

5G Testbed Lab IIT Kanpur

Programmers, hardware engineers, researchers and algorithm developers for 'Indigenous 5G Testbed Project' at IITK

About the project: The Department of Telecommunications (DoT) has funded a large-scale 5G testbed project to encourage Indian startups and the industry to take an early lead in 5G. The goal of the project is to build a test bed that closely resembles a real-world 5G deployment. The project will deliver an end-to-end 5G testbed comprising of 5G BS and UE nodes that support enhanced mobile broadband (eMBB), Ultra low latency communication (URLLC) and massive MTC including NB IoT services. This testbed could become a basis for many commercial deployments.

What is involved? This involves designing and fabricating multiple high-end components such as baseband processing units, remote radio heads, RF modules, and baseband algorithms and software.

Who is involved? Top Indian institutes and startups such as IITK, IITD, IITM, IISc, Sameer, and CEWiT are involved in this project. Many private companies are also a part of this effort.

What are we looking for? Smart, dedicated, and enthusiastic people who want to work on cutting-edge research problems and build hands-on experience with the latest tools and hardware.

This project requires a team working on cutting edge technology and tools with a goal of demonstrating of an end-to-end working cellular system. Working on this project would train you in wireless technologies that are in great demand in the job markets

Scope of work:

Algorithms and Software development:

- 5G new radio (NR) development
 - Base station, User equipment
 - Matlab, C coding
- TX/RX algorithms
 - mmWave
 - Massive MIMO
 - Full-duplex
 - NB-IOT

Hardware Development

- Analog and digital board design and testing
- Baseband unit (BBU) and Remote Radio Head (RRH)
- RF front-end design for mmWave and Massive MIMO

FPGA programming

- Design of hardware Interfaces
- Porting of 5G NR physical layer algorithms on FPGA
- Optical interface (e-CPRI/25Gig)

Desirable qualification: B.Tech/M.Tech with 0-4 years of experience in related areas

Location/Duration: IIT Kanpur/03 Years

Remuneration: Commensurate with skills

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