SREE VIDYANIKETHAN ENGINEERING COLLEGE
(AUTONOMOUS)
Sree Sainath Nagar, Tirupati – 517 102

Department of Electronics and Communication Engineering

MEMS RESEARCH CENTRE

NMDC is equipped with licensed software such as COVENTOR MEMS+, Intellisuite and COMSOL (a Class kit of 30 licenses) under National Program on Micro and Smart Systems (NPMASS). The Centre motivates the research activity in the field of MEMS by proper utilization of the facilities provided by NPMASS from design to fabrication of prototype MEMS products and specific field applications. SVEC facilitates external researchers from other institutes (academic / National labs) to use the design tools.

In this centre all the departments share the simulation facility supported by NPMASS. The center is promoting MEMS research through independent courses at department level involving students and faculty. The Centre focuses on design, model and characterization of the MEMS devices, and forwarded for fabrication to INUP, IISc, Bangalore, and IIT Bombay, as fabrication facility unavailable

VISION

To be the pioneer in coordinating and facilitating strategic collaboration between various research centers, educational institutions, industrial sectors by undergoing application oriented research in the area of MEMS/NEMS.

MISSION

- Encourage the faculty, students and other researchers about research opportunities in MEMS/NEMS.
- Furnish resources for translating ideas into concrete research activities.
- Identify potential Academia & Industry partners for commercialization of research done at the centre.
- Become a leading transformational hub for innovative and collaborative research for advanced sensing and micro/nano technology aiming at diversified applications.

OBJECTIVES

- To conduct research in MEMS technology and its applications in the field of Surface Acoustics, Gas Sensors for Environmental Monitoring.
- To undertake funded research projects in the field of Hydrogen Leakage Monitoring.
- To develop Sensors for Robotic – Exoskeleton application.
- To conduct research in the field of MEMS technology for Biomedical Applications.
- To transfer technology from research and development among Academic Communities and Industries.

Major Equipment

- COMSOL Multiphysics (1+ 30 User) Simulation Software
- OmniCant (Hardware Equipment) for Characterization
- Hind HIVAC deposition unit (Nanoelectronics Lab)
- Digiqual Vacuum/Tabular Furnace (Nanoelectronics Lab)
- Heater With Magnetic Bit (Nanoelectronics Lab)
- Chemical Bench (Nanoelectronics Lab)
- Spectrospin Spin coater (Nanoelectronics Lab)
- Thickness monitor unit (Nanoelectronics Lab)

Liquid Based OmniCant for Characterization

Chemical Bench for Synthesizing Nano Materials

Thermal Coating Unit for Metal Deposition

Vacuum Furnace for Annealing Purpose

CENTRE FOR COMMUNICATIONS & SIGNAL PROCESSING

The Centre for Communication and Signal Processing promotes research culture and engage projects in domain independently or in collaboration with researchers and academic scholars. The Centre intends to connect the faculty members with the leading research experts in the fields of Communication & Signal Processing to enhance the research capacity, foster a research culture, and promote research activities.

VISION

To Develop a National Centre of Research in the fields of Signal & Image processing, Antennas & Wireless Technology

MISSION

- Learning, Implementing & Applying advanced signal processing algorithms relevant to current industrial practices.
- Creating new knowledge in antennas research by attracting students & faculty that will enable new application domains and support industry, and research centers.
- The Centre is planning to develop a world class wireless communications research facility.

OBJECTIVES

- To design & simulate compact and efficient antennas for Wireless applications.
- To encourage faculty & students to develop projects in the domain of Antennas, Signal Processing & wireless technologies.
- To interact with industry for developing protocols in the field of wireless Technology.

Major Equipment

- EMI/EMC Setup (Hardware Equipment) for Characterization
- Feko Suite Simulation Software

Antenna Research Lab

EMI/EMC Setup

CENTRE FOR VLSI & EMBEDDED SYSTEMS

The VLSI and Embedded Systems based design are gaining momentum in all application areas. As a result, an exclusive center was established to design and develop solutions for the day-to-day problems. Research Centre creates a platform to conduct extensive research in the area of VLSI and Embedded Systems. The Research Centre focuses the faculties, researchers, and students to the latest Research works and technologies by involving them in projects, and collaborates them with industries. At present 14 Faculty members are working in the area of Low Power CMOS VLSI Design, Circuit and device modeling in VLSI Applications, Network on Chip, Energy harvesting Applications, Wearable devices, Sensors in Medical and Environmental Applications, Error Mitigation in High Density Memories, Remote Sensing, and IoT Applications.

VISION

To Create a Centre of Excellence in the field of VLSI & Embedded System for Research Applications

MISSION

- Facilities are being created with cutting edge Technology in VLSI & Embedded domains.
- Empowering Faculty and students to conduct research effectively.
- Carrying out collaborative research with industry and Academia.

OBJECTIVES

- To interpret industry requirements and inculcate the skills of 3D IC and IoT Technology among professionals.
- To Optimize the mixed signal circuit modeling for developing advanced wireless communication systems
- To Develop power and area efficient layouts for low power clocking systems
- To design and develop low power CMOS devices in Energy harvesting Applications.

Major Equipment

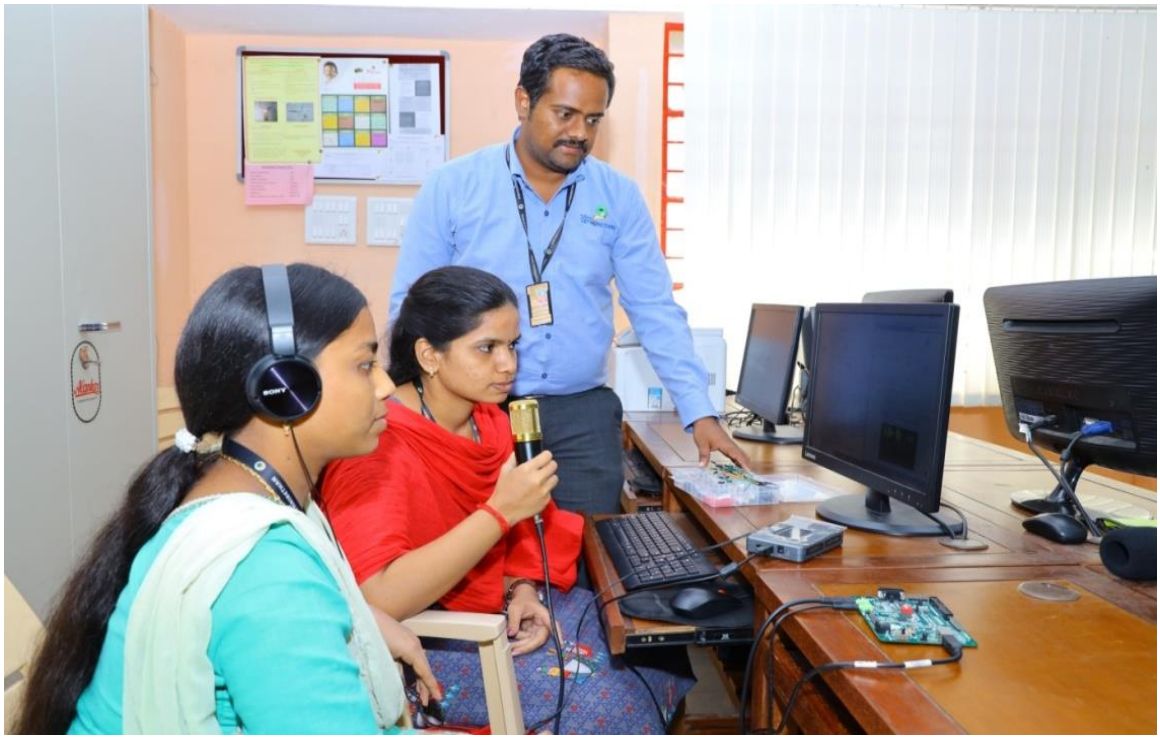
Software:

- entor Graphics
- ilinx ISE 10.1i
- spice(Synopsis Version)
- odelsim
- igital Schematic and Microwind
- ode Composer Studio Version-6/9
- nergia

Hardware available:

- Spartan 3E Kits
- Launching Pads
- 1. MSP 430G2553
- 2. MSP 430F5529
- Supporting Booster Pads
- WiFi Boost Pad

Students working in Mentor graphics Tool



Testing the Audio Card

Mr. Nagendra Bandi, CoreEL Technologies, Bangalore demonstrating advanced FPGA and Vivado Tool

Hands on training using VIVADO Tool