Swami Keshvanand Institute of Technology,
Management &Gramothan

(An Autonomous Institute Affiliated to Rajasthan Technical University, Kota)
(Accredited by NAAC with 'A^{++}' Grade)

Approved by AICTE, Ministry of Education, Government of India
Recognized by UGC under Section 2(f) of the UGC Act, 1956

Research Facilities at Department of Electronics and Communication Engineering

: RAMNAGARIA (JAGATPURA), JAIPUR-302017 (RAJASTHAN), INDIA
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info@skit.ac.in | : www.skit.ac.in

Mission of the Department:

M1: To Impart quality education in Electronics and Communication Engineering for better employability.
M2: To Prepare students for being competent in dealing with industrial challenges.
M3: To Equip students for lifelong learning and for serving the society.

Introduction (PG Programs)

The Department of Electronics & Communication Engineering (ECE) was established in 2000. The postgraduate program in Digital Communication was introduced in 2008, followed by an additional specialization in VLSI Design in 2015. In 2017, the department established a Research Center under the affiliation of Rajasthan Technical University, Kota, with an initial approval for five years. This approval has been successfully renewed in 2024 for an additional five years. The department is also recognized by RTU as a "Centre of Excellence" in the research domain of "Antenna, Microwave, and RF Engineering."

The objectives of Research center are

- To Provide strategic guidance to the Research activities.
- To supervise the progress of the Research work.
- To Provide the Research Facilities of related work.
- To encourage the faculty and students for Patents and Publication.
- To guide the faculty and students to prepare research proposals/projects to be submitted to various funding agencies.

Currently, twelve faculty members are registered as research supervisors at this Research Center, with fourteen research scholars actively pursuing their Ph.D. programs. Two scholars have successfully completed their Ph.D. studies. On average, 3-4 manuscripts are published annually in reputed indexed journals, along with the publication of patents.

The department regularly organizes and participates in international conferences and other academic events, fostering knowledge enhancement and collaboration with researchers worldwide. Faculty members and scholars are actively involved in submitting research funding proposals to support and advance their projects.

Research Areas: In the research Center the research areas that are offers to the scholars are the following:

1. Microstrip & Reconfigurable Antenna Designing
2. Nano Electronics
3. Photonics & Optical Communication
4. Microelectronics, Embedded System, VLSI Design

Faculty Expertise:

- Prof. Mukesh Arora, Prof. Monika Mathur, Dr. Shubhi Jain, Dr. Suman Sharma, Dr. Pallav Rawal, Mr. Harshal Nigam, Ms. Rajni Idiwal (Research Center Part time Research Scholars)

  Research Area: **Microstrip Antenna, Reconfigurable Antenna**

- Prof. Praveen K. Jain, Dr. Swati Arora, Dr. Neeraj Jain, Dr. Lalit Kumar Lata,

Mr. Abhinandan Jain (Research Center Part time Research Scholars)

Research Area: **Nano Electronics**

- Dr. Vikas Pathak, Mr. Rahul Pandey,

  Ms. Mamta Jain (Research Center Part time Research Scholar)

  Research Area: **Microelectronics, Embedded System, VLSI Design**

- Dr. Rukhsar Zafar, Dr. J. P. Vijay, Dr. Kiran Rathi, , Ms. Gloria Joseph

  Ms. Priyanka Sharma (Research Center Part time Research Scholar)

  Research Area: **Photonics, Optical Communication**

Research Students

S. No.	Name of the Scholar	Name of the supervisor	Title of the Thesis
1	Ms. Ruchika Singh	Prof. Mukesh Arora	Design of Millimeter Wave Slotted Microstrip Patch Antenna for 5G Applications
2	Mr. Vivek Bhojak	Prof. Praveen Kumar Jain	Structural optimization of lead-free double perovskite solar cells for enhanced photocurrent efficiency
4	Mr. Ramesh Kumar	Prof. Praveen Kumar Jain	Design and performance analysis of multi-junction solar cell using compound semiconductor materials
5	Mr. Abhinandan Jain	Prof. Praveen Kumar Jain	Design and performance analysis of metal oxide based thin film transistor for sensing applications
6	Mr. Harshal Nigam	Prof. Monika Mathur	Design of Phased Array Multiple Beam Microstrip Antenna for 5G Applications
7	Mr. Birendra Pandey	Prof. Monika Mathur	Design and development of MIMO Antenna for 5G Wireless Communication
8	Ms. Rajni Idiwal	Prof. Monika Mathur	Desisn a Wideband Antenna for the 5G Applications
9	Ms. Yazusha Sharma	Dr. Rukhsar Zafar	Investigation on Plasmonics based refractive index sensing using coupled resonators
10	Ms. Priyanka Sharma	Dr. Rukhsar Zafar	Investigation on Quantum phase estimation for noisy channels..

11	Mr. Satyendra Kumar	Dr. Swati Arora	Investigation on Performance Enhancement of Thin Film CIGS Solar Cell Using Buffer Layer
12	Ms. Mamta Jain	Dr. Vikas Pathak	NA
13	Mr. Sita Ram Meena	Dr. Vikas Pathak	NA
14	Ms. Sarita Chouhan	Dr. Vikas Pathak	NA

Project/ consultancy undertaken

- Grant from AICTE for Research Promotion scheme on Design and Investigation of Nano-photonics structures based light trapping mechanisms for harvesting of solar energy. (PI: Rukhsar Zafar Co- PI: Praveen K. Jain)
- A project Grant (Project Idea Proposal approved) on "IoT-AI Based Smart Irrigation System in Agriculture Sector" during 2nd PMAC Meeting of MSME Innovative Scheme & Announced by Hon'ble Prime Minister on the occasion of International MSME Day at Vigyan Bhawan on 30th June, 2022. (PI: Pooja Choudhary Co- PI: Ankit Agarwal)
- Research Project funded (2,40,000/-) from TEQUIP-III,RTU, Kota, under the Scheme "Collaborative Research Scheme-(CRS)-2019" on the Title " Dual Band wearable and Implantable Microstrip antenna for Breast Cancer Detection".

Total publication and patents

Year 2024						
S.No	**Name of the Supervisors & Scholars**	**Number of quality publications in refereed/SCI Journals, citations, Books/Book Chapters etc.**				**Ph.D. guided /Ph.D. awarded during the assessment period while working in the institute**
		Patents	Number of quality publications in SCI/ ESCI/ Scopus	Number of quality publications in Journal, book Chapters	Number of quality publications in Conference	
1	Dr. Mukesh Arora	-	-	-	-	1
2	Dr. Monika Mathur	-	-	-	-	2+1 submitted

3	Dr. Praveen Kumar Jain	-	-	2	-	3
4	Dr. Rukhsar Zafar	-	1	-	-	2
5	Dr. Shubhi Jain	-	-	-	-	-
6	Dr. Swati Arora	-	-	-	-	1
7	Dr. Vikas Pathak	-	-	-	-	3
8	Dr. Jay Prakash Vijay	-	-	-	-	-
9	Dr. Pallav Rawal	-	1	-	-	-
10	Dr. Kiran Rathi	-	-	-	-	-
11	Dr. Neeraj Jain	-	-	1	-	-
12	Dr. Suman Sharma	-	-	-	-	-
13	Abhinandan Jain (Part time Scholar)	-	-	1	-	-
14	Harshal Nigam (Part timeScholar)	-	-	-	-	-
15	Rajni Idiwal (Part timeScholar)	-	-	-	-	-
16	Priyanka Sharma (Part timeScholar)	-	-	-	-	-
17	Mamta Jain (Part time Scholar)	-	-	-	-	-

Year 2023			
S.No	**Name of the Supervisors & Scholars**	**Number of quality publications in refereed/SCI Journals, citations, Books/Book Chapters etc.**	**Ph.D. guided /Ph.D. awarded during the assessment period while working in the institute**

		Patents	Number of quality publications in SCI/ ESCI/ Scopus	Number of quality publications in Journal, book Chapters	Number of quality publications in Conference	
1	Dr. Mukesh Arora	-	1	-	2	1 Completed+ 1
2	Dr. Monika Mathur	2	2	-	2	3
3	Dr. Praveen Kumar Jain	3	3	1	2	4
4	Dr. Rukhsar Zafar	-	2	-	2	2
5	Dr. Shubhi Jain	1	-	-	3	-
6	Dr. Swati Arora	-	4	2	3	1
7	Dr. Vikas Pathak	-	2	-	3	-
8	Dr. Jay Prakash Vijay	-	-	-	1	-
9	Dr. Pallav Rawal	-	1	-	-	-
10	Suman Sharma (Part time Scholar)	-	1	-	3	PhD Awarded
11	Abhinandan Jain (Part time Scholar)	-	1	-	2	-
12	Harshal Nigam (Part time Scholar)	-	2	-	1	-
13	Lalit Kumar Lata (Part time Scholar)	-	2	-	2	Thesis submitted
14	Priyanka Sharma (Part time Scholar)	1	-	-	1	-
15	Rajni Idiwal (Part time Scholar)	1	-	-	1	-
16	Mamta Jain (Part time Scholar)	-	1	-	1	-

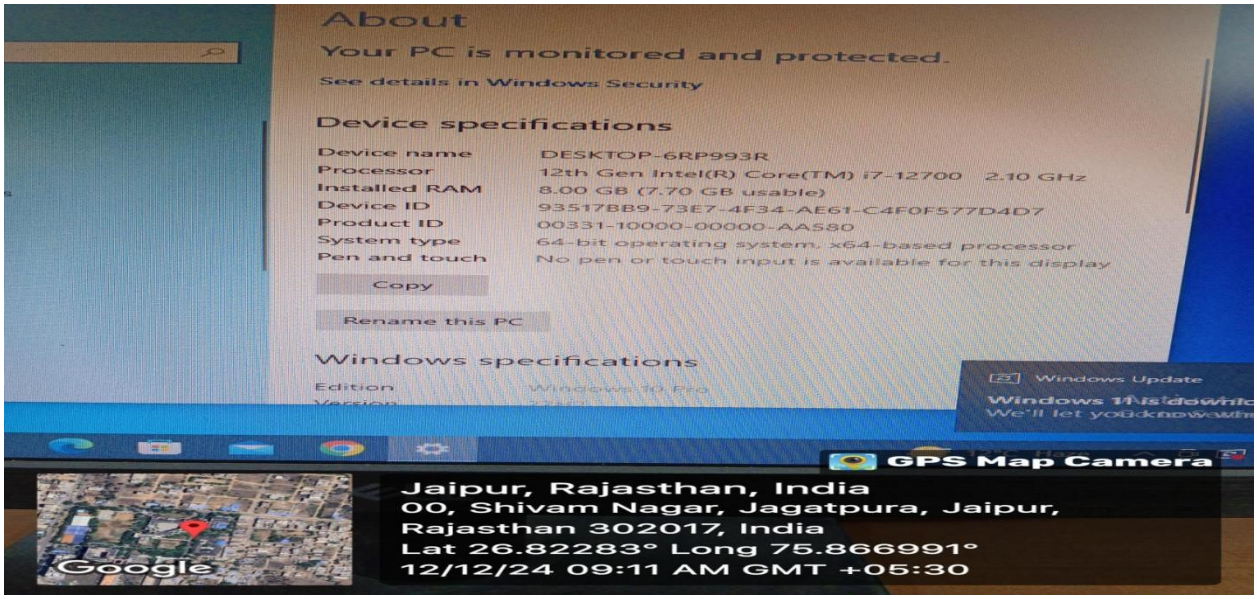
Year 2022			
S.No	**Name of the Supervisors & Scholars**	**Number of quality publications in refereed/SCI Journals, citations, Books/Book Chapters etc.**	**Ph.D. guided /Ph.D. awarded**

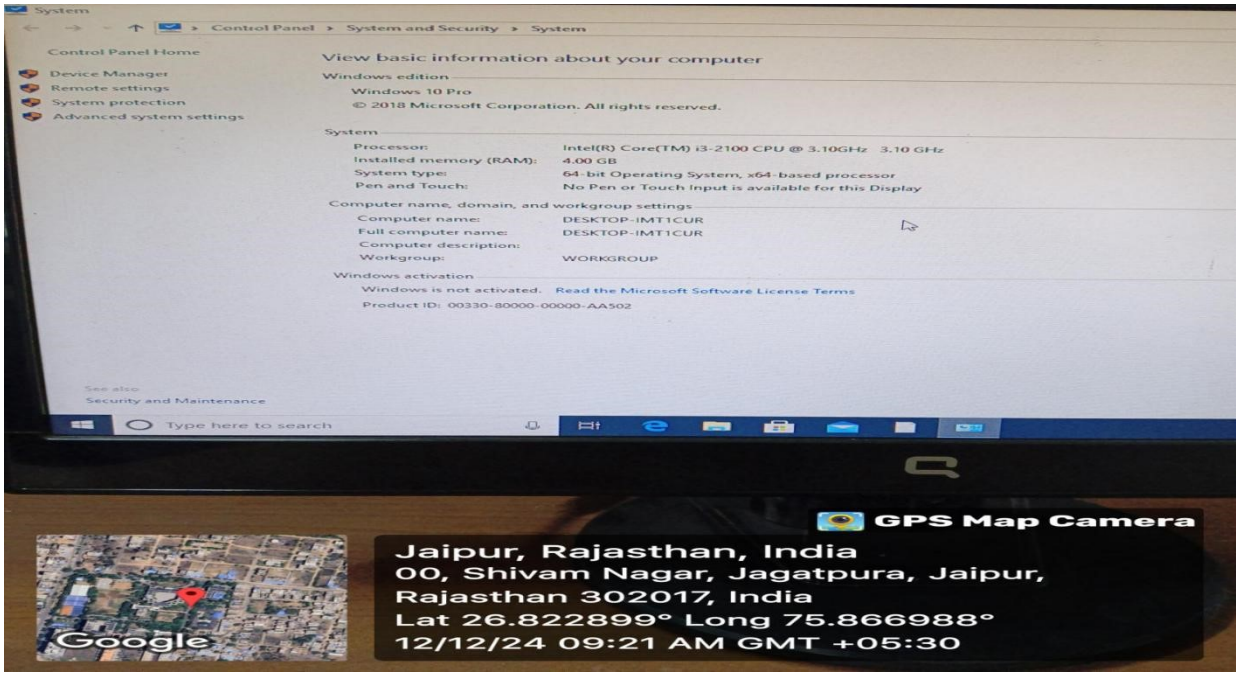
						during the assessment period while working in the institute
		Patents	Number of quality publications in SCI/ ESCI/ Scopus	Number of quality publications in Journal, book Chapters	Number of quality publications in Conference	
1	Dr. Mukesh Arora	-	1	1	3	2
2	Dr. Monika Mathur	-	-	1	-	3
3	Dr. Praveen Kumar Jain	2	2	1	-	4
4	Dr. Rukhsar Zafar	-	-	-	3	2
5	Dr. Shubhi Jain	-	3	-	2	-
6	Dr. Swati Arora	-	-	1	1	1
7	Dr. Vikas Pathak	-	1	1	-	PhD Awarded
8	Dr. Jay Prakash Vijay	-	-	1	1	PhD Awarded
9	Dr. Pallav Rawal	-	1	-	1	PhD Awarded
10	Suman Sharma (Scholar)	-	1	1	3	
11	Abhinandan Jain (Scholar)	-	-	2	2	
12	Harshal Nigam (Scholar)	-	-	-	2	
13	Lalit Kumar Lata (Scholar)	-	1	1	1	
14	Rajni Idiwal (Scholar)	-	-	-	1	
15	Priyanka Sharma (Scholar)	-	-	-	1	

1. Research Facilities: A list of all available research facilities (with photograph-preferably Geo tagged), including their description

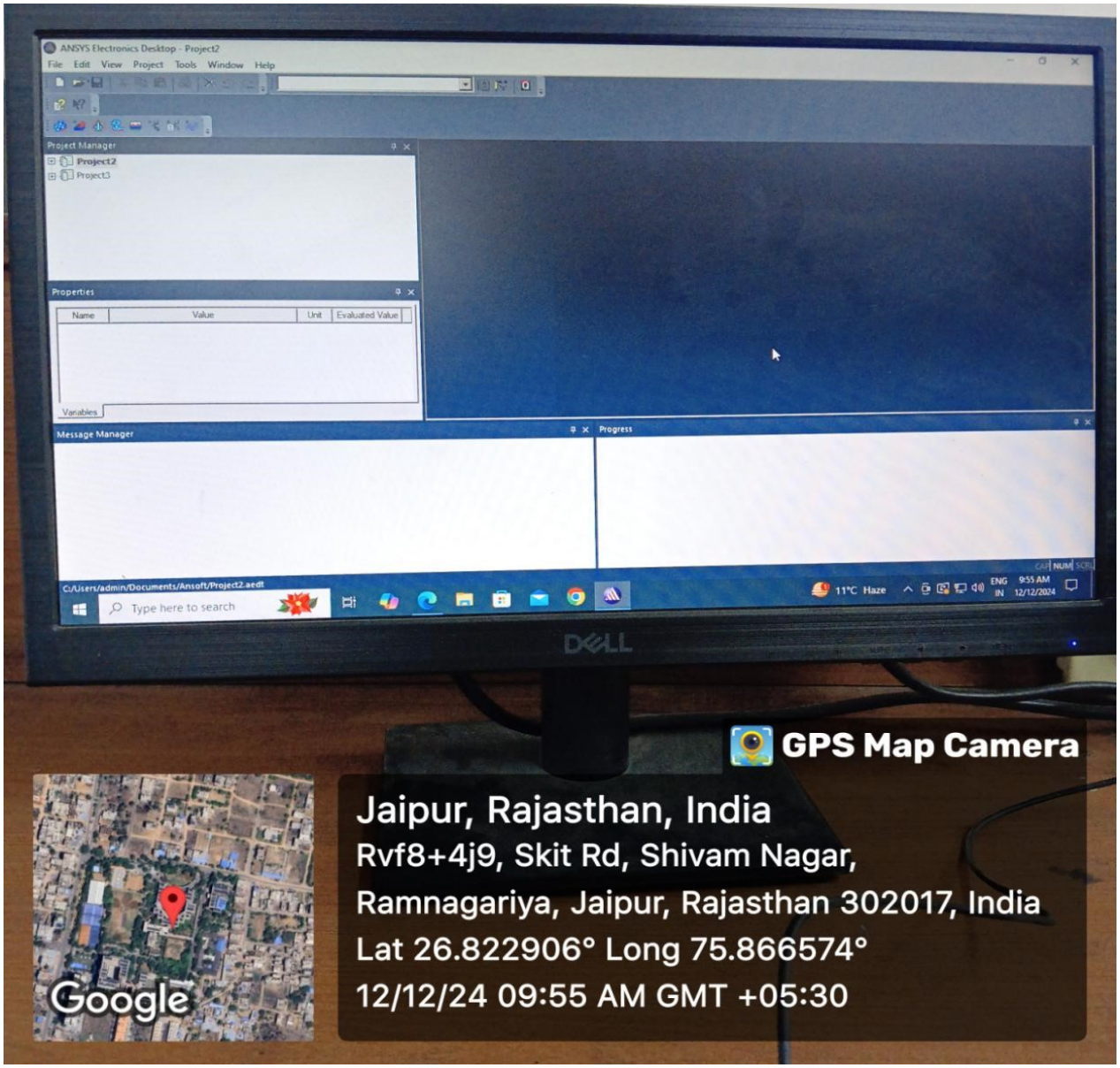
Following Research facilities are available in the Research Center:

1. Desktop (Use for all the simulations and designing work)
   - i3 Specification (21)
   - i7 Specification (4)

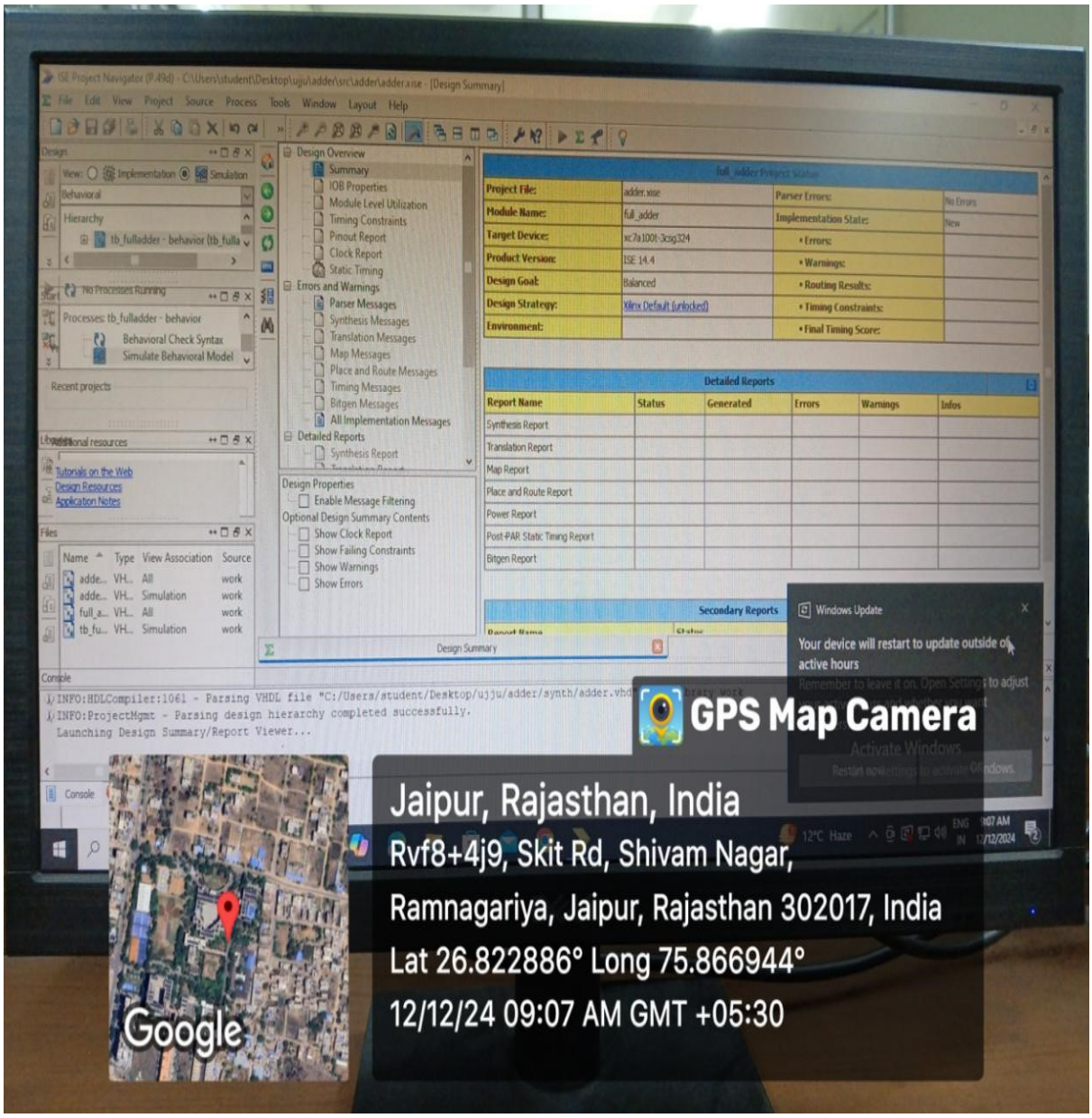




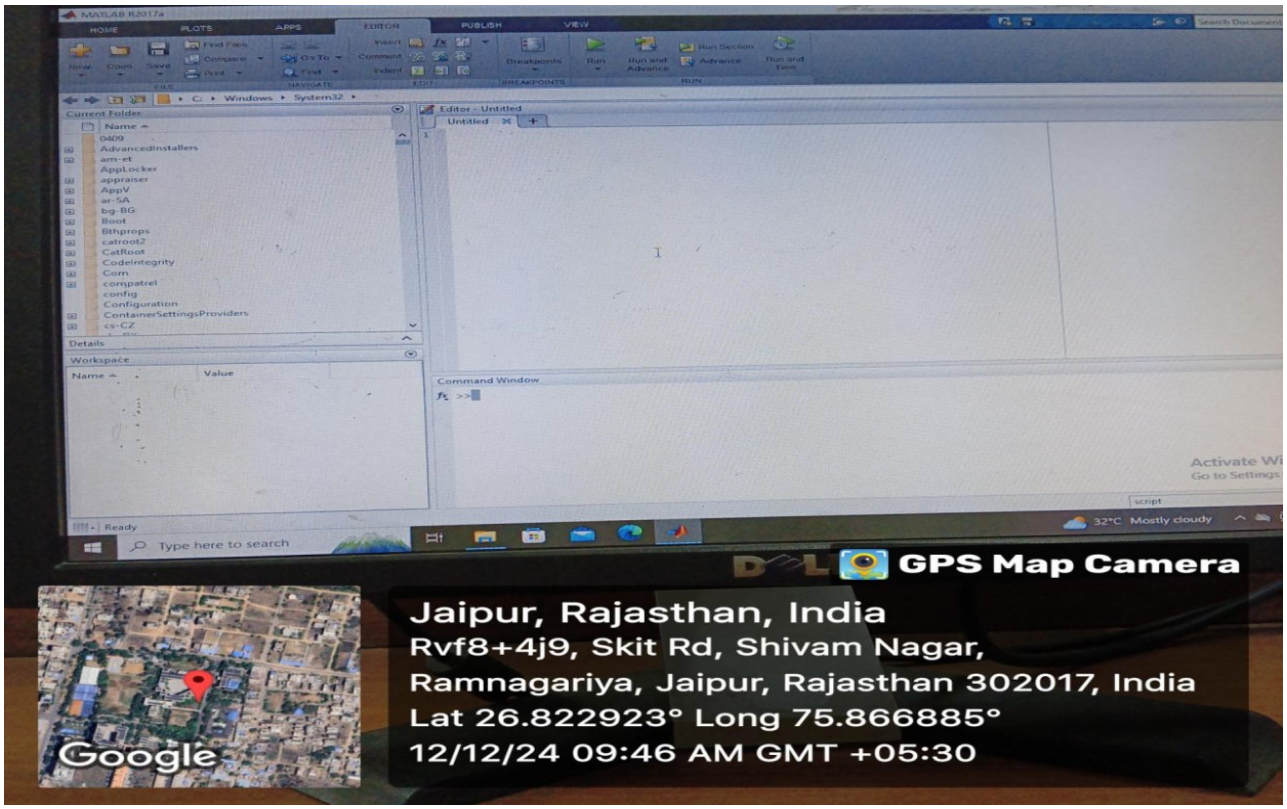
2. Ansys HFSS Software (Server Based Software (25 Users)) (Use for the designing of the Antenna and RF circuits)



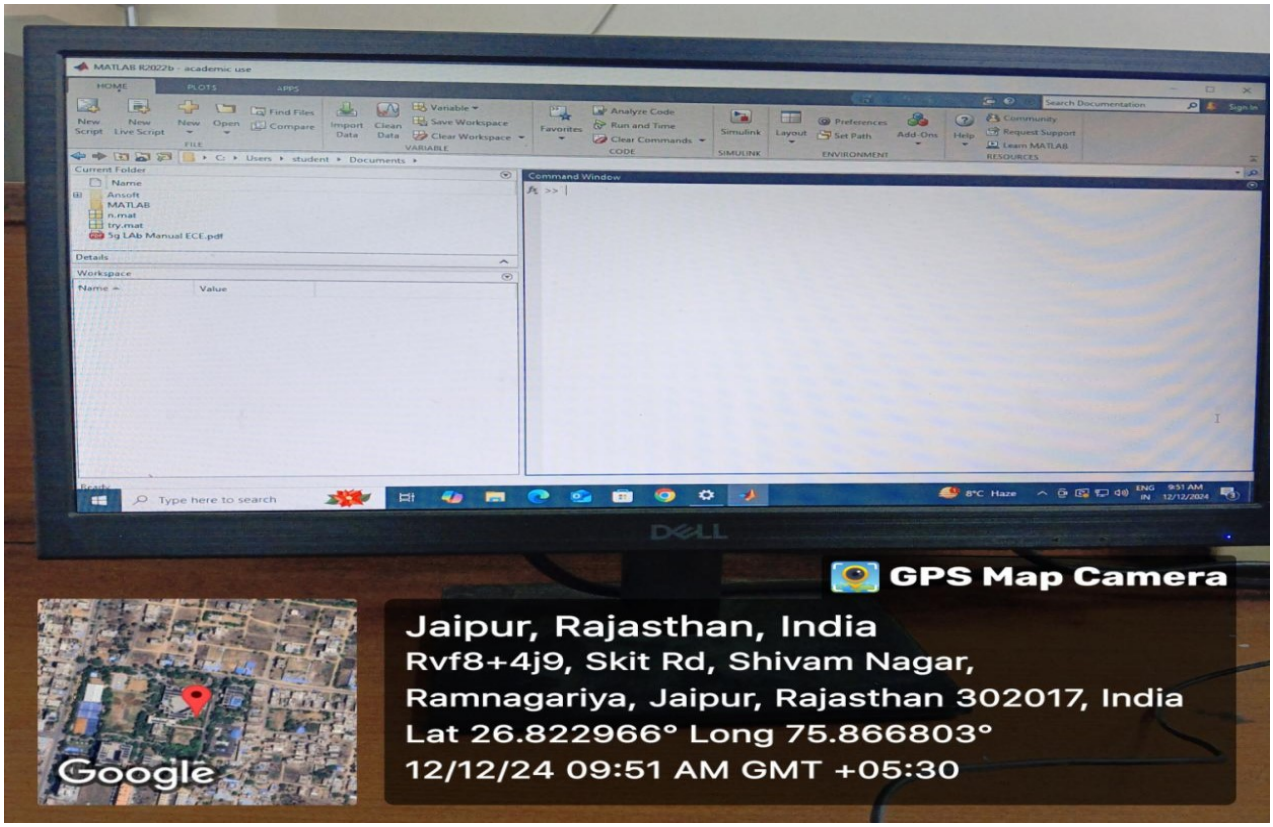
3. Xiling Software (Use for the designing of the VLSI circuits)



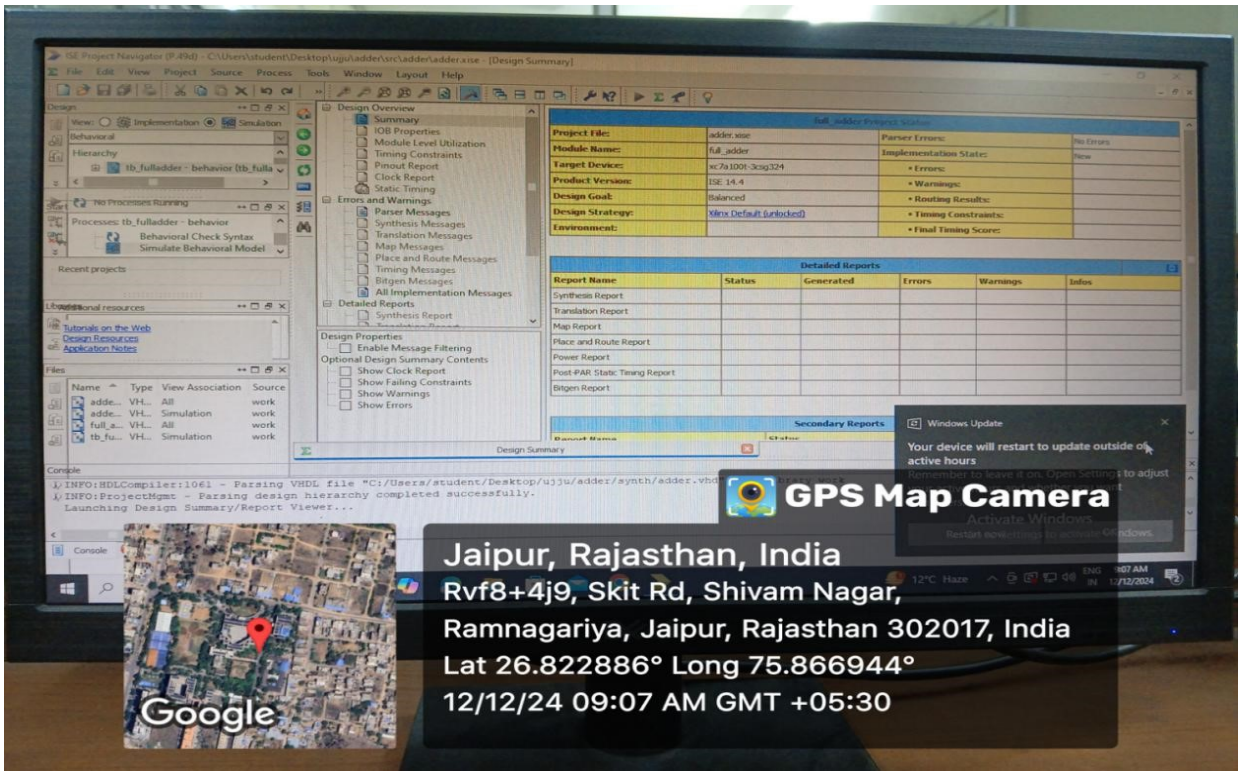
4. Matlab (use for the numerical analysis and Signal processing)



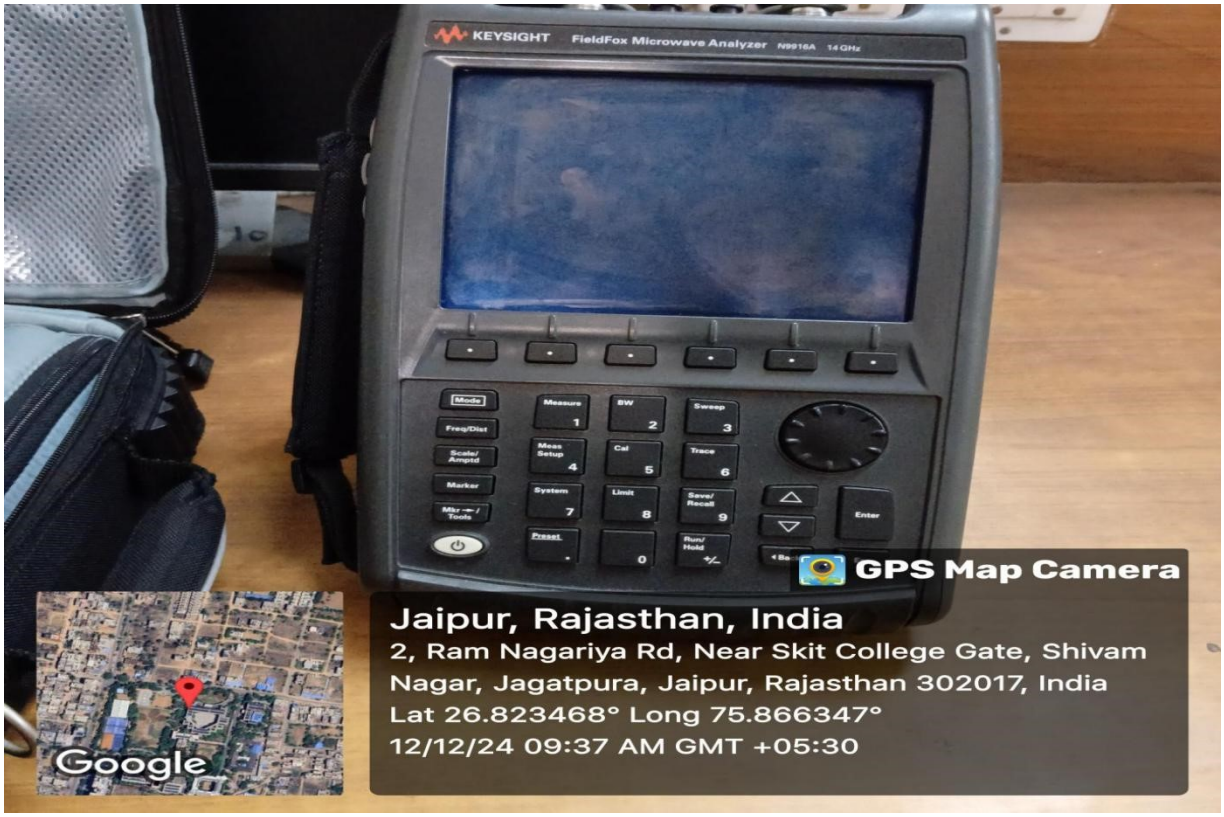
5. Matlab 5G Tool (Use for the analysis of the designing especially for the 5G ranges)



6. Vivado (Use for the FPGA designing)



7. Vector Network Analyzer (14 GHz)



8. Automatic Spin Coating Machine

9. Advance Oil Free Vacuum Pump

10. Desicator Vaccum

11. Ultra sonic Cleaner

12. Printer

2. Collaboration :

- Department has signed MOU with the CEERI, Pilani ,A nationalized resaech Center of India, for the research and training.This will be benificial for the scholars.

- Under the aegis of Centre of Excellence in Antenna, Microwave and RF Engineering, ECE Department has signed an MOU with Jyoti Electronics India; a leading techno- trading house based in Ahmedabad, dealing in RF/Microwave design software and hardwares. Some objectives of this MoU are Knowledge Sharing, Training and Workshops, Internships and Industrial Visits.

- Under the aegis of Centre of Excellence in Antenna, Microwave and RF Engineering; ECE Department has signed an MOU with Tesca Technologies Pvt. Ltd., Jaipur , World's Leading ISO Certified Manufacturer & Exporter of Test, Measuring & Technical Education Equipment.