Five-day Faculty Development Program (FDP)
On
"5G/6G Technologies for Wireless Systems"
27th -31st March 2023

The Five-day FDP on "5G/6G Technologies for Wireless Systems" was conducted by Department of Electronics and Communication Engineering, in association EChelon, from 27th to 31st March, 2023 at ATMECE.

The Objectives of the FDP:

- To introduce the 5G technology and the research areas in the advanced wireless communication technology.
- To help in identifying the opportunities to flourish the knowledge and pursue research in this area
- To improve the research abilities of the faculty/Research Scholars in the advanced wireless communication technology.

The Outcomes of the FDP:

- To apply the 5G/6G technology in the research areas in the advanced wireless communication technology.
- To utilize Omnet++ and MATLAB tool to implement research ideas in 5G/6G.
- To understand roadmap for beyond 5G/6G.

Staff Coordinators

Prof. Pavithra A C , Dept. of ECE

Dr. Shalini Hanok, Dept. of ECE

Prof. Manjunath K Dept. of ECE

Prof. Chandrashekar P Dept of ECE

Prof. Juslin F Dept. of ECE

Technical staff coordinators

Mr. Manjunatha H R, Foreman, Dept. of ECE

Mr. Abhinandan V A, Instructor, Dept. of ECE

Total number of participants Registered: 29

Day – 1: 27-03-2023 (Monday)

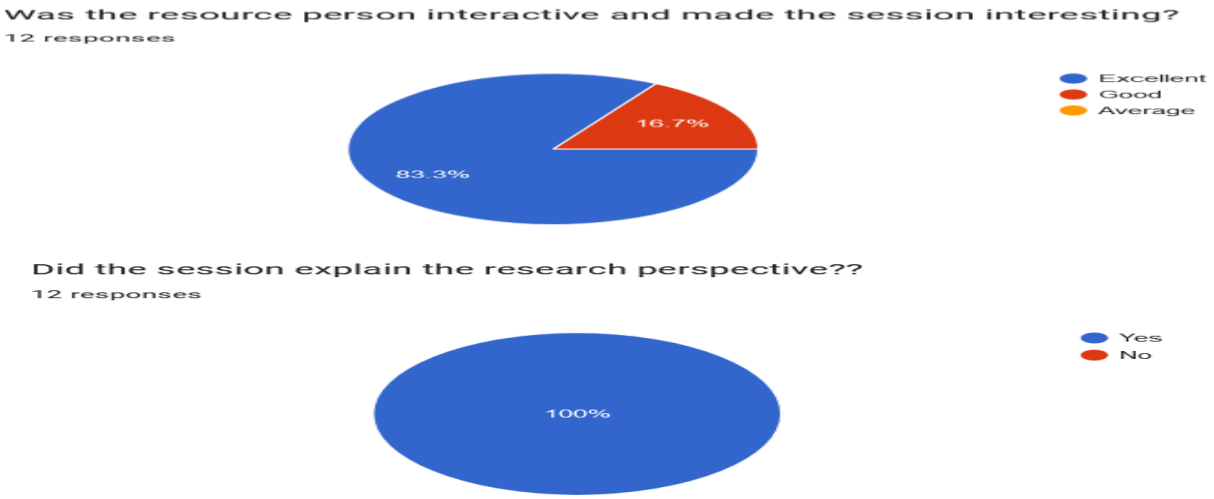
The first day of the FDP started with registration of the PG students and faculty members as participants from various institutions from 9:30 AM to 10.00 AM. Post Registration inauguration of the FDP was held at Department Seminar Hall. Dr. Basavaraj L, Principal, Dr. Sachidanandamurthy K L, Administrative officer, Resource person Prof. Thyagarajamurthy, SJCE, JSS STU and Mr. Kiran Marathe,Founder, DTRI mysuru were present on the inaugural function.

Session 1 was about "**Communication Network Architecture & Evolution**". The intuitive presentation was done by Prof. Thyagaraja Murthy A, Associate Professor, SJCE, JSS Science and Technology University, Mysuru were he elaborated the basic introduction about communication network, different layers and research perspective.

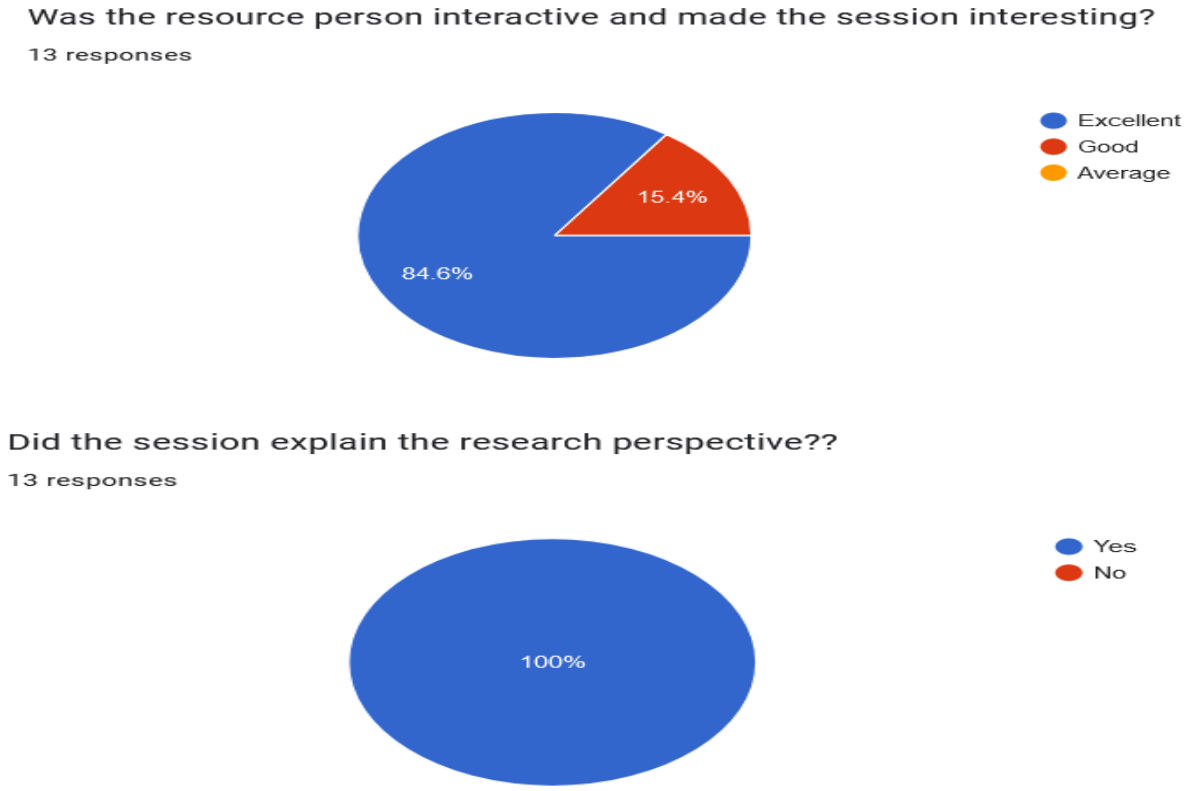
Session 2 on Day-1 was delivered by Mr. Kiran Marathe, Founder and CEO, Deshila Technology Research Institute (DTRI), Mysuru were he spoke about "**RF Technologies in 3G/ 4G/ 5G Networks**" and the 5G products manufactured by their company, block diagram and architecture of radio frequency generation, wireless technologies implemented from 1G to 5G in industries and current industries standard being followed in industries for 5G.

Mr. Kiran Marathe, Founder and CEO, DTRI was felicitated post session

Feedback of resource person **Prof. Thyagaraja Murthy A**, Associate Professor, SJCE, JSS Science and Technology University, Mysuru

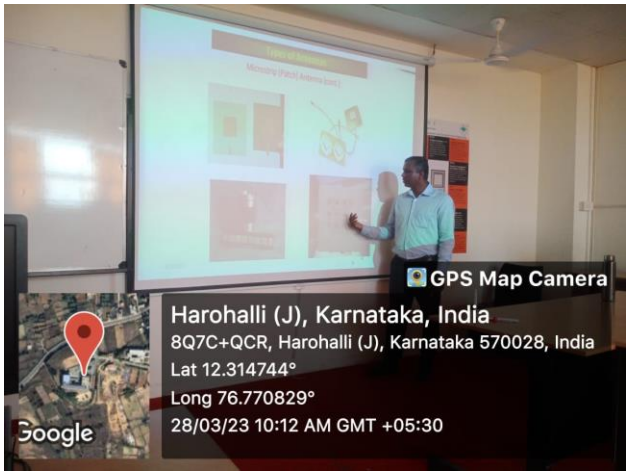


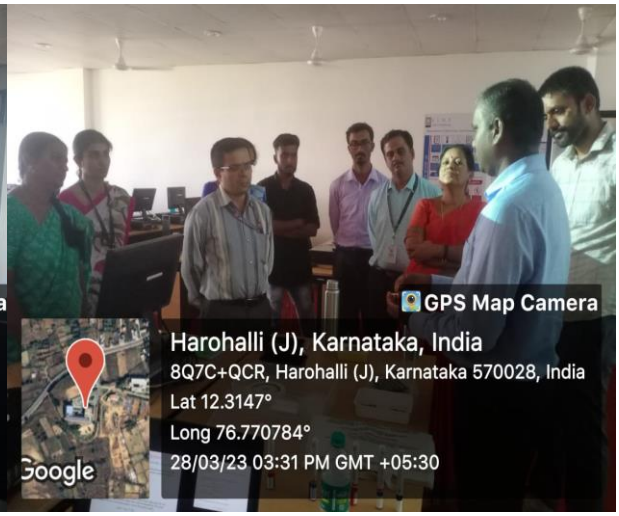
Feedback of **Mr. Kiran Marathe**, Founder and CEO, Deshila Technology Research Institute (DTRI), Mysuru.



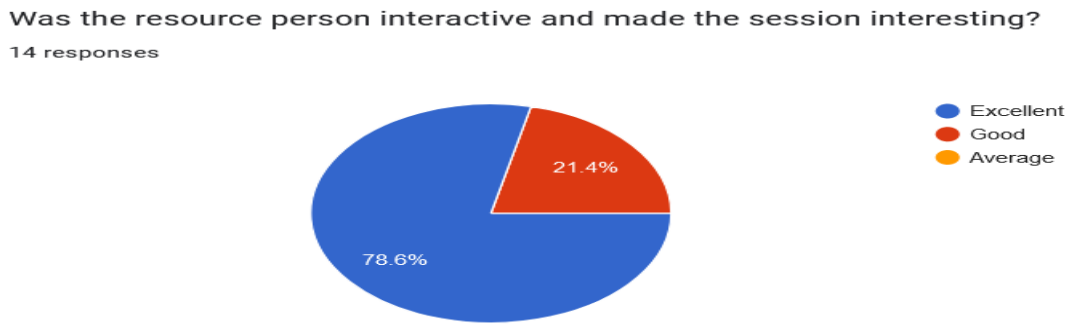
Day – 2: 28-03-2023 (Tuesday)

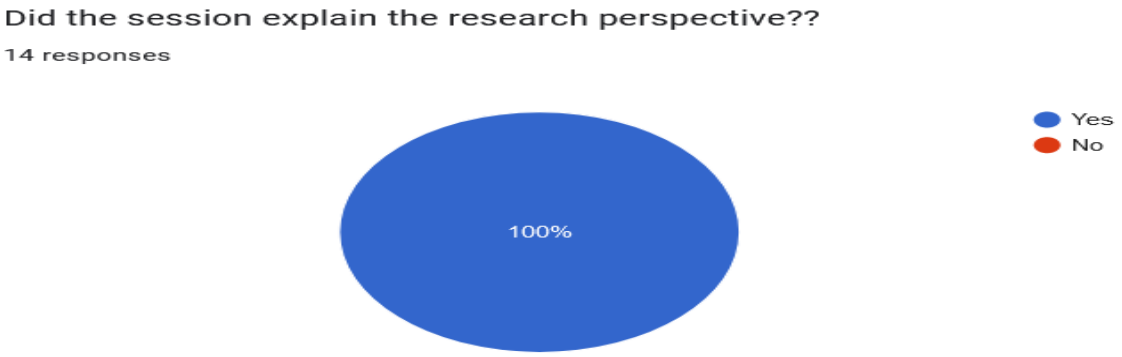
The topics for Session 1 and Session 2 were "**Antenna Design and Beamforming for 5G applications**" and "**Communication system design: Physical layer perspective**" respectively by Dr. K S Shushrutha & Dr. Mahesh A, Associate Professor, COE- Smart antenna systems and Measurements, RVCE Bangalore. The 2 resource persons detailed about the antennas used in 5G technology, how beamforming is done for antennas, they practically demonstrated through Matlab as well as by the practical antennas developed in their institution and explained it very clearly.



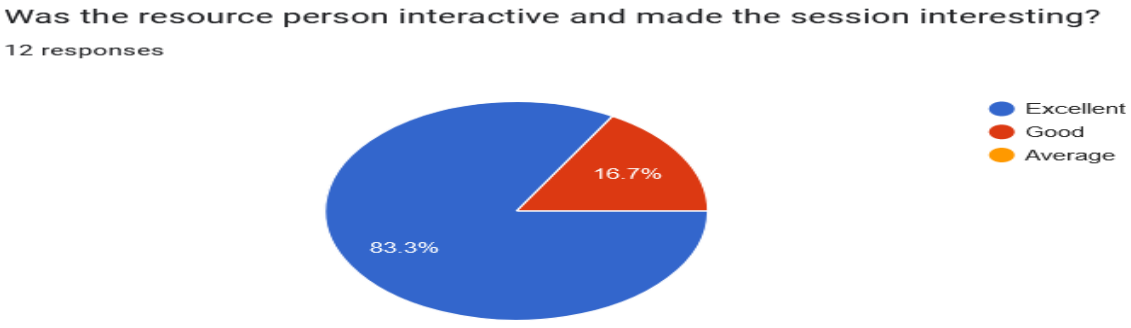


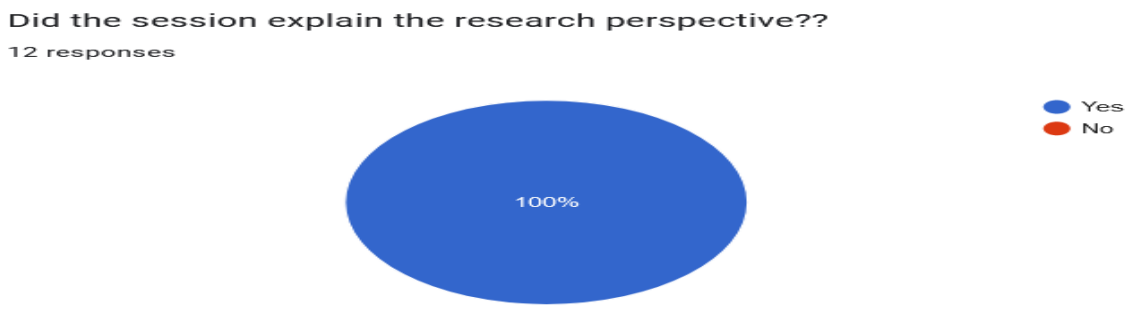
Feedback of **Dr. K S Shushrutha**, Associate Professor, COE- Smart antenna systems and Measurements, RVCE Bangalore.





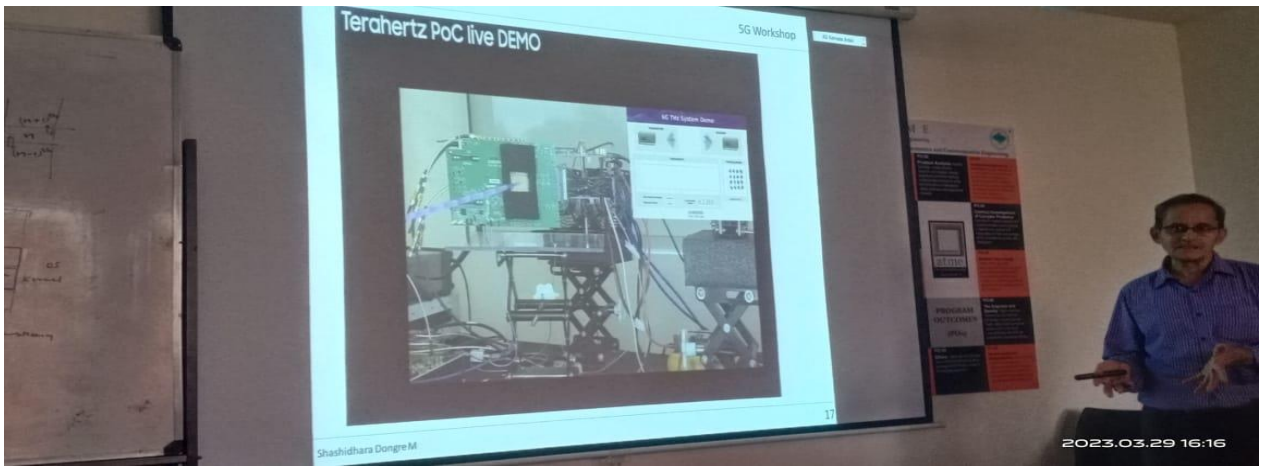
Feedback of **Dr. Mahesh A**, Associate Professor, COE- Smart antenna systems and Measurements, RVCE Bangalore.





Day – 3: 29-03-2023 (Wednesday)

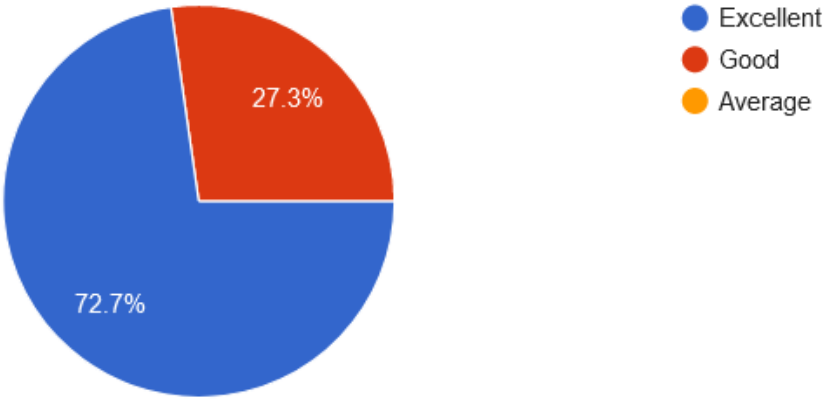
Prof. Thyagaraja Murthy A, Associate Professor, SJCE, JSS Science and Technology University, Mysuru briefed about "**Network protocols Algorithms and Design**" in Session 1. He gave us the idea to set up new labs for UG and PG students so that they get practical exposures to implement some basic protocols and algorithms of network layer, he also explained us how to utilize open source tools to implement research papers. This helps students to learn new tools as well as research ideas working in network layer of 5G technology. Session 2 was continued by Mr. Shashidhara Dongre Delivery Head, Global head, L&T Technology Services Mysuru on the topic "**Evolution of Technologies from 5G to 6G**". He explained the current 5G research in physical layer that is going in 5G industries, Massive MIMO technology and radio multiplexing technologies. The issues and the issues that are solved and those which are yet to be solved, the hardware experimental setup used in their company. He also briefed us about 6G technology, research work that are yet to be carried out in developing 6G models future of 6G , why 6G and applications of 6G in IoT.



Feedback of **Mr. Shashidhara Dongre Delivery Head, Global head, L&T Technology Services Mysuru**

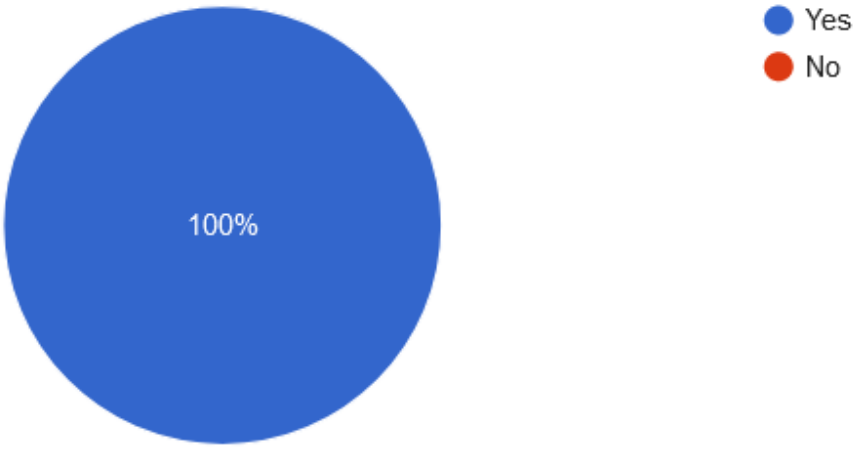
Was the resource person interactive and made the session interesting?

11 responses



Did the session explain the research perspective??

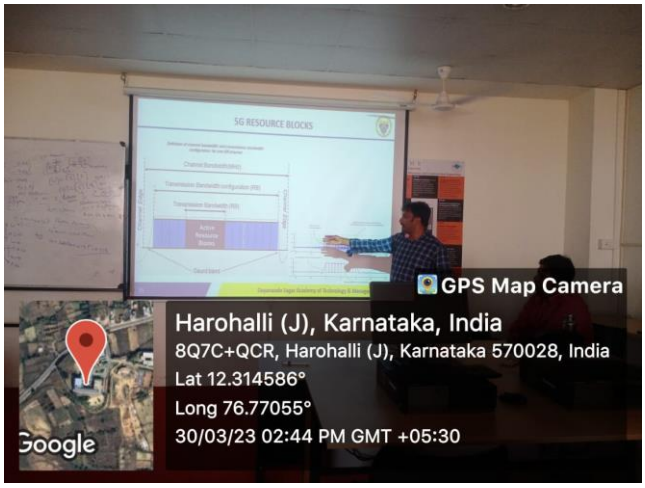
11 responses

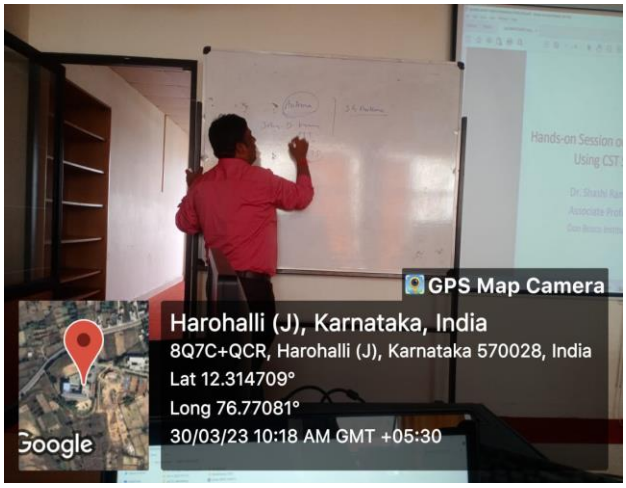


Day – 4: 30-03-2023 (Thursday)

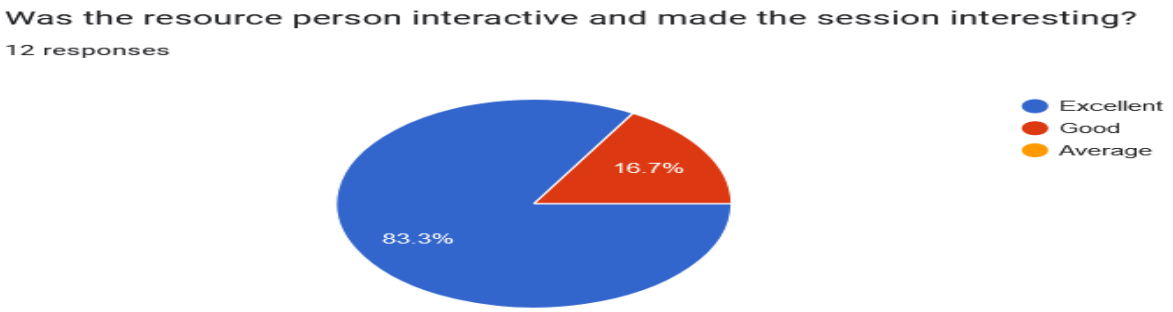
On this day Session 1 was done by Dr. Shashi Ranjan, Associate Professor, DBIT, Bangalore. He briefly explained about "**Hands-on Session on 5G Antenna Design Using CST Studio Suite**" in which the outline of the topics is Introduction on microstrip patch antenna(MPA), Design MPA theoretically, Introduction on CST MICROWAVE STUDIO and Simulation MPA using CST MICROWAVE STUDIO.

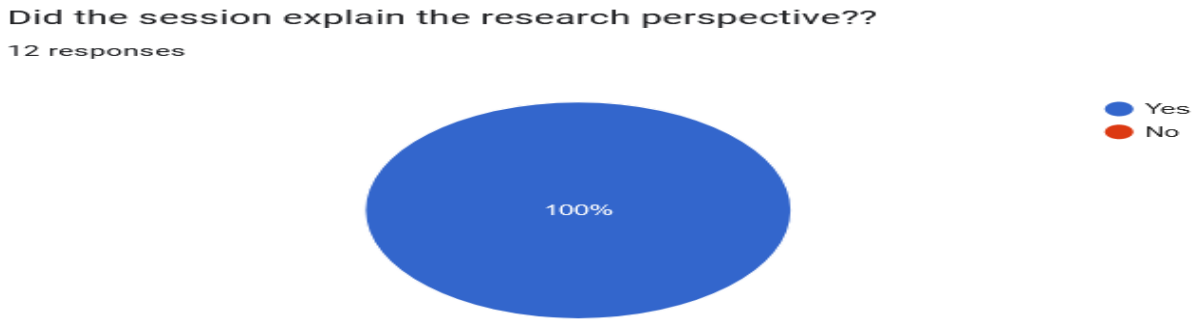
Session 2 was explained by Dr. Siddalingappagouda Biradar, Associate Professor. Dept of ECE, DSATM, Bangalore. The session was about installation of CST MICROWAVE STUDIO, simulations of various antenna design mentioned in various journal papers, parameters to be set to simulate the results, current research issues in 5G antenna design.



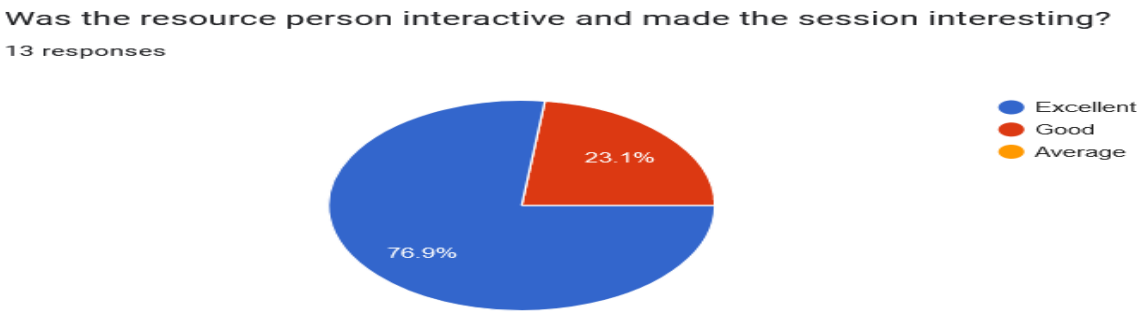


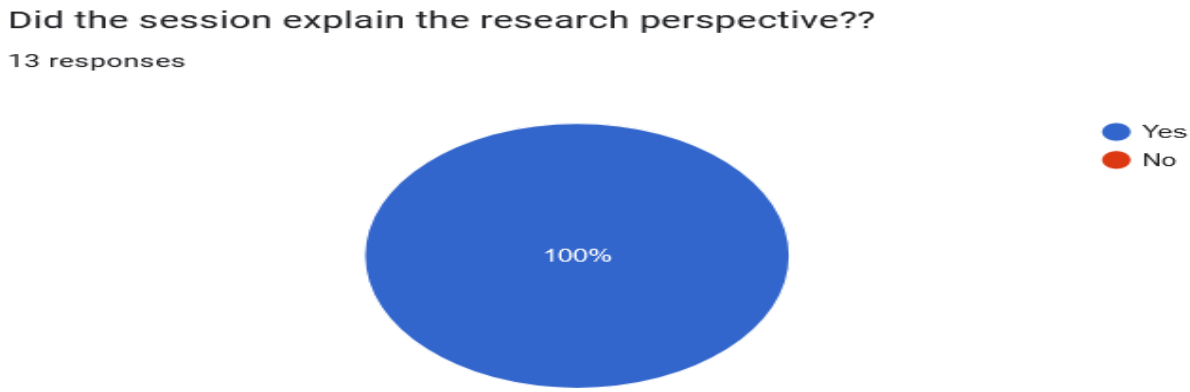
Feedback of Dr. Siddalingappagouda Biradar, Associate Professor. Dept of ECE, DSATM, Bangalore.





Feedback of **Dr. Shashi Ranjan, Associate Professor, DBIT, Bangalore**





Day – 5: 31-03-2023 (Friday)

There was one session on this day which was hands-on session on the tool CST MICROWAVE STUDIO few installation errors were solved and use of tool in research perspective was explained. Afternoon at 2pm there was a feedback session shared by participants about the FDP and resource persons which was followed by valedictory in which certificates were distributed to the participants and coordinators. FDP Concluded with new research ideas, issues and upcoming technologies in 5G and 6G which need to be addressed by all the researcher to achieve good results to upscale research in wireless 5G and 6G areas.