EXPERT DETAILS

DR. SANKAR MUKHERJEE
HOD
COMPUTER SCIENCE AND ENGINEERING

COURSE IS FOR

B.TECH STUDENTS
DIPLOMA STUDENTS
BCA STUDENTS
MCA STUDENTS

REGISTRATION FEES

Rs. 300/-

ABOUT THE TOPIC

Over the past few years, IoT has become one of the most important technologies of the 21st 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.
One component that improves the success of the Internet of Things is Cloud Computing. Cloud computing enables users to perform computing tasks using services provided over the Internet. The use of the Internet of Things in conjunction with cloud technologies has become a kind of catalyst: the Internet of Things and cloud computing are now related to each other. These are true technologies of the future that will bring many benefits.

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REGISTRATION

Scan the QR Code for Registration

www.icampus.setgoi.ac.in

SHORT TERM
CERTIFICATE COURSE

INTRODUCTION TO SENSORS IN
IOT & CLOUD
COMPUTTING APPLICATIONS

SETGOI DURGAPUR

SANAKA EDUCATIONAL TRUST'S GROUP OF INSTITUTIONS

A UNIT OF SANAKA EDUCATIONAL TRUST

MALANDIGHI, DURGAPUR - 713212

DEPARTMENT OF
COMPUTER SCIENCE AND ENGINEERING

NBA ACCREDITED

Day 1

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

Programming fundamentals (C language)

Arduino Programming & Interface of Sensors

- Interfacing sensors with Arduino
- Programming Arduino
- Reading from Sensors

Day 2

Project 1: Simple LED Program for Arduino

Project 2: Integrating Sensors & Reading Environmental Physical Values.

Project 3: Reading Environmental Values on Android Smartphone.

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

Project 4: Creating Android App using MIT App Inventor & controlling arduino connected devices through App.

Project 5: Voice Controlled Mini Home Automation using Android Smartphone

Day 3

Understanding and Introduction to RPi

- What is SOC?
- Versions of Raspberry Pi & Their Difference
- Raspberry Pi 3
- Basics of Electronics
- Hardware Description
- Pin Configuration

OS Installation on SD Card

- Downloading Image
- Study Various Operating Systems Available
- Making SD Card: Formatting and Partitions
- Raspberry Pi SD Installer

GPIO

- Study GPIO Pins
- Libraries Using Git
- Configuring GPIO Pins

Pi using SSH

- Enabling SSH
- Logging in using Putty
- Run Basic Commands
- Use GPIO

Linux

- Understanding Linux
- File Structure
- Linux Commands
- Permissions

Using Python

- Understanding Python
- Condition Statement
- Loops
- Importing Libraries
- Functions

Project 6: LED Program with Raspberry Pi

Project 7: Controlling LED with a Switch using Raspberry Pi.

Project 8: Integrating IR Sensor with Raspberry Pi.

Day 4

Project 9: Integrating Temperature & Humidity Sensor with Raspberry Pi read Current Enviornment Values.

Project 10: Reading Environmental Values on Android Smartphone.

- Talking to your Android Phone with Raspberry Pi
- Connecting RaspberryPi with Mobile Device.
- The Android Mobile OS.
- Using the Bluetooth Module

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

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

Project 12: Send Sensor 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: Automatically Tweet Sensor Data on Twitter.

Project 14: Control Electronic Devices from anywhere across the world using

Day 5

Project 15: Sending Sensor Data to Cloud using Raspberry Pi. Introduction to MQTT & Communication protocol for IoT

- Understanding MQTT
- Difference between HTTP & MQTT
- Understanding MQTT Broker
- Understating Publish & Subscribe Methods

Project 16: Installing server on Raspberry Pi.

Project 17: Connecting Arduino with Raspberry Pi Server.

Project 18: MQTT Publish from Arduino.

Project 19: MQTT Subscribe from Arduino.

Duration : The duration of this certificate programme will be five consecutive days, with 6-7 hours session per day.