Short Term Course
on

Internet of Things: Architectures, Protocols, Applications and security concerns

14th - 18th Dec, 2020

Sponsored by

TEQIP, IIEST

Organized by

Department of Computer Science &Technology,
IIEST, Shibpur

Eligibility

Faculty Member, Research Scholar from Engineering Institutes or Engineer from Industries with Computer Science/ Electronics & Comm./ IT/ Computer Application background.

Mode of Selection

Application will be accepted on a first come first serve basis. Number of participants is limited to 30.
The completed registration form must reach the address for correspondence on or before 01.12.2020.

Mode

Virtual/On-line

Important Dates

- Last date for application: **1st Dec, 2020**
- Intimation to applicants**:** **7th Dec, 2020**

Sipra Das Bit, Dept. of CST — **Coordinator**

Santi Prasad Maity, Dept. of IT — **Co-Coordinator**

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Registration

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About IIEST

On 24th November, 1856, The Civil Engineering College, Calcutta was opened to impart technical and scientific education. From 1865-79, it functioned as an adjunct of Presidency College, Calcutta. From 1880-1887, it was shifted to the site of Bishops College at Shibpur and was called Government Engineering College. In 1920, it came to be known as Bengal Engineering College. In 1993 the College was given the status of a Deemed University. In 2004, it was further upgraded to the Bengal Engineering and Science University. In recognition of its immense contribution to technical education, in 2014, the Institute was transformed to Indian Institute of Engineering Science and Technology, Shibpur, an Institute of national importance.

About the Dept

The Department of Computer Science and Technology (CST) was established in 1982. Since its inception, the department has played an important role in developing a vibrant and forward-looking academic environment. It can boast of a team of highly competent faculty members. Currently, the department offers B.Tech, M.Tech, and PhD programs. The department always maintains state of the art infrastructure and facilities for advanced research and consultancy. Currently, the major thrust areas of research of this department are IoT, Wireless network, machine learning, image processing, VLSI Design and Testing.

About the Course

The Internet of Things (IoT), myth or reality, promises to connect numerous heterogeneous physical objects worldwide through internet to provide various smart services leading to massive gains in efficiency, business growth and quality of life. Driven by lower cost and size, and higher potency and efficiency of devices capable of sensing, actuating, processing and communicating, the huge potentials of IoT are envisioned that promise dramatic increase in our ability to embed intelligence in things and in the environment. The evolution of this new internet landscape bridges the gap between the physical and digital worlds. It is enabling network based integration pervade into all aspects of engineering, medical and social systems, thus allowing real-time monitoring and control of different phenomena and processes. Thus it has become an integral part of diverse technologies emerging in their names such as Smart Cities, Smart Grids, Smart healthcare, Smart Vehicles, and modern manufacturing (Industrial IoT). IoT expects to be made possible through the synergistic integration of multiple technologies, ranging from wireless sensor networking, power harnessing, advanced sensors, power efficient architectures, semantic analysis, communication networking to the emerging fields like blockchain, machine learning, 5G etc. Many IoT related standards and associated security solutions are emerging. Privacy concerns have to be addressed at multiple levels to gain user trust. Ubiquitous Internet access allows the utilization of cloud resources on demand for processing as well as storage of IoT information for learning and analytics. Fog computing is aimed at extending computing closer to IoT devices. It is needless to mention that the technologies in IoT are in under intensive development phase. Several working groups are working to cope up the challenges, to meet the supports and standardization in integration. To this aim, this course will provide an overview on technologies, protocols, standards, and applications enabling IoT as well as security solutions and privacy issues.

Eminent speakers from Academic institutes, Research Lab and industries will cover the course.

CourseCoverage

What is IoT? Why IoT? Evolution

- IoT Building Blocks
- Networking and Communication
  - Enabling Technologies
  - Cognitive radio in IoT
  - Machine Learning in CR-IoT
- Architecture and Challenges: Middleware
- Protocol Stack: TCP/IP vs. IoT, Web vs. IoT
- Cloud based IoT Framework
- Energy management in IoT
- Industrial IoT
- Security:
  - Data Confidentiality, Privacy, Trust
  - IoT & Blockchain
- Applications, Case Study
- Open Research Issues