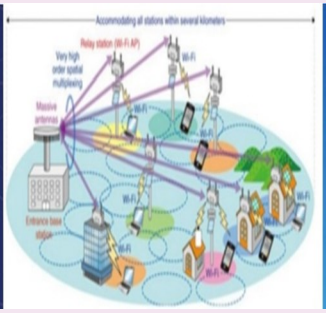
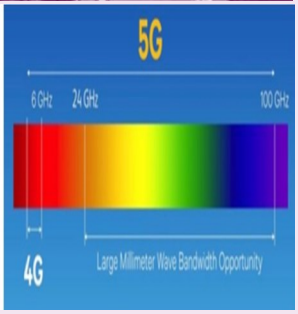
Organized by Prof. Aditya K. Jagannatham, EE Department , IIT Kanpur in association with E & C Dept., Ramaiah Institute of Technology, Bengaluru

July 8th - 14th , 2019

One Week MATLAB Project Course on 5G Wireless Technologies: Massive MIMO, mmWave, NOMA, Full Duplex, OFDM/FBMC, NB-IoT





Important Dates

Course Dates
July 8th - 14th, 2019

Last Date for Registration
June 24th, 2019

Venue

Seminar Hall - II,
Lecture Hall Complex -I (LHC-I),
Ramaiah Institute of Technology
Mathikere, Bengaluru-560054
Karnataka

Contact

Prof. Aditya K. Jagannatham
Department of
Electrical Engineering
IIT Kanpur
Kanpur 208016
UP, India

E-mail

5G.Bengaluru@gmail.com

This is the first comprehensive course over one week that covers all the major 5G technologies – ***Massive MIMO, Millimeter (mm) Wave MIMO, Non-Orthogonal Multiple Access (NOMA), Full Duplex (FD), OFDM/ Filter Bank Multi-Carrier (FBMC) and NB-IoT***. Massive MIMO technology significantly enhances the throughput of current wireless systems and also has the ability to support a large number of users, while mmWave technology of the future exploits large bandwidths in the mmWave band (30 – 300 GHz), to achieve up to 100X scaling in data rates. NOMA supports the massive connectivity and low latency required for IoT/ M2M communication through non-orthogonal transmission. FBMC that has sharp subcarrier filters enables broadband communication with low complexity and Full Duplex opens up the possibility of simultaneous transmission/ reception on the same frequency at the same time, thus effectively doubling the spectral efficiency. Collectively, these cutting edge technologies enable the twin promises of 5G – Ultra high data rates to the tune of 10 Gbps with Massive device density.

The course will cover the salient technology aspects and challenges of all the 5G technologies including Precoding/ Combining for Massive MIMO, Hybrid Signal Processing, Beamforming for mmWave, MIMO-FBMC Transceiver Techniques and Equalization. This will be followed by Outage Analysis and Optimal power allocation for NOMA, self-interference cancellation for Full Duplex and overview of the 5G NB-IoT, NR standards. The aim of this course is to introduce the latest research and developments in all the major 5G technologies together with practical insights to participants at all levels. The final two days will focus on hands on MATLAB implementation of the various 5G technologies. Eminent experts from industry will deliver invited guest lectures on the practical aspects of 5G technology development and deployment.

Target Audience

- Ph.D. scholars pursuing research in 5G technologies
- M.Tech/ B.Tech students undertaking thesis/ projects in 5G technology
- Faculty members of Engineering Institutions/ Universities
- Engineers from Wireless Industry and R&D Organizations

For more details and registration information, visit the website
http://www.iitk.ac.in/mwn/BANG5G/