

International Summer and Winter Term
on

**Enabling Internet of Things with
Cloud and Big Data Networking**

Organized by: IIT Kharagpur
Co-sponsored by: ITRA

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Faculty

International Faculty:

- 1. Prof. Dharma Agrawal**
Department of EECS, Chartered Fellow-NAI
Fellow IEEE, ACM, AAAS, WIF, OBR Distinguished Professor
University of Cincinnati
- 2. Prof. Bharat Bhargava, Fellow IEEE**
Department of Computer Science
Purdue University

National Faculty:

- 1. Prof. Bhabani P. Sinha, Fellow IEEE**
Advanced Computing and Microelectronics Unit, Indian Statistical Institute (ISI) Kolkata
- 2. Prof. Nabanita Das, Senior Member IEEE**
Advanced Computing and Microelectronics Unit, Indian Statistical Institute (ISI) Kolkata
- 3. Prof. Sudip Misra, Senior Member IEEE**
School of Information Technology, Indian Institute of Technology Kharagpur

Overview

Cloud computing and the big-data analytics are the two new technologies that are evolving across the globe. IT organizations are moving towards the concept of seamless computing, and real-time processing of data with high degree of resource scalability. Moreover, cloud technology is continuously improving in security and data integration techniques. Business organizations are more concerned with the growing scope of data analytics, rather than selective storing of data from diverse resources. Thus, big-data and cloud technologies go hand-in-hand and as a result, most of the organizations are inclining towards cloud delivery models, in addition with the support of big-data analytics, especially for mission-critical workloads.

The collaboration of these two technologies enable the scope of another emerging technology – the Internet-of-Things (IoT). With the help of cloud and big-data networking, today it is possible to envision pervasive connectivity, storage, and computation, which, in turn, gives rise to different IoT solutions from environmental sensing to public safety. IoT-based applications such as innovative shopping system, infrastructure management in both urban and rural areas, remote health monitoring and emergency notification systems, and transportation systems, are gradually realizing the long-awaited dream of smart-cities. Hence, proper focus on Internet-of-Things, with the assistance of cloud and big-data technology, is of utmost importance in today's modern world.

Details Content of the course

S. No.	Content
1	Introduction and Application of Wireless Sensor Network (WSN)
2	Medium Access in WSN
3	Protocols of WSN
4	Basics Introduction of different Sensors
5	Components of WSN (Real Test Bed)
6	Working Procedure of WSN (Real Test Bed)
7	Description and Prototype of WSN
8	Fundamental Cloud Computing Terminology and Concepts
9	Basics of Virtualization
10	Specific Characteristics that Define a Cloud
11	Understanding Elasticity, Resiliency, On-Demand and Measured Usage
12	Benefits, Challenges and Risks of Contemporary Cloud Computing Platforms and Cloud Services
13	Software as a Service (SaaS), Platform as a Service (PaaS) and Infrastructure as a Service (IaaS) Cloud Delivery Models
14	Public Cloud, Private Cloud, Hybrid Cloud and Community Cloud Deployment Models
15	Service Level Agreements (SLAs) for Cloud-based IT Resources
16	Introduction of Big Data
17	Characteristics, Architecture, and Application of Big Data
18	History, Introduction, and Applications of Internet of Things (IoT)
19	Addressing in IoT
20	Convergence of Cloud and Big Data in IoT