IIT KANPUR Certificate Program on PYTHON + MATLAB/ OCTAVE-Based Simulation and Design of 5G/ 6G Wireless Technologies

1st September to 4th October, 2024
Organized by Prof. Aditya K. Jagannatham, EE Department, IIT Kanpur

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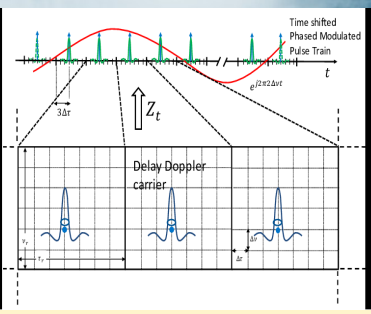

Are you ready for 6G? Transform your career!

Welcome to the **IIT KANPUR Certificate Program on PYTHON + MATLAB/ OCTAVE-Based Simulation and Design of 5G/ 6G Wireless Technologies**. With 5G systems being rapidly deployed around the globe, there is accelerated development of Beyond 5G (B5G) and 6G wireless technologies that break the barriers of 5G. This is a unique cutting edge project based training school that will feature exhaustive lecture modules and several PYTHON/ MATLAB projects/ case-studies on the latest MIMO, Massive MIMO, mmWave MIMO, NOMA technologies for 5G/B5G and OTFS (Orthogonal Time Frequency Space), IRS (Intelligent reflecting surface) for 6G. OTFS is a cutting-edge **2D modulation technique** that operates in the **Delay-Doppler domain**, while IRS is another novel technology that enables dynamically altering the radio propagation environment to achieve a phenomenal boost in the capacities. Together, with Artificial Intelligence (AI) and Deep Learning, these revolutionary technologies are expected to power the shift to 6G. This certification program will feature exhaustive tutorial style lecture modules and several intensive supervised **PYTHON/ MATLAB/ OCTAVE** programming modules so that participants are able to gain practical hands-on experience of working on state-of-the-art 5G/ 6G projects. The pioneering technologies that will be covered in this program are

- **Module 1:** Massive MIMO
- **Module 2:** mmWave MIMO
- **Module 3:** NOMA
- **Module 4:** OTFS
- **Module 5:** IRS
- **Module 6:** 5G Features and Specifications
- **Module 7:** AI and Deep Learning for Wireless

All the modules will be held on evenings for convenience of participants. No prior knowledge of PYTHON/ MATLAB/ OCTAVE is required. The school includes introduction to programming, along with TA supervised coding sessions for 5G/ 6G projects.

How does this program benefit YOU?

- Learn the latest 5G/ 6G technologies and PYTHON/ MATLAB/ OCTAVE programming via hands-on projects to prepare for projects/ placements
- Explore research in 5G/ 6G and create PYTHON/ MATLAB/ OCTAVE-based courses, online labs
- Master simulation and analysis of 5G/ 6G MIMO, massive MIMO, mmWave MIMO, NOMA, OTFS and IRS technologies in next generation systems
- Gain expertise in practical implementation via PYTHON + MATLAB/ OCTAVE projects

Target Audience:

- B.Tech/ BE/ B.Sc/ BBA/ BCA students
- M.Tech/ ME/ M.Sc/ MBA/ MCA students
- Ph.D. scholars pursuing research
- Faculty of Engineering/ Science/ Management

School Dates

1st September to 4th October, 2024

Registration deadlines

Golden registration:
24th June 2024

Flash registration
8th July 2024

Early bird registration
29th July 2024

Regular registration
19th August 2024

Premium registration:
2nd September, 2024

To be conducted online via Zoom

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For more details, visit the website: https://www.iitk.ac.in/mwn/IITK6G/index.html
Contact Link: https://www.iitk.ac.in/mwn/IITK6G/contact.html