Course Fee* :

Students: Rs. 3000
(Undergraduate/Postgraduate/Doctoral)
**Post Doctoral Fellows / Faculty Members /
Scientists / Government Employees: Rs. 5000
Industry Participants: Rs. 10000
Sponsors: Rs. 15000 (for two persons)**
* Includes meals (lunch, snacks and tea on all days) and course material.

Accommodation:

Accommodation may be provided based on request and availability, in the hostel or guest house of the institute on payment basis (in addition to the course fee mentioned above).

Bank Transfer Details:

The fee should be paid through online bank transfer or demand draft (drawn in favour of Registrar, IIT Indore, payable at Indore). The details for online payment / bank transfer are given below:
Name of Bank: Canara Bank
Branch: IIT Indore, Simrol Campus
Account Holder: Registrar, IIT Indore
Account no.: 1476101027440
IFSC Code: CNRB0006223

After the online bank transfer of the course fee, please ensure that you retain a copy of the transaction receipt and email the same along with a scanned copy of the duly filled registration form to the Course Coordinator (Prof. P.K. Upadhyay).

Deadline:

Extended to March 06, 2018
(for sending the registration form).

Important:

Limited seats are available in the course. Interested participants must enroll well in advance and not wait for the deadline.

Resource Persons

- Prof. Vimal Bhatia
- Prof. Prabhat Kumar Upadhyay
- Prof. Bhupesh Kumar Lad
- Prof. Abhishek Srivastava
- Prof. Mukesh Kumar
- Prof. Abhinav Kranti
- Prof. Vivek Kanhangad

Scope

This Continuing Education Programme (CEP) is intended to help academic/industry personnel to update their knowledge on the emerging concepts, techniques and cutting-edge research in ICT convergence. Broadly, CEP addresses the following topics with dedicated laboratory sessions:

- Devices for more-Moore era
- Sub-thermal off-to-on switching
- Capacitorless dynamic memories
- On-chip optoelectronic devices
- Nanophotonics and optical communication
- Visual and audio signal processing in ICT
- Protecting ICT systems through Biometrics
- Cooperative and cognitive radio
- Energy harvesting and green ICT
- Enabling technologies for 5G
- Visible light communications
- Software defined radio
- Internet of Things (IoT)
- Industrial Internet of Things (IIoT) based collaborative manufacturing
- Essence of ICT entrepreneurship

→ **Laboratory sessions**
→ **In-depth course modules**
→ **Interaction with experts**

Continuing Education Programme in

Information Communication Technologies (ICT): Concepts, Implementations and Prospects

March 8th-10th, 2018

Contact: Prof. Prabhat K. Upadhyay
Room 311-Pod 1A, Electrical Engineering,
Indian Institute of Technology Indore,
Simrol, Indore 453552, Madhya Pradesh
Phone: +91-7324-306591
Fax: +91-731-2438709
Email: pkupadhyay@iiti.ac.in

Indian Institute of Technology Indore

Continuing Education Programme (CEP) in
Information Communication Technologies: Concepts, Implementations and Applications

March 8th-10th, 2018

Registration Form

Name:_____

Designation:_____

Affiliation:_____

_____

Address for communication (with pin code):

_____

_____

_____

_____

Mobile no:_____

Email id:_____

Gender: _____

Fee paid: Rs. _____

Payment details:_____

_____

Date:_____

Signature:_____

(Please send a scanned copy of the filled in registration form and proof of payment via email to the course coordinator at pkupadhyay@iiti.ac.in by **6th March 2018**.)

Salient Aspects of CEP

In today's world, Information and Communication Technology (ICT) has become an integral part of our lives. Recently, we have witnessed a rapid evolution of ICT in enriching our lives by catering to a plethora of services such as entertainment, e-commerce, and e-health. In the coming years, we are progressing towards an era of Internet of Things (IoT) in which real world physical objects will be connected over the internet. While the advantages of IoT are numerous, it also brings about incredible research challenges.

The impact of fundamental research on semiconductors for ICT is very important and consistently evolving. The semiconductor industry has been continuously scaling the design rules to achieve improvement as projected by Moore's Law. Metal Oxide Semiconductor Field Effect Transistors (MOSFETs), being the fundamental building blocks for modern electronics, have evolved over the years to achieve the desired functionality. The need to extend functionality and scale in the nanometer regime has resulted in the evolution of devices for more-Moore era, and that too, with steep switching in which FETs can switch from state 0 to state 1 within few millivolts of gate bias. Also, the overall performance of a system which is based on the interaction between processor and memory units requires focus on memory design for data intensive applications. Dynamic Random Access Memory (DRAM) which has been utilized primarily as main memory, has seen wider application with use in various smart products and IoT applications. In addition, compact optoelectronic devices based on semiconductors/dielectrics promise the realization of various functions in optical communication, optical interconnects and on-chip computing. Advances in nanofabrication have provided an additional degree of freedom to tune the properties of the devices to the desired levels.

Wireless communication is one of the most vibrant and fastest growing areas in the ICT sector. We have witnessed the technology creation, revolution and evolution of mobile telephony from 1G to 4G. The 5G will be a new kind of network that can support a vast diversity of devices with unprecedented scale, speed, and complexity. Thus, 5G would mark the dawn of a new era in mobile connectivity and ICT will perhaps be the most important sector in the coming years .

In light of the above, this course is designed to showcase converging concepts, devices, and techniques that are fundamental for various ICT applications starting from semiconductors, devices for logic and memory and optical communication. It will also explore biometric systems, their design and evaluation for protection of ICT systems. In addition, CEP will discuss Machine Learning algorithms in the constrained environs of an IoT node. The idea being to facilitate instantaneous decisions and feedback mechanisms whilst cutting down on the latency associated with a back end cloud.

During the course, basics of Software Defined Radio (SDR) will be discussed and hands-on project on implementation of IEEE protocols and others will be demonstrated. Moreover, various aspects of ICT applications in manufacturing (i.e. Industrial IoT) viz., cyber cloning of machines, machine-to-machine and machine-human communication, collaborative learning, intelligent decision making, resource sharing, will be discussed to hypothesized a novel manufacturing paradigm called collaborative manufacturing.

All interested participants should mark the dates (8–10 March 2018) on their calendars and be prepared for an exciting programme that would cover concepts, implementations and prospects of ICT.