

Workshop 13

Year	Batch (22-24)
Topic name of the workshop	5G scope and application with the development of infrastructure
Speaker Name	Dr Suresh Borkar
Number of Participants	150
Date	19/12/2022 - 20/12/2022

The Activity report:

The major part of the session was about understanding 5th Generation wireless access, core, and system-level functionality. He also discussed the characteristics of industry 4.0 and a broad set of intelligent applications developed by integrating new technologies, including the Internet of Things (IoT), cloud computing and analytics, AI, and machine learning.

Sir talked about how Quality of Experience (QoE) differs from Quality of Service (QoS) and why businesses should focus on both. He also discussed how 5G wireless is a key enabler for advanced technologies like IoT, cybersecurity, metadata analytics, global positioning systems, and computer vision. Sir explained cybersecurity in the context of 5G and why it is critical for wireless technologies.

Sir discussed how 5G would provide a much more personalized web experience using network slicing. He explained this by comparing an online gamer and a regular social media user, stating how the online gamer requires faster response times and more data capacity than a user who wants to check social media. He also talked about how businesses might benefit by being able to personalize the internet.

Sir spoke about the evolution of generations, starting with the revolutionary 1G to the 4G of today and 5G of the near future. Sir continued by discussing the download performance of wireless generations. To make the topic more interesting, he compared the duration with possible activities one can perform while waiting for the download to complete.

He also discussed how the softwarization of the 5G network enables independent scalability and decoupled technical evolution while addressing the demands for high capacity and low latency. He continued by discussing the 5G network architecture, followed by the 5G core vision. Sir then explained the network slicing attributes like latency, throughput, mobility, data security, and guaranteed QoS.

Sir discussed a variety of mobile edge computing applications like autonomous vehicle control, smart factory, traffic information, AR/VR, and significant outdoor event. Sir also talked about how medical data is gathered, consolidated, and processed locally using 5G-based health monitoring. He also explained how remote surgery utilizes wireless networking, robotic technology, and 3D imaging to connect surgeons and distantly located patients.

Sir also discussed a case study about driverless cars in detail. Students were made to understand the capability to perceive the surrounding environment and navigate themselves without human intervention by discussing the autonomous vehicle features. The architecture of automatic vehicles was also explained to us by him. He talked to us about certain factors when asked to compare the human-driven vehicle with the autonomous vehicle.

Next, he discussed the 5G applicability to India and smart city constituents like e-governance and citizen services, energy management, water management, and urban mobility. He also discussed significant applications for 5G in India in e-health, agricultural efficiency, and educational advancements. He also talked about the income patterns in India and various challenges in implementing 5G. He answered a few questions about the growth of 5G offers and the penetration of the 5G market by 2035. He shared his insights on the proposed characteristics of 6G.

Sir concluded by summarizing the entire content discussed during the two days of the workshop. He addressed the questions the students raised about the 5G ecosystem, the 5G spectrum auction, and the growth of 5G in the next five years. All the participants benefitted from the session as they got an opportunity to dive deep into the world of 5G.

Attendance report:

Sr.No	PRN	Student Name			12/12/21	13/12/21	
1	22020542001	AAITIJHYA KARAK	✓	✓	✓	✓	
2	22020542002	ABHISHEK BHANDARI	✓	✓	✓	✓	
3	22020542003	ABIR KANJILAL	✓	✓	✓	✓	
4	22020542004	ADARSH PANDEY	✓	✓	✓	✓	
5	22020542005	ADITI MOOLCHAND VERSHA	✓		✓	✓	
6	22020542006	AKANKSHA PARIHAR	✓	✓	✓	✓	
7	22020542007	AKANKSHA SINGH	✓	✓	✓	✓	
8	22020542008	AKASH BASU	✓	✓	✓	✓	
9	22020542009	AKSHAY ANAND TRIPATHI	✓	✓	✓	✓	
10	22020542010	AMAN NAND KUMAR GUPTA	✓	✓	✓	✓	
11	22020542011	AMOGH RAO	✓	✓	✓	✓	
12	22020542012	AMRIT KUCHROO	✓	✓	✓	✓	
13	22020542013	ANANYA SRIVASTAVA	✓	✓	✓	✓	
14	22020542014	ANIKET BERA	✓	✓	✓	✓	
15	22020542015	ANIKET KANOJIA	✓	✓	✓	✓	
16	22020542016	ANIRUDH KHURANA	✓	✓	✓	✓	
17	22020542017	ANKUR JHA	✓	✓	✓	✓	
18	22020542018	ANUBHA SHARMA	✓	✓	✓	✓	
19	22020542019	ANWESHA HAZARIKA	✓	✓	✓	✓	
20	22020542020	APRATIM SHARMA	✓	✓	✓	✓	
21	22020542021	ARNAB SARKAR	✓	✓	✓	✓	
22	22020542022	ATISH KUMAR	✓	✓	✓	✓	
23	22020542023	ATUL SHRIVASTAVA	✓	✓	✓	✓	
24	22020542024	AYUSH SHARMA	✓	✓	✓	✓	
25	22020542025	AYUSHI HORA	✓	✓	✓	✓	
26	22020542026	AYUSHI SINGH	✓	✓	✓	✓	
27	22020542027	BANDAL PRAJWAL SHANKAR	✓	✓	✓	✓	
28	22020542028	BANG MUSKAN KAMAL	✓	✓	✓	✓	
29	22020542029	BHAT YASHESEVE CHAND KUMAR	✓	✓	✓	✓	
30	22020542030	BHAVNISH SHARMA	✓	✓	✓	✓	
31	22020542031	BHIDE MIHIR DHANANJAY	✓	✓	✓	✓	
32	22020542032	BISHWAJEET GHOSH	✓	✓	✓	✓	



