



विद्युत अभियांत्रिकी विभाग
DEPARTMENT OF ELECTRICAL ENGINEERING
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4th April, 2018

Dear Prof./HOD,

A short course on “**Millimeter (mm) Wave MIMO and Filter Bank Multi-Carrier (FBMC) Technologies for 5G Networks with Capstone Project**” is being organized by **IIT Kanpur** in **Bangalore** from 25th to 28th July 2018, in association with *E & C Department Ramaiah Institute of Technology Bengaluru*. mmWave MIMO and FBMC are key technologies to enable high data rates in 5G wireless networks and have gained immense popularity in the latest research. This course will cover various concepts and techniques such as, Hybrid Signal Processing for mmWave, Analog/Digital Beamforming, mmWave Channel Modeling/ Estimation, FBMC System Design, MIMO-FBMC Technology and several others. It is focused towards B.Tech/ M.Tech/ Ph.D. students, faculty members and industry participants seeking to learn about the latest in 5G technology. Further, a *capstone project* will also be conducted on mmWave MIMO and MIMO-FBMC systems to introduce participants to practical project implementation. Detailed lecture notes, tutorial assignments and solutions will be provided to the participants. More details regarding the course can be found at

<http://www.iitk.ac.in/mwn/mmwave/>

Also, please find the *course flyer* enclosed. I request you to kindly display it in your institution. Topics intended to be covered are given below

1. Introduction to 5G Wireless Technologies
2. Key specs and New Techniques for 5G
3. mmWave MIMO Wireless Systems and Challenges
4. Hybrid mmWave MIMO Architecture
5. Analog/ Digital Beamforming concepts
6. Sub 6GHz Wireless System Technology
7. Hybrid Signal Processing for mmWave MIMO
8. Massive MIMO Technology
9. Channel Modeling for mmWave MIMO
10. Channel Estimation for mmWave MIMO
11. Precoder and Combiner Design for mmWave MIMO
12. Introduction to FBMC Technology
13. Advantages of FBMC over OFDM Technology
14. Implementation of FBMC Technology
15. OQAM Modulation for FBMC
16. MIMO-FBMC Implementation and Signal Processing
17. Capstone Project on mmWave MIMO Systems
18. Capstone Project on MIMO-FBMC Systems

Please do not hesitate to contact us for any further information

Thanking you,

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