



Ref: GTU/DIC/Workshop/2019/4

Date: 20th April 2019

Embedded System and IOT Using Arduino & Node MCU

The Internet of Thing (IoT) is the network of devices such as vehicles, Industries & Applications and Home Appliances that contain electronics, software, actuators, and connectivity which allows these things to connect, and exchange data. Embedded with technology these devices can communicate and interact.

OBJECTIVE OF THE WORKSHOP:

The Main objective of this workshop is to make the students conceptually and practically aware about:

- 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
- The basic usage of the Arduino &NodeMCU environment for creating your own embedded project at low cost.
- Use of Arduino in IoT
- How to sent data to the internet and talk to the cloud.
- How to update sensor reading on Social networking sites.
- How to control any devices from anywhere across the cloud.
- How to connect to cloud ready IoT server using MQTT.

Skill you will GAIN?

- Arduino Programming, IoT, Cloud Computing

Who Could Attend?

- College students seeking future in Core Electronics and Embedded System.
- B-Tech/M-Tech/Diploma college students of ECE/EE/EE field.
- Students who tried their hands on basic electronics.
- College Faculty & Staff in ECE/EE/EE department.

Student's Benefits

- Receive an unparalleled training through best methodology from DIC/CiC3 Team Member with personal one-on-one attention.
- Learn and interact with GTU ROBOCON, GTU Mitsubishi Electric Cup Team
- Improve your career prospects and get an edge over your counterparts.
- Interactive Query sessions, Live Demos, PowerPoint Presentation.

Resource Person: Prof. Raj Hakani (Asst. Prof, CiC3) & ACDC Team

-/Sd
I/C Registrar

Winners of : ICT Enabled University Award E-India - 2009 ❖ Manthan Award - 2009 ❖ GESIA Award - 2011
❖ Digital Learning WES - 2011 Award ❖ AIMS International Innovative University Award - 2013



EVENT CALENDAR

Date: 24th April - 28th April 2019

Time: 10:30 AM to 5:00 PM

Venue: Gujarat Technological University

Design Innovation Centre (DIC)

Shed No. 2, Nr. Vishwakarma Govt. Engineering College

Nr. Visat Cross Road, Chandkheda, Ahmedabad 382424

Detail Event Schedule (Appendix A)

TRAVEL AND ACCOMMODATION

Participating faculties/students have to make necessary arrangement for their travel and accommodation and TA/DA will not be provided

REGISTRATION FEE

Fees: 400/- Rs for Student from GTU affiliated Colleges (College ID Card is compulsory)

500/-Rs for Non GTU Students

800/-Rs. for Research/Phd Scholar, Faculty of Institutes, Industrial Persons

Before Payment Kindly go through Registration Link and Check Registration Full or Not

HOW TO REGISTER?

Fill registration form online using below mentioned link on

Registration Link:

For Ahmedabad Zone: <https://forms.gle/4MW7WsevN6enRFVp8>

Step 1: Open Following Link in browser

Link: <https://www.onlinesbi.com/sbcollect/sbclink/displayinstitutiontype.htm>

Select: State of Corporate/Institution as **Gujarat**

Type of Corporate/Institution: **Education Institutes**

Press **Go** for Next Step

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(ગુજરાત અધિનિયમ ક્રમાંક : ૨૦/૨૦૦૭ દ્વારા સ્થાપિત)

State Bank Collect 02-Jan-2018 [12:15 PM IST]

Select State and Type of Corporate / Institution

State of Corporate/Institution *

Type of Corporate/Institution *

Step 2: Educational Institutions Name: **Gujarat Technological University**
 Press **Submit** for Next Step

State Bank Collect 02-Jan-2018 [12:16 PM IST]

Select from Educational Institutions *

Educational Institutions Name

Mandatory fields are marked with an asterisk (*)

Step 3: Select Payment Category: **OTHER FEE_GRANT**

Fill up your Detail

SPECIFY THE REASON FOR FEES/GRANT FOR PAYING * : **IOT Workshop**
 REFERENCE NUMBER/LETTER IF ANY: **Ref.: GTU/DIC/Workshop/2019/4**

State Bank Collect 17-Apr-2019 [02:39 PM IST]

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 NR VISHWAKARMA GOVT ENGG COLLEGE NEAR VISAT THREE ROADS
 SABARMATI KOBA HIGHWAY CHANDKHEDA, , AHMEDABAD-382424

Provide details of payment

Select Payment Category *

- GTU ME FEES
- GTU-PG-SCHOOL_ME_FEE
- IEP FEES
- IPVM COURSE FEE
- Kerala Flood Relief Fund_GTU
- M.PHIL FEES
- OTHER FEE_GRANT**
- PGDIPR COURSE FEE
- PHD FEES
- REASSESSMENT EXAM. FEES

Press **Submit** for Payment

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Appendix A

Course Content : Embedded System and IOT Using Arduino & NODE MCU

| Introduction and Hand-on with Arduino Controller Board | | |
|--|--|--|
| | Day - 1 | Day - 2 |
| Session -1 (10:30 AM to 1:00 PM) | <ul style="list-style-type: none">• Introduction of Embedded System• Application & Scope of Embedded system in various industries• Basic of Arduino• Arduino IDE | <ul style="list-style-type: none">• Calibration of Sensors• Interfacing of Sensor and Reading of Data into LCDs• Interfacing with Actuators (DC Motor, Servo Motor, Stepper Motor) |
| Lunch Break (1:00 PM to 1:45 PM) | | |
| Session -2 (1:45 AM to 5:00 PM) | <ul style="list-style-type: none">• Interfacing with LEDs• LED Patterns• LED Matrix• Interfacing with LCD• Seven Segment• Interfacing with Various Sensors (LM35, LDR, IR, Ultrasonic, PIR, Soil Moisture, Gas Sensors) | <ul style="list-style-type: none">• Interfacing with Modules (Heartbeat sensor, SIM 800, Voice Regeneration etc.)• Interfacing of Arduino with Opensource Software |

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Ahmedabad : 2nd Floor, ACPC Building, L. D. College of Engineering Campus, Navrangpura, Ahmedabad, (Gujarat) India - 380 015. Phone : + 91 - 79 - 26 300 499 / 599 Fax : + 91 - 79 - 26 30 1500
Gandhinagar : K-6 Circle, E-4 Electronic Estate G.I.D.C., Nr. Government Polytechnic, Sector-26, Gandhinagar - 382 028 Gujarat.
e-mail : info@gtu.ac.in URL : www.gtu.ac.in



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Introduction to IoT & Interfacing IoT Module with Arduino

| | Day - 3 | Day - 4 |
|--|---|---|
| Session -1 (10:00 AM to 1:00 PM) | <ul style="list-style-type: none">• Introduction of IOT• IOT in Home Automation• IOT in Industrial Application• IOT Market• Introduction of Node MCU/ESP8266• Interfacing of Arduino with ESP8266/Node MCU• Firmware Update of ESP8266/NODE MCU | <ul style="list-style-type: none">• Server Creation• Real-Time Data Transfer with TCP IP and MQTT Protocol• IOT using Think Speak |
| Lunch Break (1:00 PM to 1:45 PM) | | |
| Session -2 (1:45 AM to 5:00 PM) | <ul style="list-style-type: none">• GPIO Programming• Serial Communication• Webpage Creation• Device Control Using webpage | <ul style="list-style-type: none">• Data Received through Twitter• Data Received through Emails |

Built up your own IoT Based Project

| | Day - 5 | |
|--|---|--|
| | <ul style="list-style-type: none">• Smart Home Automation• Smart Parking System• Smart Health System• IoT Based Weather Reporting System | <ul style="list-style-type: none">• Smart City• IOT Based Traffic Management System• Smart Irrigation System• IOT Based Industrial Automation |

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