

**Objectives**

The objectives of this Faculty Development Programme (FDP) are to:

1. Provide an in-depth understanding of the fundamentals and evolution of wireless communication systems leading to 6G technology.
2. Familiarize participants with the key enabling technologies, architectures, and design principles of 6G networks.
3. Discuss the latest research trends, use cases, and industrial developments in 6G communication.
4. Explore the challenges and opportunities in implementing 6G, including spectrum management, security, and sustainability.
5. Encourage faculty members to engage in research and innovation in the domain of next-generation wireless networks.

**Outcomes**

Upon successful completion of this FDP, participants will be able to:

1. Demonstrate a comprehensive understanding of 6G network fundamentals, features, and design aspects.
2. Identify and analyze key enabling technologies such as AI-driven networks, terahertz communication, and massive MIMO for 6G.
3. Evaluate the research challenges and potential solutions in 6G communication systems.
4. Develop insights into 6G applications and their societal, industrial, and environmental impacts.
5. Apply the acquired knowledge to initiate research projects, publications, and collaborative activities in advanced wireless communication.

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### ****Online Faculty Development Programme on “6G Wireless Networks: Fundamentals, Trends, and Challenges”****

**Organized by**

**Department of Electronics and Communication Engineering**  
**Sir Issac Newton College of Engineering and Technology, Pappakovil, Nagapattinam**  
**Date:** 07th July 2025 to 11th July 2025

The **Department of Electronics and Communication Engineering (ECE)** of **Sir Issac Newton College of Engineering and Technology, Pappakovil, Nagapattinam**, organized a **Five-Day Online Faculty Development Programme (FDP)** on **“6G Wireless Networks: Fundamentals, Trends, and Challenges”** from **07th July 2025 to 11th July 2025**.

The FDP aimed to enrich the knowledge of faculty members in the field of **next-generation wireless communication**, focusing on **6G network evolution, enabling technologies, and research challenges**. The programme provided a comprehensive understanding of **AI-enabled 6G systems, spectrum management, reconfigurable intelligent surfaces (RIS), edge computing, and global research initiatives**.

Eminent academicians and industry experts were invited as **resource persons** to share their valuable insights and research experiences.

The distinguished speakers and their topics included:

* **Dr. B. S. Sathish Kumar**, Associate Professor / ECE, **AVC College of Engineering, Mannampandal–Mayiladuthurai,** delivered an insightful lecture on  
  “Introduction to 6G Communication Networks, 6G Architecture and Design Principles, and Key Enabling Technologies in 6G” on **07th July 2025.**
* **Dr. B. Padmanaban**, Associate Professor / ECE, **AAA College of Engineering and Technology, Sivakasi**, delivered an expert lecture on“Artificial Intelligence and Machine Learning in 6G, Intelligent Reflecting Surfaces (IRS) and Reconfigurable Metasurfaces” on **08th July 2025**.
* **Dr. Delson**, Assistant Professor / ECE, **CHRIST University, Bangalore**, delivered a session on“Edge Intelligence and Fog Computing in 6G, 6G and Internet of Everything (IoE)” on **09th July 2025**.
* **Mr. Kalyanasundharam**, Solution Architect, **Saab Engineering India Ltd., Hyderabad**, delivered an interactive session on“Security and Privacy in AI-Enabled 6G, 6G Spectrum Management, 6G Network Management and Automation” on **10th July 2025**.
* **Dr. R. Muthaiyan**, Assistant Professor (Sl. Gr.) & HOD (i/c) / ECE, **University College of Engineering, Thirukkuvalai**, contributed as a resource person by delivering sessions on“From 5G to 6G: The Power of AI in Future Wireless Networks” and  
  “6G Applications and Use Cases” on **11th July 2025**.
* **Dr. M. Irshad Ahamed**, Professor / ECE and Research Development, **E.G.S. Pillay Engineering College, Nagapattinam**, delivered expert sessions on“Global Standardization and Research Initiatives in 6G” and“Future Challenges and Research Directions” on **11th July 2025**.

The sessions provided **deep insights into technological advancements, design challenges, and open research opportunities** in the emerging domain of **6G wireless networks**. Faculty members from various engineering institutions across India actively participated and benefited from the expert interactions.

The FDP concluded successfully with positive feedback from participants. The Department expressed its sincere appreciation to the **Management**, **Principal**, **Head of the Department**, **resource persons**, and the **organizing committee** for their continuous support and cooperation in making this event a grand success.







