ELIGIBILITY

Eligibility: There are no prerequisites for joining these workshops. Anyone interested, can join this workshop. While a basic C Programming would be helpful, it is not compulsory.

W e b s i t e   **www.igitsarang.ac.in**

Email: **hodcsea@igitsarang.ac.in**

Fax: 06760240544

Mobile: 9861414972

For Details Contact:

Coordinators:

Faculty:

Mr.Sanjay Kumar Patra(09861382079)

Mr.Suvendu Kumar Jena(09438551505)

Students Coordinators:

1. Mr.T.Kartik(08895710832)

2. Ms.Santoshini Behera (08456889302)

REGISTRATION

Interested participants are required to send the registration form and deposit their registration fees on spot in cash only. One student can participate in both the workshops by paying required registration fees separately. One can opt for single workshop also. As the minimum participants are limited to 60 only first come first serve basis registration shall be confirmed. For confirmation in registration student may contact any of the faculty coordinators or student's coordinators on phone or email.

GENERAL INFORMATION

Accommodation will be provided to the out station participants at subsidized rate in hostel or institute cafeteria.

DEPARTMENT OF COMPUTER SCIENCE, ENGG & APPLICATIONS

INDIRA GANDHI INSTITUTE OF TECHNOLOGY, SARANG, DHENKANAL, ORISSA-759146

An NBA Accredited Government Institution and affiliated to BPUT, Rourkela, Odisha

Organizes

WORKSHOPS on

IoT and Data Analytics

Dates:

IoT: **27.2.2017 – 28.2.2017**

Data Analytics: **01.3.2017 – 2.3.2017**

Organised by:

DEPARTMENT OF COMPUTER SCIENCE, ENGG & APPLICATIONS, IGIT, SARANG

Dhenkanal, Odisha-759146

ABOUT THE INSTITUTE

India Gandhi Institute of Technology, Sarang is one of the premier government institutions in the state of Odisha since its inception in the year 1982, where opportunities thrive parallel with many of the apex professional colleges across the globe. A persistently evolving curriculum and learning by discovery and experience process developed by experts is the new approach of disseminating knowledge in this institute. The institute has recorded phenomenal progress in upholding the standards ever since its inception. A successful and consistent Industry-Academia interface has been established to facilitate the students and staff on all fronts such as Training, Conduct of Short Term and Long Term Courses, Testing, Hands-on Projects, Sponsored Research and Recruitment Drives etc.,. Students have realized that engineering profession occupies a pivotal role in the industrial and business organizations. Permanent Affiliation, NBA Accreditation stands as testimony.

LOCATION AND ACCESSIBILITY

The institute located in a sprawling campus of 179 acres on the side of national highway (NH-23) and on the bank of river Brahmani near Talcher town. The institute is well connected by rail, road and air. It is 12 Km from Talcher Road railway station and 121 Km from Bhubaneswar. Buses ply frequently from all parts of the state.

OBJECTIVE

Technology marches ahead exponentially with time. The current trends in the fields of engineering and technology are significant for the improvement in quality of life. Getting updated with the underlying principles of different fields of engineering and technology will play a dominant role in shaping the minds of the emerging engineers and professional.

Workshop Highlights

1. Internet of Things (IoT)

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 environment for creating your own embedded projects at low cost.
• How to connect your Arduino with your Android phone. • How to send data to the Internet and talk to the Cloud. • How to update sensor readings on Twitter (Social Networking Sites). • Control a Relay Switch by texting from your Phone

Course Content

Day 1

* Introduction to the Internet of Things • The Internet of Things • The Basics of Sensors & Actuators • Basic IOT Architecture
* 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
Project 1: Simple Blink program using Arduino's onboard LED.
Project 2: Control DC Motor and Buzzer using Arduino.

Project 3: Read sensors values and control multiple electronic devices. Collecting readings from LM35 temperature sensor to control LED's and Buzzer . Vary potentiometer value and control DC Motors. Vary LDR sensor values and control Buzzer.
Project 4: Controlling electronic devices using webpage
Connecting Arduino to Wifi module . Establish Localhost connection between webpage and WiFi module. Send data from HTML Webpage and control various electronic devices.

Day 2:

Project 5:
Upload sensor data on Cloud based Service. Establishing connection between WiFi module and Cloud Services . Connecting electronic devices to Internet. Plot and read sensor data anywhere in the World.

Project 6:
Control electronic devices using Android Smartphone. Connecting Android Smartphone to WiFi module,Sending data from Android Smartphone to WiFi module via WiFi hotspot control LED's, Motors, and Buzzer.

Project 7:
Integration of Social Media
Connect Electronic devices to Internet and post updates on Twitter. Send sensor values to Twitter. Update cloud based services by sending tweets using twitter.

2.Data Analytics

Day 1 - Session 1
Fundamental of MATLAB,Variable creation, Arithmetic operation Array and matrix, Control Structure in MATLAB, Function Declaration in MATLAB, Data Visualization in MATLAB, 2D matrix visualization, 3D matrix visualization, Basic Mathematical & Scientific Computation, Data Import & Export in MATLAB

Day 1 - Session 2
Introduction to Machine Learning, Supervised & Unsupervised Learning, Regression & Classification Problem, Linear Regression in MATLAB, Simple Linear Regression, Dataset Array for Input & Response Data, Data Fitting Method, Fitting Model to Data, Regression Tree, Training a Regression Tree, Prediction using Classification & Regression Trees, Improving classification & Regression Trees

Day 2 - Session 1
Multiple Linear Regression, Stepwise Regression, Multivariate Regression, Ridge Regression, Mixed Effects, Cross Validation & Bootstrap

Day 2 - Session 2
Cluster Analysis, Hierarchical Clustering, k-Means and k-Medoids Clustering, Gaussian Mixture Models, Nearest Neighbors Hidden Markov Models, Cluster Visualization and Evaluation
The trainer can take above content in MATLAB.

Resource Persons:

Instaedify

Corp Office: 10/A Insta Group, Arjun Plaza, Opp Café Coffee Day, Virar West, Maharashtra 401303
Tel. No: 02506520520

DEPARTMENT OF COMPUTER SCIENCE, ENGINEERING & APPLICATIONS
INDIRA GANDHI INSTITUTE OF TECHNOLOGY, SARANG, DHENKANAL, ORISSA-759146

An NBA Accredited Government Institution and Department, affiliated to BPUT, Rourkela, Orissa

Workshops on IoT & Data Analytics
27.2.2017-28.2.2017 and 1.3.2017.2.3.2017
REGISTRATION FORM

Name:

Class/Branch:

College:

Address for Communication:

Phone:

e-mail :

Accommodation required: YES / NO in the students' hostel

Participation in   (tick against appropriate Item)

1. IoT	27.02.17 - 28.02.17	
2. Data Analytics	01.03.17 - 02.03.17	

Details of the Registration:

For IoT: Rs 1100 (Institute Student) Rs.1200(Outside Institute student)

For Data Analytics: Rs 1100 (Institute Student) Rs.1200 (Outside Institute student)

Date:

Signature of the Participant

Signature of the Principal/ HOD with stamp