



**NALLA NARASIMHA REDDY**

Education Society's Group of Institutions - Integrated Campus

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## Department of ELECTRONICS AND COMMUNICATION ENGINEERING

### A Report on 5 Days FDP on “*Opportunities and Challenges in 6G Wireless Technology*” (07<sup>th</sup> to 11<sup>th</sup> July 2021)



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## Department of Electronics & Communication Engineering Faculty Development Program on OPPORTUNITIES AND CHALLENGES IN 6G WIRELESS NETWORKS

From 07<sup>th</sup> to 11<sup>th</sup> July, 2021

Coordinator  
**Mr. A. Aravind**  
Asst. Prof. ECE, NNRG

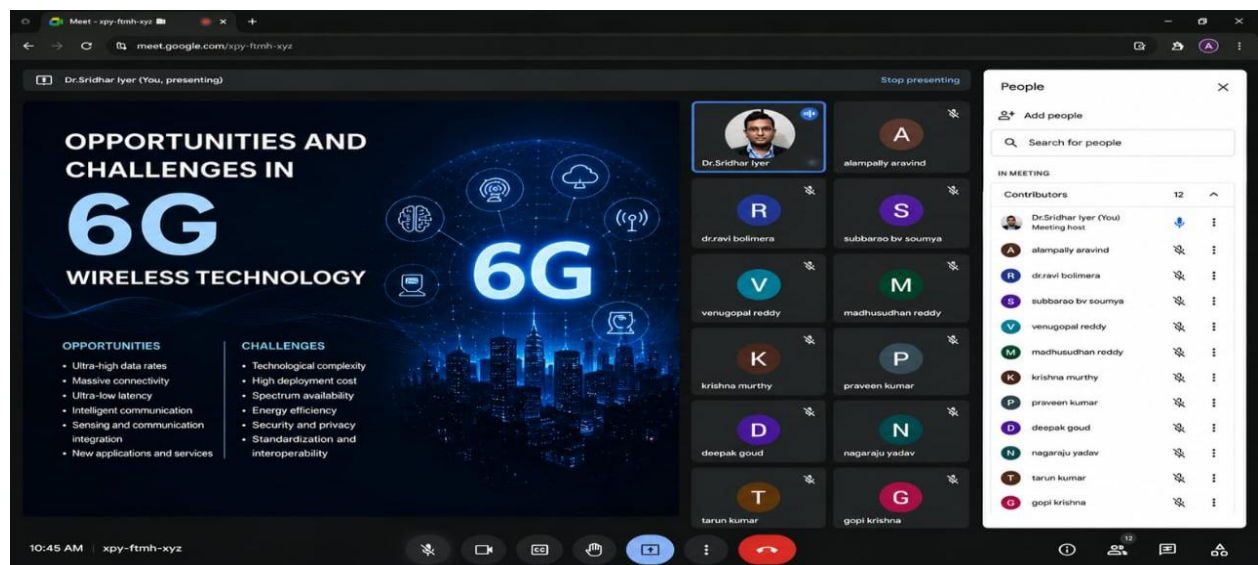
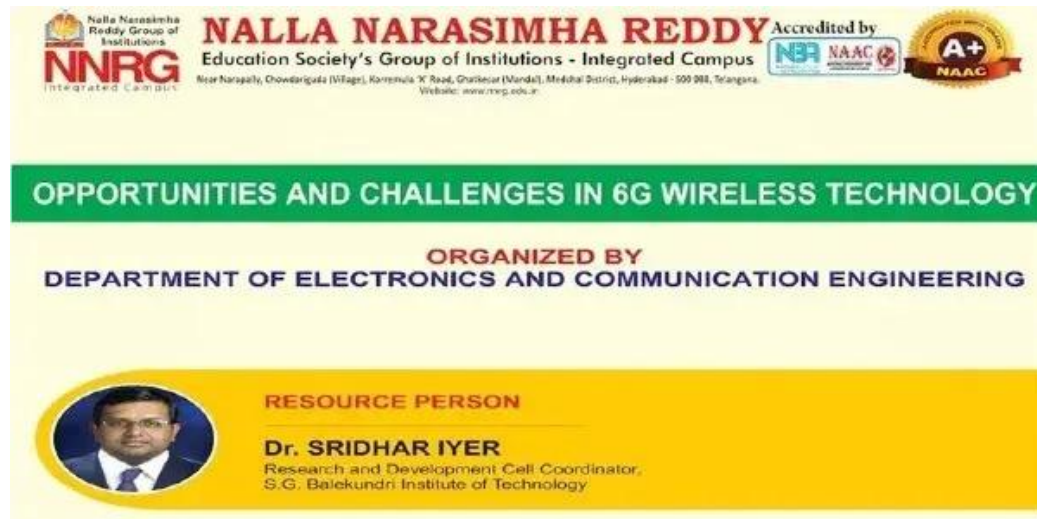


The Department of Electronics & Communication Engineering, Nalla Narasimha Reddy Education Society's Group of Institutions successfully organized a **Five-Day National Webinar on "Opportunities and Challenges in 6G Wireless Technology"** from 07<sup>th</sup> July 2021 to 11<sup>th</sup> July 2021. The webinar was conducted to provide faculty members, research scholars, and students with comprehensive knowledge of next-generation wireless communication systems and the emerging research opportunities in 6G technology. The sessions focused on the evolution of wireless communication, enabling technologies, future applications, research challenges, and industrial perspectives of 6G networks. The webinar received enthusiastic participation from academicians, researchers, and students.



## Day-1&2:

The inaugural session was delivered by **Dr. Sridhar Babu**, who introduced the participants to the evolution of wireless communication technologies from **1G to 5G** and explained the necessity for developing **6G wireless communication systems**. He discussed the limitations of current communication technologies and highlighted the vision, objectives, and expected capabilities of 6G networks.

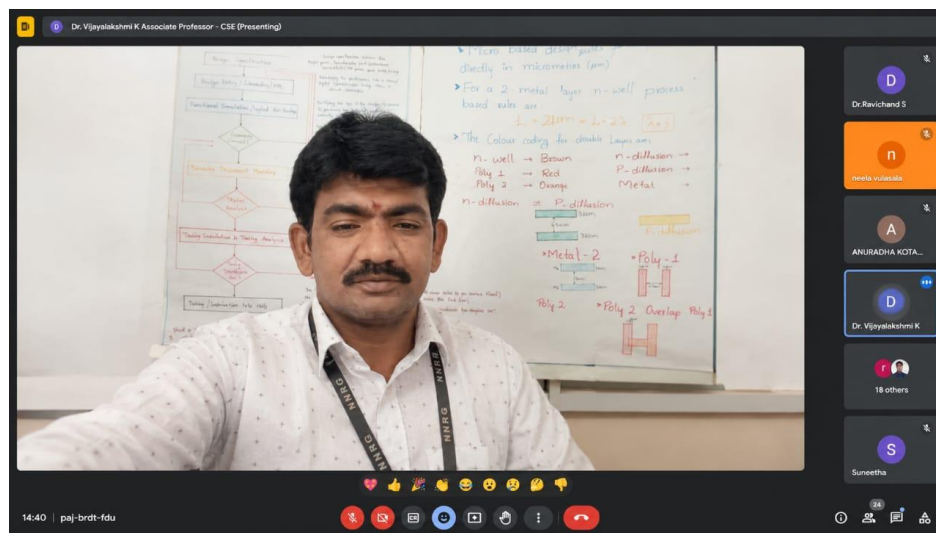


Session by Dr.Sridhar Iyer

The sessions also covered the key enabling technologies such as **Artificial Intelligence (AI)**, **Machine Learning (ML)**, **Terahertz (THz) communication**, **Intelligent Reflecting Surfaces (IRS)**, **Internet of Everything (IoE)**, and **satellite communication**. Practical examples and recent research developments helped participants understand how these technologies will provide ultra-high-speed communication, ultra-low latency, intelligent networking, and massive connectivity in future communication systems.

### Day-3&4:

The third and fourth day's sessions were handled by **Dr. B. Hari Prasad Naik**, who delivered detailed lectures on the **applications and research challenges of 6G wireless technology**. He explained the role of 6G in **smart cities**, **Industry 5.0**, **autonomous vehicles**, **digital healthcare**, **virtual and augmented reality**, **holographic communication**, **intelligent transportation systems**, and **smart manufacturing**.



Session by Dr.B.Hari Prasad Naik

The sessions further discussed major research challenges including spectrum scarcity, propagation issues at terahertz frequencies, energy-efficient network design, security and privacy, resource optimization, and hardware complexity. Participants actively interacted with the speaker and gained valuable insights into ongoing global research initiatives and future research opportunities in advanced wireless communication systems.

## Day-5

The valedictory session was delivered by **Dr. S. Ravi Chand**, who summarized the major concepts discussed throughout the webinar and highlighted the future scope of **6G wireless technology**. He explained recent advancements in intelligent communication systems, artificial intelligence-driven networking, integrated sensing and communication, digital twins, and next-generation mobile networks. The session also emphasized research opportunities, publication strategies, industrial collaborations, and career prospects in wireless communication engineering. The webinar concluded with participant feedback, certificate distribution, and a vote of thanks. Participants appreciated the informative sessions and the research-oriented discussions, which enhanced their understanding of future wireless communication technologies.



Session by Dr.S.Ravi Chand



## Outcomes

- Developed a comprehensive understanding of the evolution of wireless communication technologies from **1G to 6G**.
- Gained knowledge of emerging 6G technologies including **Artificial Intelligence, Machine Learning, Terahertz communication, Intelligent Reflecting Surfaces, and Internet of Everything**.
- Understood the applications of 6G in **smart cities, autonomous systems, healthcare, Industry 5.0, and intelligent communication networks**.
- Identified the major research challenges and future opportunities in next-generation wireless communication technologies.
- Enhanced research aptitude and awareness of future trends, industrial applications, and interdisciplinary research in 6G wireless communication.

  
Coordinator

  
HOD-ECE