Towards 5G Networks

12 Sep 2016 to 23 Sep 2016

Keywords: 4G/ 5G networks, small cells, heterogeneous networks, D2D and M2M communication, architectures, protocols and standards, spectrum efficiency.

Overview

New generation of cellular system has been appearing every decade since the introduction of 1G systems dating back to 80's. Changes to the wireless technology have been much more rapid in the past one decade. Each generation is characterized by the change of network architecture and technology adaptation. The mobile network has evolved from voice centric to high speed data centric applications.

Current trends demand that the future 5G mobile networks have to address challenges such as higher capacity, higher data-rate coupled with lower end-to-end latency, massive device connectivity, reduced capital and operation cost and longer battery life. The 5G roadmap proposes to respond to the traffic volume explosion with 1000 times higher mobile data volume per area, 10 to 100 times higher number of connected devices, 10 to 100 times higher user data rate, ten times longer battery life for low-power massive machine communication and five times reduced end-to-end latency. These diverse requirements can only be met through a combination of evolved existing technologies and new radio concepts including massive MIMO, ultra-dense networks, direct Device-to-Device communication, massive machine communication, and other.

Objectives of the course include

- ➢ provide an overview of evolution of mobile networks with detail description of 4G networks
- ➢ expose participants to the present LTE rollout all over the world
- ➢ to outline major radio and core network concepts of upcoming 5G networks

Modules and Duration	12 Sep 2016 to 23 Sep 2016 **Number of participants for the course will be limited to fifty.**
You Should Attend If…	▪ you are a communication engineer or research scientist interested in wireless communication design and development. ▪ you are researcher in wireless communication for next generation. ▪ you are a student or faculty from academic institution interested in learning/ take up research in wireless communication for next generation.
Fees	The participation fees for taking the course is as follows: **Participants from abroad : US $500** **Industry/ Research Organizations: ₹ 8000 (Rs. 5000/- for one week program)** **Academic Institutions: ₹ 3000** **Students: ₹ 1500 (Students will be refunded the registration fee on attending complete course. The course can be used for credit as per MHRD guidelines)** The above fee include all instructional materials, computer use for tutorials and assignments, laboratory equipment usage charges, 24 hr free internet facility. The participants will be provided with accommodation on payment basis.

The Faculty

Robert Bestak obtained the PhD degree in Computer Science from ENST Paris, France (2003) and MSc degree in Telecommunications from Czech Technical University in Prague, CTU, (1999). Since 2004, he has been an Assistant Professor at Department of Telecommunication Engineering, Faculty of Electrical Engineering, and CTU. He is the Czech representative in the IFIP TC6 working group. He has served as Steering and Technical Program Committees member for numerous IEEE/IFIP international conferences (Networking, WMNC, NGMAST, etc.) and he is member of editorial board of several international journals (Electronic Commerce Research Journal, etc.). He participated in several national, EU, and third party research projects (FP7-ROCKET, FP7-TROPIC, etc.). His research interests include 5G networks, spectrum management and big data in mobile networks.

Prof Sarat Kumar Patra, is a Professor at National institute of Technology, Rourkela since 2006. He obtained his PhD degree from University of Edinburgh, UK in 1998. His research interests include wireless and mobile communication, optical communication, cognitive radio, fuzzy systems.

Course Coordinator

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http://www.gian.iitkgp.ac.in/

Registration From

GIAN Communication: Towards 5G Networks

International Faculty Name: Robert Bestak (Department of Telecommunication Engineering; Czech Technical University in Prague)

India Coordinator: Prof sarat Kumar Patra, Electronics and Communication, NIT Rourkela

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Participants Details:

1. Name:
2. Affiliating Organization:
3. Organization Type: Industry/ Academic Institution / Student
4. Payment Details
    I.   Amount:
    II.   DD No: Date:
    III. Bank Name: Place:

    (For payment DD should be payable to "**Continuing Education, NIT Rourkela**" Payable at **SBI, NIT Campus, Rourkela (Branch Code: 2109)**. Alternatively, NEFT Details: Account No: 10138951784; NEFT/ RTGS Code: SBIN0002109)

5. Accommodation Requirement: (Y/N) (Tick the type of accommodation required)
    i.   Institute Guest House (South Block): Price/Day: ₹900/ ₹600
          (a)Single   (b)Twin Sharing

    ii.   Institute Guest House (North Block): Price/Day: ₹450/ ₹300
          (a)Single   (b)Twin Sharing

5. Declaration:
   I agree to abide by the regulation for course under GIAN project. If selected, I agree to attend the course.

   Signature of the Participant
   _____
   You are requested to send the scanned copy of the signed registration form along with scanned copy of payment to the coordinator. The originals to be sent to:

   Prof. Sarat Kumar Patra; Department of Electronics & Communication, National Institute of Technology; Rourkela, Odisha, India, Pin: 769008
   Emal: skpatra@nitrkl.ac.in/ patra.sarat@gmail.com Phone: 0661 2462457/ 09437221578
   (Last date for Registration: 25 Aug 2016)