

## **Exploring 6G - Technologies and Devices**

**Duration:8 Hrs**

### **Part 1: 6G Technologies**

#### **1. Core Technologies Driving 6G** Terahertz communications

- Reconfigurable Intelligent Surfaces (RIS)
- Non-terrestrial networks (satellites, UAVs, HAPs)

#### **2. AI and ML in 6G**

- AI-driven network management
- Federated learning and edge AI
- Predictive maintenance in networks

#### **3. Network Architecture Innovations**

- Decentralized and autonomous networks
- Network slicing enhancements
- Integration of sensing, computing, and communication

#### **4. Energy Efficiency and Green Technologies**

- Energy harvesting and efficient power management
- Sustainable infrastructure for 6G
- Circular economy principles in network deployment

### **Part 2: 6G Devices**

#### **5. Evolution of User Devices for 6G**

- Key advancements in smartphones and wearables
- Ultra-low-power IoT devices
- Mixed-reality devices for holographic communication

#### **6. Device Connectivity and Integration**

- Multi-band and multi-standard chipsets
- Embedded AI for real-time processing
- Device-to-device (D2D) communication

#### **7. Emerging Device Categories**

- Implantable and bio-integrated devices
- Autonomous drones and robotics
- Smart surfaces and materials as communication nodes

#### **8. Challenges and Future Directions**

- Thermal management and energy optimization
- Security and privacy considerations in devices
- Interoperability across 6G-enabled devices

***NOTE: This course focuses solely on theoretical and conceptual topics, with no lab sessions included.***

***How you'll benefit***

***This training will help you: • Learn the skills, technologies, and understand Cellular technology***