Research Challenges in Wireless Technologies for 5G

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Overview

It is well recognized that the need for fast access to information and data forms an integral part of life in the present day "digital world". The foremost requirement of 5G wireless and mobile communication networks is the ability to support transmission speeds of the order of 100s of Mb/sec to 1Gb/sec. Such transmission speeds associated (at times) with very low latency are a must for satisfying the stringent QoE (Quality of Experience) requirements of upcoming applications. The networks of future (towards 2025) would thus be required to cater for an overall 1000x capacity increase in comparison to the systems deployed during the earlier part of the present decade. These objectives will be achieved through the introduction of new technologies both in Radio Access Networks (RAN) and in Core Network (CN). Additionally, judicious combinations of newly designed 5G technologies and enhanced versions of the present 3GPP (LTE Advanced) and IEEE 802.xx family of technologies are expected to prove useful in efficiently meeting the above requirements.

The proposed course aims to offer a balanced technical content to suit the requirements of experts from both academia and industry. Hands-on exercise work related to the performance evaluation of proposed technologies will be included.

Modules	➢ 5G Relevant Wireless Network Performance Metrics; ➢ Advanced MIMO & Massive MIMO (Large Scale Antenna Systems); ➢ Error Correction Coding for Ultrareliable Transmission in 5G; ➢ Heterogeneous Networks (HetNets) in 5G; ➢ Very High Bit Rate Coverage in 5G with mmWave Technology; ➢ Challenges of Integrating IoT Solutions in 5G
Duration	**28th August to 1st September, 2017** Number of participants for the course will be limited to fifty.
You Should Attend If you are…	▪ Practicing Engineers, Business Executives (Tech) as well as researchers from vendor, operator and government organizations including R&D laboratories. ▪ Graduate and Post-graduate students (BTech/MSc/MTech/PhD) as well as Faculty from academic institutions and technical institutions.
Fees	The participation fees for taking the course is as follows: **Participants from abroad : US $100** **Industry / Research Organizations: Rs 5000** **Academic Institutions: Rs 2500** **Research Scholars/Postgraduate students: Rs 1000/-** The above fee includes all instructional materials, computer use for tutorials and assignments, laboratory equipment usage charges, free internet facility, and lunch+tea on all days. The participants will be provided with accommodation on payment basis.

The Faculty

Dr Vinod Kumar has 35+ years of experience R&D in mobile communication systems. During 27 years of his tenure in Alcatel-Lucent he has initiated and contributed to multiple research projects in 2G to 5G technologies namely GSM, GPRS, EDGE, UMTS, HSPA, LTE, LTE A systems and in wireless ad-hoc networking. Additionally, he has been involved in standardisation and marketing support activities and in Patent Management related to above technologies. Dr Kumar is Director (retd) in Wireless Research programme in ALU Bell Labs, France.

Prof. V Sinha has more than 50 years of progressive professional experience in teaching and research. Major part of his professional career has been at the Indian Institute of Technology, Kanpur in various academic capacities. He owns a DSc in Electrical Engineering from the University of Ljubljana, Slovenia. He has the experience of working in Europe, South America as well as in North America, Sao Paulo, Ljubljana, U.S.A., Germany and Switzerland. His areas of interests are technical education, mobile communication, error control coding, satellite communication and telematics.

Dr Vijay Janyani completed his Bachelor's and Master's degrees in EC Engg. from MNIT Jaipur and PhD from University of Nottingham, UK. He has over twenty years of teaching and research experience and is currently working at the Department of ECE at MNIT Jaipur. He is a recipient of Derrick Kirk Prize of University of Nottingham UK for excellence in research, Commonwealth Ph.D. Scholarship of British Council UK, Career Award for Young Teachers of AICTE, New Delhi. Dr. Janyani is SMIEEE, LFOSI, SMOSA, SMSPIE, and FIETE.

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For Registration:

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

For more details and how to pay fee:

http://mnit.ac.in/news/news.php?news_id=2072