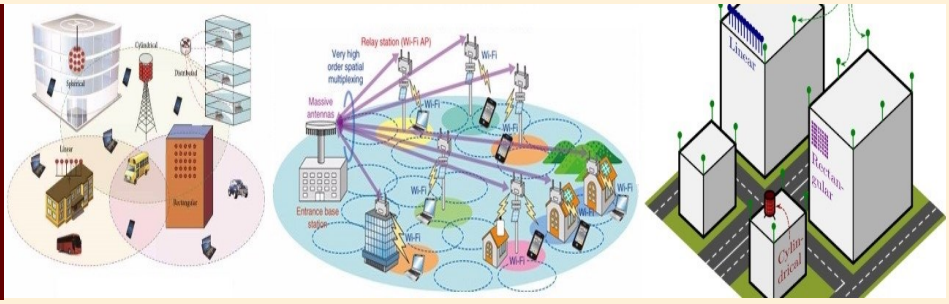
Organized by Department of Electrical Engineering, IIT Kanpur
January 28th- 30th , 2017

Short Course on Signal Processing for 5G Massive MIMO Wireless Systems



Massive MIMO is a cutting edge technology for future 5G wireless networks. The large number of antennas in a Massive MIMO system significantly enhances the throughput of current wireless systems and also enables them to support a large number of users. Other features of Massive MIMO include simplified user scheduling leading to improved spectral efficiency and resilience to intended/unintended jamming. However, the challenges in realizing this technology are immense. It requires the development of low cost RF chains for the large number of antennas, low complexity algorithms for optimal decoding, and efficient schemes for channel estimation, feedback and precoding. Further, the problem of pilot contamination arising from pilot reuse can also lead to a significant degradation of the quality of the channel estimate, which subsequently affects the decoding performance.

This course is specifically intended to provide engineers, faculty members of engineering colleges and graduate students pursuing Ph.D. in wireless communications with an in depth technical exposure to 5G Massive MIMO wireless communications. Further, a few interested undergraduate students with good academic record can also be accommodated. The modular approach will provide the participants with a comprehensive treatment of the theory behind Massive MIMO such as channel hardening, capacity, spatial modulation, low complexity decoding, pilot contamination etc. All the classes will be conducted in "classroom" style towards building up the various theoretical aspects beginning with fundamentals, together with problem solving sessions to further enhance and consolidate understanding. Also, a MATLAB/ SIMULINK demonstration module will introduce the participants to the practical implementation and simulation aspects of such systems.

Target Audience

- Ph.D. scholars pursuing research in Wireless Technologies
- M.Tech/ B.Tech students doing thesis/projects in Wireless Technologies
- ECE/EEE Faculty of Government and Private engineering colleges/ universities
- Engineers from Wireless Industry and R&D Institutions

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

Important Dates

Course Dates
January 28th - 30th, 2017

Last Date for Registration
January 9th, 2017

Venue

Seminar Hall,
Pioneer Batch Building,
Visitor's Hostel,
IIT Kanpur

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