

National Institute of Technical Teachers Training and Research Bhopal

PROGRAM BRIEF

- **Title of the Program : Arduino IoT Application Design**
- **Program Code:- EEE-04**
- **Program Duration : 12th to 16th June 2023**
- **Venue: DEEEE NITTTR Bhopal**

1. Rationale

The Internet of Things (IoT) is a network of physical objects—"things"—embedded with sensors, software, and other technologies for connecting and exchanging data with other devices and systems over the internet. IoT has emerged as one of the most important technologies of the twenty-first century in recent years. Now that we can connect everyday objects to the internet via embedded devices, including vehicles, thermostats, Sensors and seamless communication between people, processes, and things is conceivable. This program will help to develop these 21st century IoT skills related with use of different sensors, data acquisition system and various IoT cloud. This programme will provide hands-on learning experience to develop IoT project.

2. Course Outcomes

The participants of the workshop will be able to:

- Explain IoT
- Explain Open source software & hardware
- Write 'C' programming for IoT using Arduino IDE.
- Control LCD, Motor and other devices through arduino based microcontroller for IoT application.
- Interfacing of different sensors with arduino based microcontroller.
- Interface IoT Wi-Fi Module with ThinkSpeak
- Develop simple IOT application

3. Programme Contents

Introduction to IOT, Open source software & hardware, Different types Sensors. Basic Structure of Arduino Uno Board, Basics of IoT Programming, IoT Devices and their basic functions, LCD, Motor and other devices control with C Programming, Interface with Temperature sensor, Ultrasonic distance sensor, IR sensor, PIR sensor, Wi-Fi module, Open source cloud, IoT Wi-Fi Module with ThinkSpeak, IOT Application

4. Instructional Strategy

The programme is expected to be highly interactive. Participative strategies will be employed. Input sessions, practice sessions, presentations with feedback, assignments, test etc. are planned.

6. Dates and Venue :- 12th to 16th June 2023, DEEEE NITTTR Bhopal

7. Target Group

Teachers from Engineering and Polytechnic Institutes of Electronics and Telecommunications Engineering, Electronics and Instrumentation , Electrical and Allied Disciplines.

8. Coordinator :-Mr. Sanjeet Kumar, Assistant Professor, DEEEE

Co coordinator :-Dr. P. N. Hardaha, CSEE

9. Tentative Schedule

CSEE-10: Design and Development of IOT (Internet of Things) Application

Day	Session I 9.30- 11.00 AM	Session II 11.15-1.30 AM	Session III 2.00-3.30 AM	Session IV 3.45- 6.00 AM
I	Registration & Inauguration, Overview of Program	Introduction to IOT	Introduction to Open source Software & Hardware	Practice Session Assignment-I
II	Basic Structure of Arduino Uno Board (Single Board Computing)	Basics of IoT Programming using Arduino Uno (IDE Installation with First Demo Program)	Types of IoT Devices and their basic functions	Practice Session Assignment-II
III	Arduino Uno Board Interfacing with Sensor	IoT Programming (Continued...)	IoT Programming (Continued...)	Practice Session (Assignment-III)
IV	Computing Paradigms like Cloud Computing, Fog Computing, Edge Computing etc.	IoT Wi-Fi Module with ThinkSpeak	IoT Clouds & Applications	Practice Session (Assignment-IV)
V	Developing Simple IOT Application	Developing Simple IOT Application	Assignment Submission & Achievement -Test	Feedback & Valedictory Session