



ENGINEERING STAFF COLLEGE OF INDIA

(An ISO 9001:2015 Certified, AICTE & CEA Recognized Institution)

Autonomous Organ of the Institution of Engineers (India)

Old Bombay Road, Gachibowli, Hyderabad – 500 032. Telangana, India



Management and Technology Division

Online Continuing Professional Development Programme on

Role of Embedded Systems & Robotics in Industry 4.0

17 – 19 May 2021

Powered



INTRODUCTION

Robots and human both have their own strengths and limitations. Working together in safe manner both will provide better quality product with high accuracy in less time. The main aim of Robotics and Industry 4.0 is to improve productivity, produce high quality products at low price and meet customer expectations.

Applications of robots are the growing interest in various industries. This interest stems from the fact that robotics helps to increase safety in the workplace, increase productivity and reduce production costs. With robotic applications, significant amount of labor work can be done autonomously. Advanced sensors in robots allow high precision tasks that are difficult for human workers to do. Therefore, higher qualities for products and services are achieved when robots are used.

Robotics deals with design and application of robots and the use of computer for their manipulation and processing. Robots are being used in the field of nuclear science, sea-exploration, servicing of transmission electric signals, designing of bio-medical equipment etc. Robotics requires the application of computer integrated manufacturing, mechanical engineering, electrical engineering, biological mechanics and software engineering.

OBJECTIVES

The main objectives of the programme are:

- To understand the concept of Advanced Embedded Systems and Robotics along with its applications
- To understand the functioning, maintenance of sensors and electro-mechanical components
- Design and assemble a Robot, program and automate the Robot

COURSE COVERAGE

The issues to be deliberated during the programme are:

- **Introduction about Industry 4.0**
- **Role of Embedded and Robotics in Industry 4.0**
- **Industry case studies**
- **Electronics And Embedded Programming**
 - Basic electronic components and circuit designing
 - Integrated circuits and Sensors
 - Microcontroller Programming
 - Motors and types and also Drivers
 - Circuit designing & PCB designing
 - Communication protocols
 - Controlling a robot using your hand gestures using accelerometer
- **Web-Technologies for Robotics**
 - Programming Skills
 - Interfacing Embedded components with Software
 - Hands on activities on Raspberry with Python programming
 - Making a software application on Raspberry pi for Robot Control
 - Live Video streaming in Raspberry pi
 - Hands on activities on HTML page designing and its integration
 - Web server controlling Robot
- **Programming and Prototyping**
- **Project Design & Development process**
- **Project Planning & Testing Phase**
- **Trends and Future of Robotics**

METHODOLOGY

Methodology of the programme Includes

- Learning prerequisites skill through ESCI LMS Platform
- For Online Participants - Online Video Interactive sessions
- Case studies, Sharing of experiences

FACULTY

Faculty consists of experts from industry, research establishments, academia besides faculty from ESC.

TARGET PARTICIPANTS

- Professionals from Government, Private Sector and Public Sector
- Scientists working in Defence, Electronics, Aerospace, Mining, Space Research, Nuclear Plants and other Research Laboratories

BENEFIT TO THE PARTICIPANTS

- Understand the concept of Advanced Embedded Systems and Robotics along with its applications
- Understand the functioning, maintenance of sensors and electro-mechanical components
- Design and assemble a Robot, program and automate the Robot

PLEASE CONTACT FOR FURHTER DETAILS:

Mr. Katti Bharath.

Course Coordinator

Management & Technology Division

Engineering Staff College of India

Email: mt@escihyd.org, mtmkt@escihyd.org

Mob:07097282619

Phone: Direct 040 6630 4111 & 6630 4112 & 6630 4105

Mr. Rakesh Singh, B.Tech (CSE)

Project Engineer

Management & Technology Division

Engineering Staff College of India

Land line 040-66304105

Mob: 07013551765

Email: mtmkt@escihyd.org

Er. P. Sai Kishore, MIE, M.Tech (EPS), MBA

Head - Management & Technology Division

Engineering Staff College of India

Old Bombay Road, Gachibowli, Hyderabad - 500032

Ph: 040-66304111/4112/4105

Email: mt@escihyd.org & mtdiv@escihyd.org

Dr. V. Siva Rama Krishnaiah, Ph.D

Advisor - Management & Technology Division

Engineering Staff College of India

Old Bombay Road, Gachibowli, Hyderabad -500032

Ph: 040-66304111/4112/4105

Email: mt@escihyd.org

PROGRAMME DATES & TIMINGS

Dates: 17 – 19 May 2021

After registration participant can access ESCI LMS platform for digital learning

Session timings will be from 09.45 to 15.30 Hrs (13.00 – 14.00 Lunch Break)

COURSE FEE

Rs 9,000/- (Rupees Nine Thousand only) per Participant. Fee includes for Digital Learning, Experts Online Support and Reading Material Softcopy.

Goods and Service Tax @ 18% is to be paid extra over and above the training. **PAN Card No AAATT3439Q; GST No. 36AAATT3439Q1ZV. H.S. No. 999293** (Under commercial training or coaching services – clause 65(105) (ZZC) of Finance act – 1994).

Programme fee is to be paid in in favour of “**THE INSTITUTION OF ENGINEERS (INDIA) – ENGINEERING STAFF COLLEGE OF INDIA**” in the form of **Demand Draft (DD)** payable at Hyderabad. Alternatively, the payment may be made by Electronic Fund Transfer (EFT) to ESCI - **SB A/c No.0432104000039631 with The IDBI Bank Ltd., Gachibowli Branch, Plot No. 2-53/2, JNIBF, IIIT Junction, Gachibowli, Hyderabad-500032 by RTG's/ NIFT / IFSC Code No: IBKL0000432**. While using EFT payment method, please ensure to communicate us your company name, our Invoice reference and programme title.

REGISTRATION

Online registration shall be available on ESCI web portal <http://www.escihyd.org/index.php/mt-upcoming-training>. To register manually please send your nominations by providing name, designation, contact address, email address, mobile no, telephone and fax number of the participant along with the details of mode of payment of fee, addressed to: mt@escihyd.org, mtmkt@escihyd.org

CERTIFICATION

A Certificate of participation will be awarded to each participant on conclusion of the programme.

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Gachibowli, Hyderabad – Telangana 500 032

Phone: 040 – 66304100 (EPABX) Divn. number (Direct), 7013551765/ 9391198601 Fax: 040 – 66304105

Email: mt@escihyd.org, web portal: www.escihyd.org