

One Week Physical Training Workshop on

5G Use Case Lab

11th - 15th May 2026

ABOUT WORKSHOP

The main goal of this week-long workshop is to equip participants with an in-depth understanding of emerging technologies in 5G and next-generation communication systems. It combines strong theoretical foundations with practical learning experiences. The program is designed to connect academic theory with real-world applications through expert talks, lab demonstrations and hands-on sessions in the 5G Use Case Lab.

Key objectives include:

- Developing a strong foundation in 5G communication systems and their architecture.
- Familiarize participants with technologies such as RIS, ISAC and other 6G innovations.
- Introduce participants to the 5G lab environment, including hardware, software, sensors, drones, cameras, and AR/VR systems.
- Demonstrating 5G use cases implemented at MANIT Bhopal under the DoT-supported 5G Use Case Lab.
- Provide hands-on experience with 5G setups.
- Promote research and innovation in next-generation wireless communication.

By the end of the workshop, participants will gain both a clear conceptual understanding and practical skills in 5G and beyond technologies.

ABOUT MANIT BHOPAL



Maulana Azad National Institute of Technology, Bhopal, is an Institute of National Importance. Presently, along with about 300 faculty Members and 7000 students, the Institute is successfully meeting the objective of producing technically skilled manpower of the highest quality to meet the challenges of ever-evolving industrial needs of the country. For details, visit www.manit.ac.in.

COORDINATORS

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Organized by

Department of Electronics and Communication

Engineering

**Maulana Azad National Institute of
Technology Bhopal, M.P.**



In collaboration with

Department of Telecommunications (DoT)

Govt. of India



COURSE CONTENTS

- Introduction to 5G
- Massive MIMO
- Orthogonal frequency division multiple access
- Antennas in 5G
- Non-Orthogonal Multiple Access
- Integrated Sensing and Communications
- Backscatter Communication
- Intelligent reflecting Surfaces
- Semantic Communication
- Fluid Antenna and Pinching Antenna Systems
- Trends in Software Defined Networking
- 5G Beam forming
- 3GPP RAN 1 Standards
- IEEE 802.11 Standards
 - TGbn (Ultra-High Reliability, Wi-Fi 8)
 - TGbp (Ambient Power Communications)
 - TGbq (Integrated mmWave)
 - TGbi (Enhanced Privacy Protection)
- Novel signal processing techniques for 5G
- 5G Internet and Security
- 6G Communications at the Terahertz band

HANDS-ON SESSIONS

- Hands on 5G use cases
- Edge Computing in 5G
- Security and Privacy in 5G and Beyond
- 5G Network Architecture
- Drone-based applications in 5G
- 5G-enabled smart camera systems
- AR/VR applications over 5G networks
- IoT sensor integration in 5G ecosystems
- Applications of 5G in Industry

PROGRAMME FEATURES

- Coverage of 5G and beyond technologies including Massive MIMO, NOMA, ISAC, RIS and emerging 6G paradigms.
- Balanced emphasis on both theoretical foundations and practical insights into modern wireless communication systems
- Exposure to cutting-edge topics: fluid/pinching antenna & terahertz communications
- Understanding of global standards including 3GPP & IEEE 802.11 (Wi-Fi 7/8 and beyond)
- Hands-on training on 5G use cases, network architecture & advanced wireless systems

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Target Participants

Academicians, research scholars, UG/PG students, and industry professionals from colleges, universities, and technical or professional institutes are eligible to attend. In addition, recent graduates, early-career researchers, and professionals working in related disciplines are also encouraged to participate.

REGISTRATION LINK

Please fill out the registration using the following link:

<https://docs.google.com/forms/d/e/1FAIpQLSds4rA-AS8VWMnW9Lfgtg9hGNm9j3X3v1HMilJnBEynjJmUwA/viewform>

Registration fee: 500/- INR

Online Payment Details

Beneficiary Name	Maulana Azad National Institute of Technology (MANIT) Bhopal
Bank Name	State Bank of India MANIT
A/C No.	10020150107
IFSC Code	SBIN0001608

Last Date for Registration: 08.05.2026

Venue: G-6, 5G Use Case Lab, ECE Dept. MANIT