

To: All Members in NR

21<sup>st</sup> September 2021

**E-Certification Program On  
Internet of Things (IoT)  
Wednesday, 20<sup>th</sup> to Friday, 22<sup>nd</sup> October 2021  
Time - 10.00 a.m. to 1.00 p.m.**

Online platform using WebEx

It has been our endeavor to provide valuable services to our members. In an effort to strengthen this further, ACMA (Northern Region) is organizing an **E-Certification Program on IoT (Workshop on Internet of Things)** on **Wednesday, 20<sup>th</sup> to Friday, 22<sup>nd</sup> October 2021** using Cisco WebEx platform.

**Introduction and Course Overview**

**What is IoT (Internet of Things)?**

The Internet of Things (IoT) describes the network of physical objects—“things”—that are embedded with sensors, software, and other technologies for the purpose of connecting and exchanging data with other devices and systems over the internet. These devices range from ordinary household objects to sophisticated industrial tools.

Over the past few years, IoT has become one of the most important technologies of the 21<sup>st</sup> century. Now that we can connect everyday objects—kitchen appliances, cars, thermostats, baby monitors—to the internet via embedded devices, seamless communication is possible between people, processes, and things.

By means of low-cost computing, the cloud, big data, analytics, and mobile technologies, physical things can share and collect data with minimal human intervention. In this hyperconnected world, digital systems can record, monitor, and adjust each interaction between connected things. The physical world meets the digital world—and they cooperate. Today with more than 7 billion connected IoT devices today, experts are expecting this number to grow to 10 billion by 2020 and 22 billion by 2025.

**Workshop Highlights :-**

- What “The Internet of Things” means and how it relates to Cloud computing concepts
- How open platforms allow you to store your sensor data in the Cloud
- How to create your own Android App.

- How to send data to the Internet and talk to the Cloud.
- How to control any device from anywhere across the world.
- How to connect to cloud ready IoT Server using MQTT.
- Python, Embedded C etc will be covered.

### **Topics to Be Covered:-**

- Introduction to the Internet of Things
- The Internet of Things
- The Basics of Sensors & Actuators
- Introduction to Cloud Computing
- The Arduino Platform
- The Arduino Open-Microcontroller Platform
- Arduino Basics
- Arduino Board Layout & Architecture
- **Reading from Sensors**
  - 1) Programming fundamentals ( C language )
  - 2) Arduino Programming & Interface of Sensors
- Interfacing sensors with Arduino
- Programming Arduino.
- Doing prototyping on TINKERCAD

**Project 1:** Simple LED Program for Node MCU

**Project 2:** Integrating Sensors & Reading Environmental Physical Values.

**Project 3:** Reading Environmental Values on Android Smartphone.

**Project 4:** Mini Home Automation using Android Smartphone.

**Project 5:** Creating Android App & controlling Node MCU connected devices through App.

**Project 6:** Controlling LED with a Switch

### **Project 7: Integrating IR Sensor**

- Talking to your Android Phone with Arduino
- Connecting Arduino with Mobile Device.
- Using the Bluetooth Module.

**Project 8:** Use Arduino to upload free data from Environmental Sensors to Cloud Server.

### **Project 9: Control Devices using Local host Web Server for Home Automation.**

- Integrating Ethernet Module & Testing DHCP Connection
- Creating Program for Local host Web Server for controlling devices.

**Project 10:** Control Electronic Devices from anywhere across the world using Internet & Mobile App.

### **Project 11: Control Devices using Local host Web Server for Home Automation.**

- Monitor the air quality especially CO2 with NodeMCU as microcontroller and WiFi

### **Project 12: Send Voltage & Analog Data on Cloud Server.**

- Cloud Computing
- Communicating with the Cloud using Web Services.

- Cloud Computing & IoT.
- Popular Cloud Computing Services for Sensor Management.

### Project 13: Send Sensor Data on Cloud Server.

- Introduction to Cloud Computing
- The Basics of Sensors & Actuators
- Cloud Computing
- Communicating with the Cloud using Web Services.
- Cloud Computing & IoT.

Popular Cloud Computing Services for Sensor Management.

### Conditions

- The workshop is planned for 3 days, each day 3 hours. (TOTAL 9 hours)
- Participants are requested to have their Laptop and Mobile both at the Training &
- Active Internet connection with logged in GMAIL account on Internet browser.

### Who should attend:

Senior and middle management level persons of Production, Production Engineering; Quality Control, Supply Chain; HR; Finance; IT and Marketing.

### PARTICIPATION FEE DETAILS:

Category	Amount	GST	Total Amount
Members	Rs. 3,000/- per participant	18%	Rs. 3,540/-
Non-Members	Rs. 4,000/- per participant		Rs. 4,720/-

**Note-:** Companies has to pay the full payment in advance to register themselves for the program. No cancellation is acceptable only you can change the name of the participant. Hence invoice will be generated as per the nominations.

(\*10% **Discount** in case of companies nominating 3-6 participants and 15% **Discount** in case of companies nominating 7 or more delegates + GST 18% would be applicable)

### Online Payment Transaction -: <https://www.acma.in/payment-online.php>

While making the payment please put 0000 (Zero) in Tax Invoice No. column while processing for the payment. Please mail us the screen shot of the payment to cross check it.

**Faculty: Mr. Krunal Kalbende, IIT Kharagpur**

Mr. Krunal Ramesh Kalbende has proven performance in leading a profitable technology development business from startup to its development. In addition to serving in management and technical positions for several technology ventures of self and others, Krunal has offered professional consulting services in IoT, Industry 4.0, Geophysical services, AI technology, project management, strategic planning, effective teamwork, Web application development, and relational database application development to startups and large enterprises. Throughout his professional career, Mr. Kalbende has managed technology development projects based on the practices of repeatable processes, success metrics, consensus, collaborative process management, and high-performance teamwork with the goal of superior accountability to requirements, schedule and budget. He has also served as a technical consultant in Ordnance factory, RSN Mines and Minerals, Master Geotech, NMC, Cyber Cell, KJV Alloy, and 100+ industries. He has expertise in cost reduction, AI intelligence building and quality supply-chain management. He is an IIT, Kharagpur alumni & currently Founder of Aotom Technologies which is tech oriented development and service provider company in the field of Drone Technology, Geophysical services, AI technology, Data analytics, Face recognition technology and Blockchain technology .

The Confirmations can be sent-in through the attached “Reply Form”. We look forward to the participation of member companies in large numbers.

Sd./-  
**Regional Secretary**

Circular No. ACMA/NR/2021-22/14

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