>Project management and finance:</b> 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.
<b>PO12</b>	<b>Life-long learning:</b> 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.

### Programme Specific Outcome (PSO)

**PSO1: Process Automation:** Create and apply simulation tools for modern engineering and real time Automation process.

**PSO2: Products Development:** Design, analysis and to develop a Robotics and Automation products in health care, security, defense, space research, banking, entertainment applications.

### Staff Activities

- Dr.G.Renuka Devi, Prof/RA, “Multilevel Inverter Design with Reduced Switches & THD Using Fuzzy Logic Controller”, SSRG International Journal of Electrical and Electronics Engineering, Volume 9 Issue 12, December 2022/1-21.
- Dr.G.Renuka Devi, Prof/RA has successfully participated in “THD reduction in measurement of H - Bridge multilevel inverter using pulse modulated switching integrated with linear quadratic Regulator”, Measurement: Sensors, August 2022/1-9.
- Dr.G.Renuka Devi, Prof/RA, has Participated & completed successfully Five Day online STC on "Application in Power Electronics Engineering" organized by National Institute of Technical Teachers Training and Research-Chennai, from Sept 5 – 9, 2022
- Dr.G.Renuka Devi, Prof/RA, Ayswariah SS, AP/RA, Kiruba Sandou, AP/RA has successfully participated in 5 days workshop on "Innovation, Entrepreneurship and Start-Up for young", organized by National institute of technology Mizoram from September 26<sup>th</sup> to 30<sup>th</sup>, 2022
- Ayswariah SS, AP/RA, Kiruba Sandou, AP/RA has successfully Completed 9 days Faculty development programme on "Design and Development of Industry led curriculum in technological Era", organized by AMET University from December 14<sup>th</sup> to 22<sup>th</sup>, 2022.
- A.Baskaran, AP/RA has successfully Completed the course “The Python Bible™ | Everything You Need to Program in Python” on 08<sup>th</sup>Dec 2022 as taught by Ziyad Yehia, Internet of Things Academy on Udemy.
- A.Baskaran, AP/RA has successfully completed the course “Best Starter Course:ROS & Robotics Simplified [2023]” on 08<sup>th</sup> Jan2022 as taught by Prathamesh Khedekar on Udemy.
- A.Baskaran, AP/RA has successfully completed thecourse “Basic solidworks Design” on 28<sup>th</sup> Jan 2023.



Dr.G.Renuka Devi, Prof/RA has delivered workshop on “Home Automation using Arduino” on 08.08.2022 at Motilal Nehru Government Polytechnic College, Puducherry.



A.Baskaran, AP/RA, has delivered Guest lecture on “PLC-SCADA” for 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> year students on 21<sup>th</sup> Oct 2022 at Acharya College of Engineering Technology, Villanur, Puducherry.



**Department Activities:**



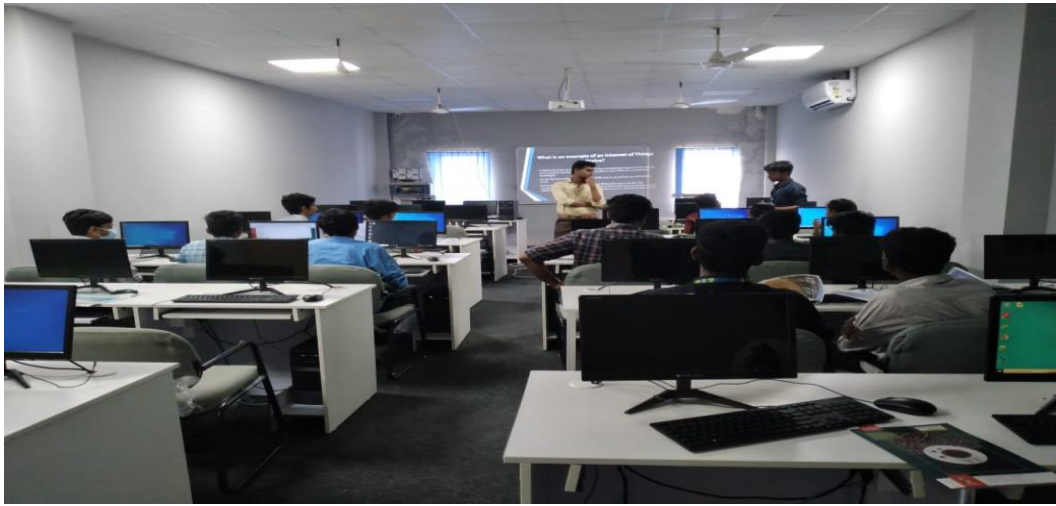
Value Added Course on “Robotics Process Automation” for III year students on 26.09.2022 to 06.10.2022



Department of Robotics and Automation has signed a MoU with Village Technology School, Chennai on 20.10.2022.



Department of Robotics and Automation has organized a Guest Lecture on “Innovation in Robotics & Applications” -Village Technology School for II & III year students on 20.10.2022.



Value Added Course on “Introduction to IoT” -CISCO for II year on 07.11.2022 to 15.11.2022



Department of Robotics and Automation has organized an External Workshop on “Introduction of DOBOT Magician 17-11-2022



Department of Robotics and Automation has organized a IIC Calendar activity-Q2-Guest Lecture on “A consumer-centric approach on Electric & Hybrid vehicles” for II & III year students on 15.12.2022.





Dr.G.Renuka Devi, Prof/RA,MIT has delivered Special Lecture on “Special Machines for Robotics Applications” II Year/RA students on 12.11.2022



Mrs.Kiruba Sandou ,AP/RA, has delivered Special Lecture on “Sensor Building in Robots using Proteus” III Year/RA students on 12.11.2022



Mr.A.Baskaran,AP/RA, has delivered Special Lecture on “Speed Control of DC Motor using Proteus” for III Year/RA students on 16.11.2022.



Ms.S.S.Ayswariah, AP/RA, has delivered Special Lecture on “Robotic Controller using MATLAB/SIMULINK” for II Year/RA Students on 19.11.2022



Department of Robotics and Automation has organized Industrial Visit on 25.10.2022 & 26.10.2022 at Quantanics Techserv (P) Ltd, Madurai.



Department of Robotics and Automation has arranged Institute interaction with SAE India Southern Section Mahindra World City Division on 15.12.2022



**Student Participation:**



Akshay Sharma has participated and shortlisted as Top -10 on ICT Academy Youthtalk, Tamilnadu 2022 on the topic of India and China the Next Super Power of the World on 07.10.2022



Jagadheesh, Nithya sree, Hariharan, Harikrishnan has participated and shortlisted as Top -12 on CII Innovation Contest 2022 on the topic of Mobile Application for Vehicle Parking on 09.11.2022