



GLOBAL INITIATIVE OF ACADEMIC NETWORKS

Teaching faculty

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Suwon
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Course coordinator

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Discipline of Computer Science &
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Indore
India

A TEN DAY COURSE ON

UBIQUITOUS COMPUTING

JANUARY 15 - 26, 2018

Under the aegis of
MINISTRY OF HUMAN RESOURCE
DEVELOPMENT
GOVERNMENT OF INDIA



Discipline of Computer Science & Engineering
Indian Institute of Technology Indore
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Course overview

Ubiquitous computing (UC) is often aptly described as the opposite of virtual reality. Virtual reality is about immersing the human being in the virtual world, ubiquitous computing is about immersing computing systems in the real world. The common mode of accessing computing systems is through devices both desktop and hand-held. Ubiquitous computing on the other hand aims at a scenario where computing systems and their influence is all around us without the need for an explicit device. The modern IT infrastructure is increasingly built around the concept of UC. UC integrates numerous heterogeneous computing devices into everyday environments. These devices are portable and embedded in our environments, and they collaborate with each other to provide intelligent services to the users. The services should perceive not only the user requirements but also the context of the environment. This course introduces the key concept of information and communication technologies used to implement the ubiquitous environment. The main topics are wireless networking allowing information sharing anytime anywhere, distributed software technology providing customised services, various u-devices such as RFID/u-Tag, ubiquitous society and service issue, and new computing paradigms such as wearable computing and pervasive computing.

Course objectives

- ❖ Understanding the implications of the term ubiquitous computing
- ❖ Understanding the current state of the art of the technologies supporting ubiquitous computing
- ❖ Appreciating the challenges that exist in achieving ideal ubiquitous computing scenario
- ❖ Gaining an appreciation of various application domains and utility of ubiquitous computing



Broad topics

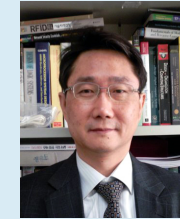
- ❖ **Brief history:** technologies that were precursors to the current day ideas of UC
- ❖ **Applications:** evolution of various ubiquitous computing projects
- ❖ **Smart distributed systems:** evolution of distributed device interaction models and their usage in UC, protocols involved
- ❖ **Human-Computer interaction:** The human in the loop, challenges, unpredictability of human beings, specific GUIs, implicit HCI
- ❖ **Tagging, sensing, and controlling:** tagging technologies, sensors and networks, actuators
- ❖ **Context awareness:** Who are you? Where are you? What is around you? Life-cycle of CA
- ❖ **Next generation of ubiquitous systems:** new breed of ubiquitous computing such as CPS, M2M, IoT

Target audience

The course is intended to cater to an audience spanning undergraduate students uninitiated in the area of ubiquitous computing to experts in the area with industrial experience. The aim is to make participants affluent in ubiquitous computing to the extent that they are in a position to pursue independent research. More specifically the course is meant for:

- ❖ Undergraduate students of Computer Science and related areas
- ❖ Graduate (Masters' and Ph.D.) students in Computer Science and related areas
- ❖ Researchers, scientists, and faculty members working in related areas
- ❖ Personnel from the industry working in related areas

Faculty information



Prof. Hee Yong Youn has a Ph.D. degree in Computer Engineering from the University of Massachusetts at Amherst. He served as an Associate Professor in the Department of Computer Science and Engineering at the University of

Texas at Arlington until 1999. He

is presently Professor at the College of Software, Sungkyunkwan University, Suwon, Korea, and Director of the Ubiquitous Computing Technology Research Institute. He has been Consulting Professor of Software R&D Center, Device Solutions, Samsung Electronics, Korea. His research interests include distributed and ubiquitous computing, IoT, and intelligent systems. He has published more than 500 papers in international journals and conference proceedings. Dr. Youn has served as General Chair of IEEE PRDC 2001, International Conference on Ubiquitous Computing Systems (UCS) in 2006 and 2009, UbiComp 2008, CyberC 2010, Program Chair of PDCS 2003 and UCS 2007. Dr. Youn is a Senior Member of the IEEE Computer Society.



Dr. Abhishek Srivastava is an Associate Professor in the Discipline of Computer Science & Engineering, IIT Indore. He has a Ph.D. degree from the University of Alberta, Canada. His research interests lie in the area of technology agnostic machine to machine

communication. More recently, he has been interested in extending these ideas in the realm of Internet of Things and Ubiquitous Computing environments. He is the coordinator for this GIAN course.



Course schedule

January 15, 2018	Introduction, Brief history
January 16, 2018	Key features of UC
January 17, 2018	Applications
January 18, 2018	Smart distributed systems
January 19, 2018	Human computer interaction
January 22, 2018	Tagging, sensing, controlling intelligent systems
January 23, 2018	Context awareness
January 24, 2018	Intelligent Systems
January 25, 2018	Next generation Ubiquitous Systems
January 26, 2018	Challenges & Issues, Conclusion

Registration fee

Participants from outside India	USD 500
Participants from the industry/corporate sector within India	INR 10,000
Participants from academia/ research establishments within India	INR 2,500
Student participants from within India	INR 1,000

Application procedure

Step 1: Payment of registration fee

Payment of registration fee may be done online through NEFT transfer or offline through drawing a Demand Draft. Details for doing the same are as follows:

❖ NEFT transfer:

A/C No: 1476 1010 27440
Beneficiary name: Registrar, Indian Institute of Technology Indore
Bank: Canara Bank
Branch: IIT Indore, Simrol
IFS Code: CNRB0006223
MICR Code: 452015003

❖ Payment through Demand Draft:

Demand Draft should be drawn in favour of "Registrar, IIT Indore", payable at Indore.

Please send the Demand Draft at the following address. Do also send a scan of the Demand Draft at the email address provided below:

Dr. Abhishek Srivastava
Associate Professor
Discipline of Computer Science & Engineering
Indian Institute of Technology Indore
Simrol, 453 552, Indore
Email: asrivastava@iiti.ac.in
Phone: +91-7324-306530

Step 2: Registration

After completing the payment of registration fee, please fill out the application form available at: <http://gian.iiti.ac.in/register.php>
Offline registration may also be done by filling out the adjoining form and sending it along with the Demand Draft.

GIAN course on Ubiquitous Computing

January 15 - 26, 2018

Registration Form

Personal Details:

Name of the Applicant :

Designation:

Affiliation:

Address for Correspondence:.....

Phone:.....

E-mail:.....

Details of Bank Draft:

Draft number:

Bank Name:

Branch Name:.....

Amount Rs.Dated/.....

Accommodation Required:

YES : No:

Note: Accommodation can be arranged on payment basis.

(Signature of Candidate)

Note: A photocopy of this form can also be used for the registration .