

Guest Lecture on "The Evolution of Telecommunication: Paving the Road to 5G and Beyond"

The Department of Electronics and Communication Engineering organised an expert session titled "**The Evolution of Telecommunication: Paving the Road to 5G and Beyond**" on **21st November 2025** at **Dr. M. V. Jayaraman Auditorium**. The resource speaker for the event was **Mr. Sunil Patra**, Program Manager at **Rakuten Symphony**, who shared his extensive industry experience and insights on next-generation communication technologies. The session commenced at **10:30 AM** with a warm welcome address by **Dr Manu, Assistant Professor, ECE Department**, who greeted the guest with a bouquet. The event witnessed active participation from around **250 students**, reflecting their enthusiasm for emerging trends in telecommunication.

The session covered a wide range of topics, starting with the historical transition "**From Analog to Digital**", followed by an overview of **Generations Unfold**, explaining the evolution from 1G to 4G and the technological leap to 5G. Mr Patra elaborated on **5G Architecture**, highlighting its core components, network slicing, and ultra-low latency features. He further discussed **5G Shaping the Future**, emphasising its applications in IoT, smart cities, autonomous vehicles, and industrial automation. A key highlight of the session was the integration of **Artificial Intelligence (AI) and Machine Learning (ML) in 5G**, showcasing how these technologies enhance network optimisation, predictive maintenance, and intelligent resource allocation.

Objectives of the Event

- To provide students with an in-depth understanding of the evolution of telecommunication technologies from analog to digital systems.
- To introduce the architecture and key features of 5G technology and its role in shaping the future of communication.
- To explore the integration of Artificial Intelligence (AI) and Machine Learning (ML) in 5G networks and their applications.
- To bridge the gap between academic knowledge and industry practices through expert insights.

Event Overview

The Department of Electronics and Communication Engineering organised an expert talk titled **"The Evolution of Telecommunication: Paving the Road to 5G and Beyond"** on **21st November 2025** at **Dr. MV Jayaraman Auditorium**. The session was delivered by **Mr. Sunil Patra**, Program Manager at **Rakuten Symphony**, and witnessed participation from around **250 students**. The event began with a welcome address by **Dr. Manu, Assistant Professor, ECE Department**, who greeted the guest with a bouquet. The talk covered key topics such as the transition **from Analog to Digital**, the unfolding of telecom generations, **5G architecture**, its role in shaping the future, and the integration of **AI and ML in 5G networks**. The session provided students with valuable insights into next-generation communication technologies and their real-world applications.

The collection of photographs captures key moments from the expert session **"The Evolution of Telecommunication: Paving the Road to 5G and Beyond"** organised by the Department of Electronics and Communication Engineering. The images showcase the formal welcome extended to the resource speaker, **Mr. Sunil Patra**, Program Manager at Rakuten Symphony, with a bouquet presentation by the faculty. They also highlight the engaging atmosphere of the session held at **Dr. MV Jayaraman Auditorium**, attended by around **250 students**. The pictures reflect the essence of the event, including the speaker's interaction with students, knowledge sharing on topics such as **telecommunication evolution, 5G architecture, future applications, and AI/ML integration**, and the active participation of the audience. These visuals collectively represent the department's commitment to bridging academic learning with industry insights and fostering awareness of next-generation technologies.

Outcomes and Impact

Students gained a comprehensive understanding of telecommunication evolution and the technological advancements leading to 5G.

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Figure 1: A warm welcome to our esteemed speaker with a token of appreciation by Dr Manu, Assistant Professor, ECE Department



Figure 2: Knowledge Sharing on Telecommunication Evolution

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Figure 3: Industry-Academia Connect: Insights into 5G and Future Technologies

Participants learned about the architecture and operational principles of 5G networks.

Exposure to real-world applications of AI and ML in telecommunication enhanced students' awareness of interdisciplinary opportunities.

The session encouraged students to explore research and career prospects in next-generation communication technologies.

- Strengthened industry-academia collaboration by bringing expert insights into the classroom.
- Motivated students to pursue projects and internships in cutting-edge domains like 5G, IoT, and AI-driven networks.
- Enhanced the department's reputation for organising knowledge-sharing events aligned with current technological trends.
- Contributed to the holistic development of students by preparing them for future roles in the telecom and networking industry.

Conclusions

The expert session on **"The Evolution of Telecommunication: Paving the Road to 5G and Beyond"** proved to be highly informative and impactful for the students of the Electronics and Communication Engineering Department. The event successfully highlighted the journey of telecommunication from analog systems to advanced digital networks, culminating in the revolutionary 5G technology. The insights shared by **Mr. Sunil Patra** on 5G architecture, its future applications, and the role of AI and ML in enhancing network performance provided students with a clear understanding of industry trends and future opportunities. The session not only enriched academic knowledge but also inspired students to explore research and career prospects in next-generation communication technologies, thereby strengthening the department's commitment to bridging the gap between theory and practice.



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