



Research Lab

DEPARTMENT OF ELECTRONICS & COMMUNICATIONS ENGINEERING

Coordinator: Dr. Ashish Gupta

Location: Room No. 157, 1st Floor, Sector-128 Campus.

Objective

There lab is originally established for the Ph.D., UG students, Faculty members and is dedicated for the research purpose. This lab is equipped with high configuration personal computers/workstations. In addition, PCB manufacturing facilities are available for UG students, doing their Minor and Major Projects. This Lab is also equipped with some EDA tools such as Ansys HFSS, Synosys and Cadence tools.

Hardware/Software Availability

High Configuration workstations

- The lab comprises three workstations with 32 GB RAM, 1TB hard disk with graphic card from Lenovo. These are capable for designing of complex microwave structures which takes several days to simulate in general configuration PC's. Moreover they are suitable to work over different machine learning algorithms, deep learning, big data etc.
- The lab comprises two workstations with 16 GB RAM, 1TB hard disk with graphic card from Dell. These are capable for designing of complex microwave structures which takes several days to simulate in general configuration PC's. Moreover they are suitable to work over different machine learning algorithms, deep learning, big data etc.



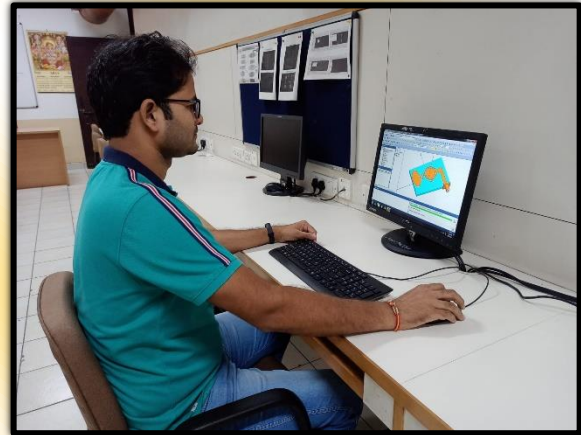
Ansys Academic Research License (1)

Ansys Electronics Desktop prior named as High Frequency Structure Simulator (HFSS) version 2016. This package contains several application specific modules Ansys HFSS is a 3D electromagnetic (EM) simulation software for designing and simulating high-frequency electronic products such as antennas, antenna arrays, RF or microwave components, high-speed interconnects, filters, connectors, IC packages and printed circuit boards. Engineers worldwide use Ansys HFSS software to design high-frequency, high-speed electronics found in communications systems, advanced driver assistance systems (ADAS), satellites, and internet-of-things (IoT) products. This software is known for designing, characterizing, and simulating any microwave structures for desired frequency range. This software is based on computational electromagnetic particularly on FDTD model which enables one to obtain the precise results prior to the fabrication of the device. It is globally recognized for its well performance and is recommended by the pioneer research journals in this area. Overall it is a mandatory software for the researchers working in the area of RF and Microwave Engineering.



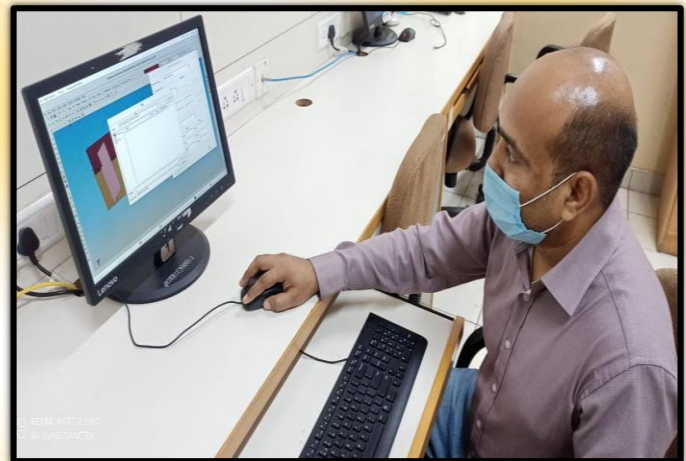
Ansys Academic Teaching HF (25 Teaching HF Package)

Recently this lab received an Ansys Academic License which is exclusively procured to encourage UG students to work in this area. There are some experiments introduced in the B.Tech. curriculum to hands on the particular tool. However large number of students simultaneously can perform the experiments using this facility. This facility can also be availed by the research scholars and faculty members in the free time slots.



Synopsys TCAD Tool (1 User)

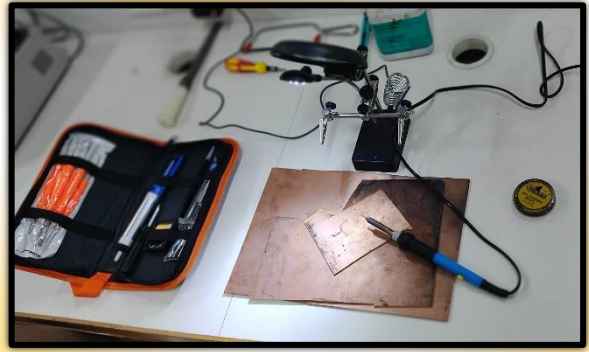
The relentless evolution of electronics, information technology (IT), internet of things (IOT) and communications industry is feasible because of the continuous progress in silicon based MOS technology. Powering this new era of digital innovation the high-performance silicon chips and exponentially growing amounts of software are required. For this the Synopsys TCAD (Sentaurus TCAD) tool refers to the use of computer simulations to develop and optimize CMOS process technologies. It also offers a device to circuit simulation which is useful for the designing of currently used industry based product such as FinFET, SOI FET, TFET, Junctionless transistor etc. Moreover, this tool provides modeling of MOS devices and parameter extraction for optimizing the chip performance.



Soldering Station, Soldering Iron, Drill Machine, Accessories

This facility is developed to fabricate the specific PCB's using chemical etching process. Moreover large planar antennas can also be developed using this facility. After the fabrication different components/connectors can be embedded using fine tip temperature controlled soldering iron. Furthermore small PCB's can be mounted on soldering station equipped with the stand , light and lenses.





Glimpses of the Venue

