

SENSE CONSULTANCY SERVICES (SCS)

Electronically Efficiently Economically



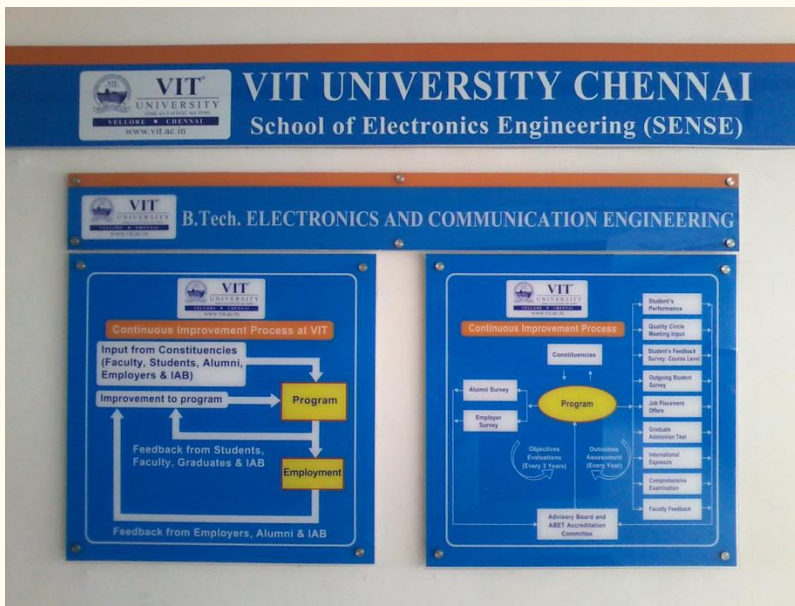
VELLORE INSTITUTE OF TECHNOLOGY, CHENNAI

Vandalur – Kelambakkam Road
Chennai - 600127



Vellore Institute of Technology (VIT) has made a mark in the field of higher education in India by providing quality education on par with international standards, through its 35 years of existence in a cross-cultural ambience with extensive application oriented research. VIT Chennai is a globally engaged, competitive, comprehensive and research-enriched university campus strategically positioned in the capital city of Tamil Nadu, to respond to major industrial, social, economic and environmental demands and challenges.

The School of Electronics Engineering (SENSE) at VIT Chennai was established for imparting the state-of-the-art education, training and research in the field of Electronics and Communication Engineering and allied areas. The School offers Bachelor's level program in Electronics and Communication Engineering and Electronics and Computer Engineering, Master's programs in VLSI Design, and Embedded Systems, M.Tech (By research) and PhD in all the areas of Electronics and Communication Engineering and allied fields.





SENSE Consultancy Services (SCS) is a problem solving and solution providing scheme that can enable your organisation to partner with the School of Electronics Engineering at VIT Chennai for your needs by undertaking projects and services.

Focus Areas

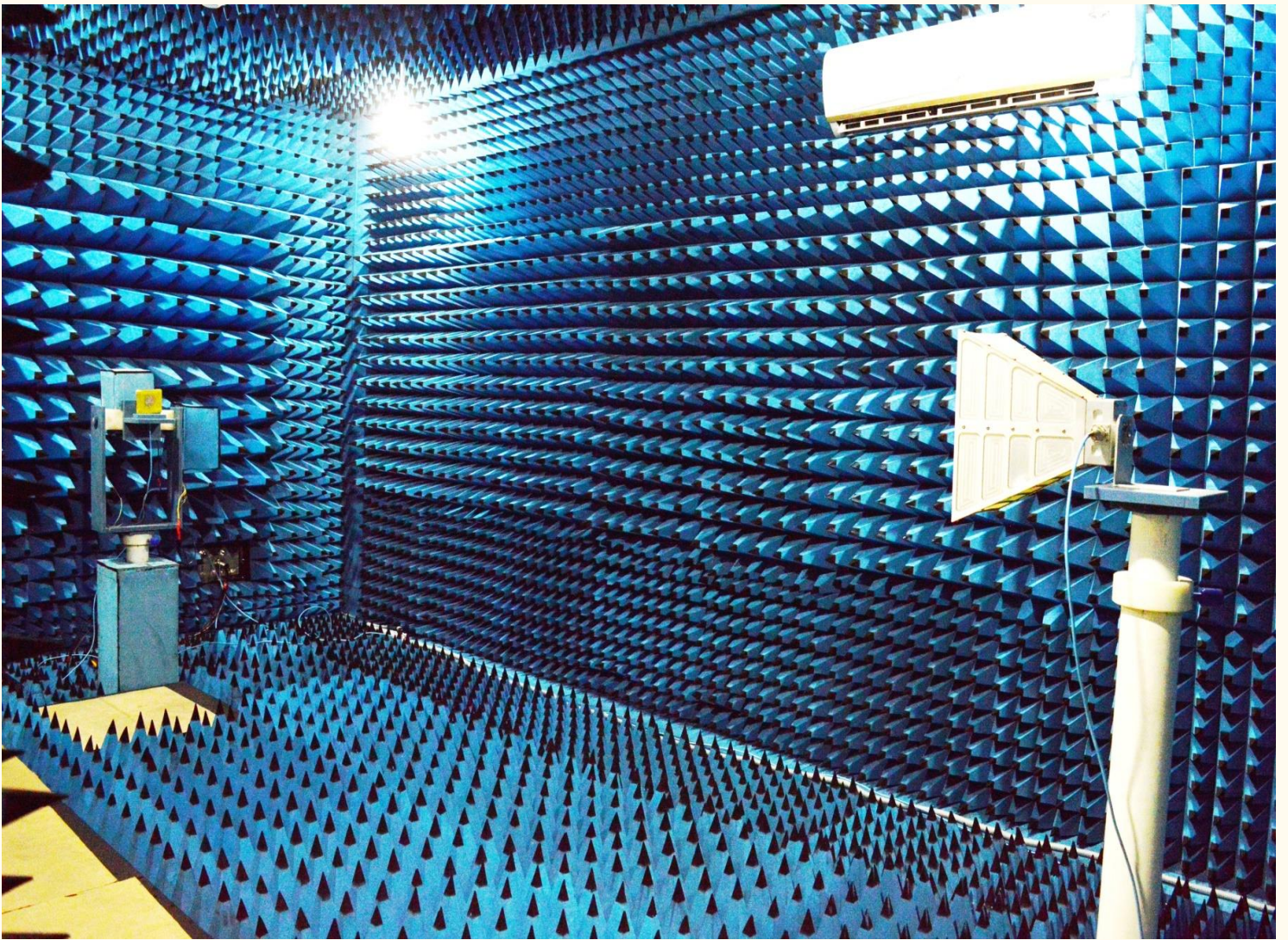
- ❖ EMC & RF Test
- ❖ VLSI Design
- ❖ Embedded System Design
- ❖ MEMS & Microwave Engineering
- ❖ Electronic Hardware System Design
- ❖ Digital Signal Processing
- ❖ Wireless Communication & Networking
- ❖ Fibre Optics & Photonics

How SCS can benefit your organisation?

- ❖ Efficient & Economic Solution to Your Problems
- ❖ Inputs from Expert Professors
- ❖ Rapid Implementation Services
- ❖ Results Driven Delivery of Agreed Outputs
- ❖ Interaction & Access to University Resources
- ❖ Corporate Training & Workshop
- ❖ Student Internships
- ❖ Value Added Certificate Programs

EMC & RF Test

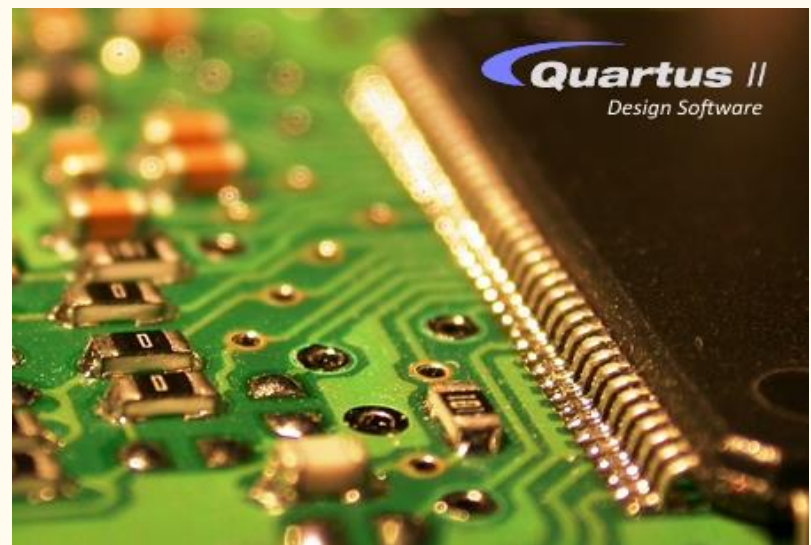
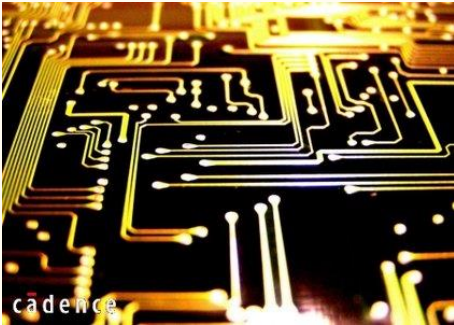
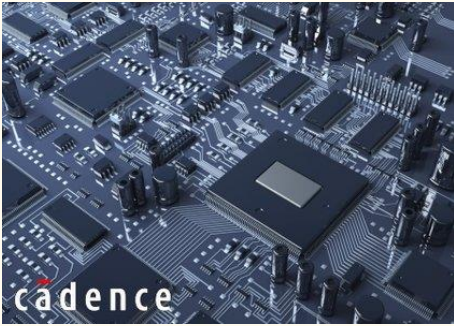
Microwave and Antenna Measurement Lab at School of Electronics Engineering, VIT Chennai successfully offering professional test services to various wireless telecom industries and renowned academic institutions like Indian Institute of Information Technology, Design and Manufacturing, Kancheepuram, National Institute of Technology and other institutions from July 2017. The test service involves the Electro Magnetic Compatibility test and RF antenna characterization using anechoic chamber. The anechoic chamber at VIT Chennai is fully automated and shielded chamber in the frequency range from 700 MHz to 18 GHz dedicated for the RF Measurements.



VLSI DESIGN

Key Offerings

- ❖ Specifications to GDSII
- ❖ Architecture Design
- ❖ IP Development
- ❖ Functional Verification
- ❖ FPGA Based Prototyping
- ❖ Physical Design
- ❖ Design for Testability
- ❖ Test Bench Development
- ❖ Functional & Structural Testing
- ❖ Post Silicon Validation

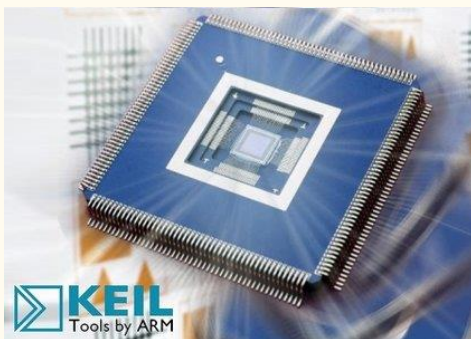
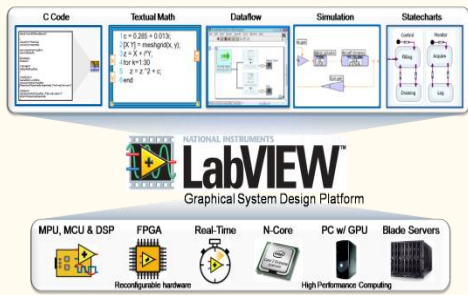


Embedded Systems Design



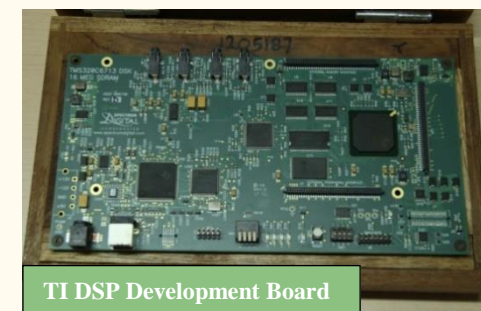
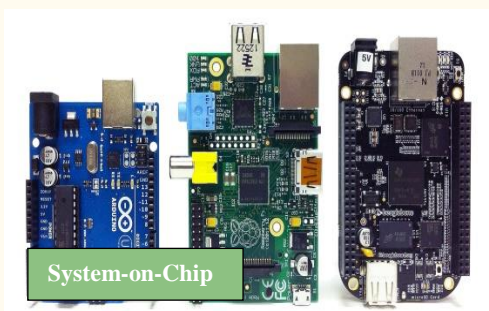
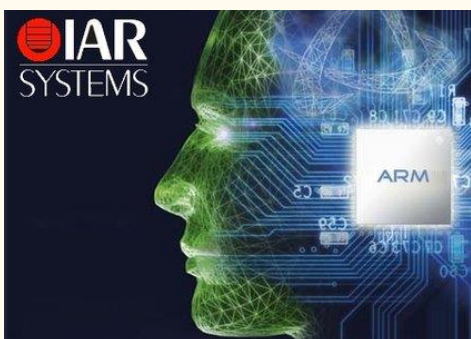
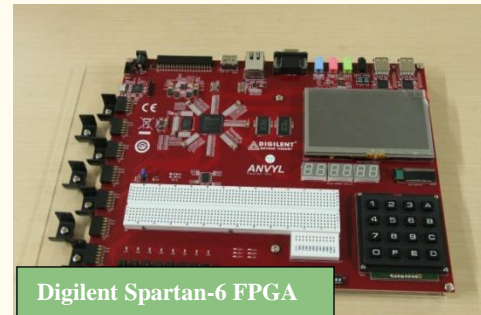
Key Offerings

- ❖ RTOS Configuration and validation
- ❖ IoT End to End Stack Development
- ❖ CAN Protocol Analysis
- ❖ 6LoWPAN deployment
- ❖ Product Modeling & Code Generation
- ❖ Schematic Capture & Board Design
- ❖ Industrial Control and Automation
- ❖ In-Vehicle Infotainment Systems
- ❖ Patient Monitoring Systems
- ❖ Home Automation
- ❖ LabVIEW based Embedded Systems
- ❖ Design & Development of ATE



Facilities

- ❖ ARM9, ARM7, ARM Cortex M0 & M4
- ❖ Arduino/STM32/Nuvoton Kits
- ❖ Beagle Bone, Raspberry Pi
- ❖ APPCOE - Cross OS Development
- ❖ Mbed NXP LPC111U24
- ❖ XUPV5 board Xilinx Virtex 5
- ❖ Xilinx Zynq Board
- ❖ Digilent Basys 3 (SoC)
- ❖ IAR/Keil/GCC IDE
- ❖ NI LabVIEW FPGA/RT
- ❖ NI cRIO Systems
- ❖ NI DAQ & I/O Modules
- ❖ Xilinx ISE/Vivado
- ❖ TI TIVA TM4C123G
- ❖ Freescale FRDM - KL25Z
- ❖ GSM/GPS/XBEE/Wi-Fi/NFC/Bluetooth

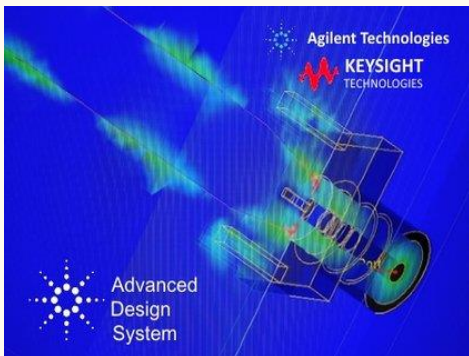
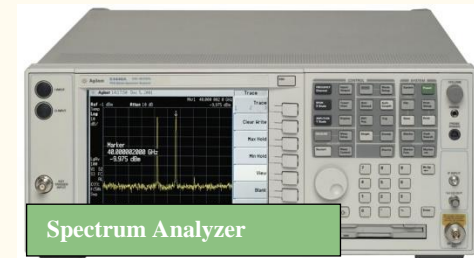
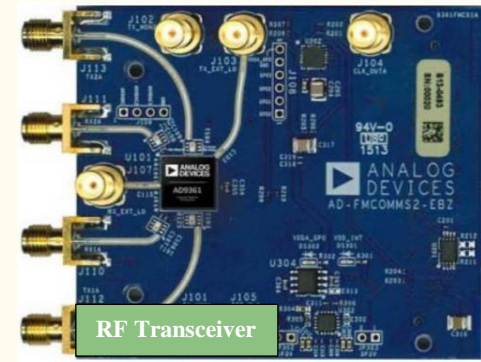


MEMS & Microwave Engineering



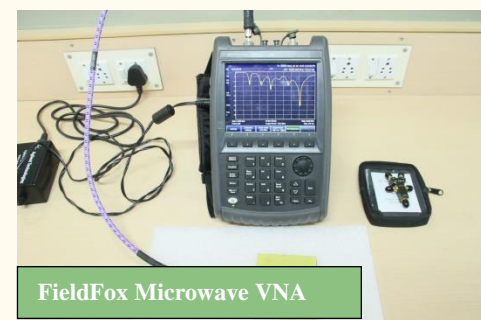
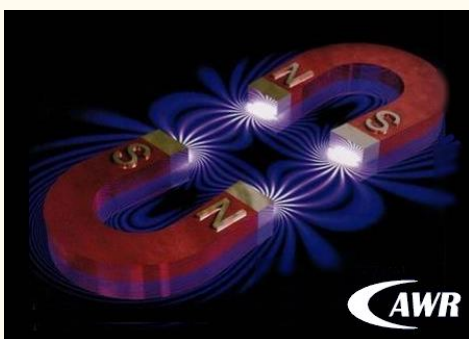
Key Offerings

- ❖ Quartz and Pyrex Micromachining
- ❖ Silicon Bulk Micromachining
- ❖ Design of Ultra Miniature Sensors
- ❖ Design of Gas Sensors
- ❖ Design of Nanocantilevers
- ❖ RF Transceiver Design
- ❖ Low Noise Wideband Amplifier Design
- ❖ Microstrip Circuit Design
- ❖ Design of Antennas for LF & HF
- ❖ Design of RF and Microwave amplifiers
- ❖ Design & Testing of Oscillators
- ❖ Design of RF MEMS Devices

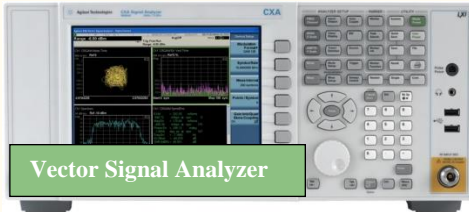


Facilities

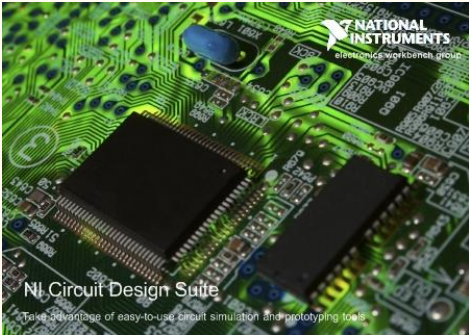
- ❖ Vector Network Analyser
- ❖ TMI Klystron Bench – X band
- ❖ TMI Gunn Microwave Bench
- ❖ MMIC Trainers – X band
- ❖ MMIC Antenna – S band
- ❖ Spectrum Analyzer
- ❖ Analog Devices-FMC-COMMS2-EBZ
- ❖ Ansoft HFSS
- ❖ Agilent Advanced Design System
- ❖ AWR Microwave Office
- ❖ Pulsed Power Supply
- ❖ Electro Chemical Discharge Machine
- ❖ XYZ Motion System for ECDM
- ❖ Digital Analytical Balance
- ❖ COSLAB Metallurgical Microscope
- ❖ IntelliSuite



Electronic Hardware Systems Design



Vector Signal Analyzer



NI Circuit Design Suite



OrCAD 16.6



Logic Analyzer



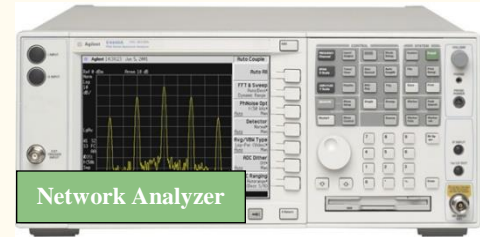
KINECT MSXB1045

Key Offerings

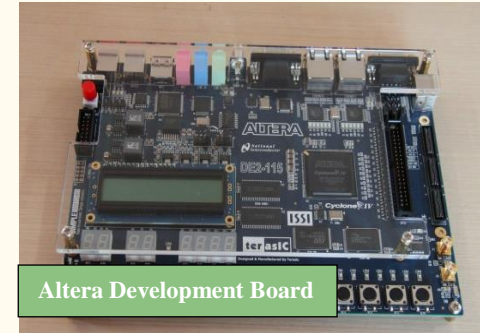
- ❖ Analog & Digital System Design
- ❖ Prototype Product Development
- ❖ Schematic Capture & PCB Design
- ❖ High Speed Board Design
- ❖ Fabrication Of Super Capacitors
- ❖ Fabrication Of Lithium-Ion Batteries
- ❖ Battery Performance Testing
- ❖ Code Generation & Verification
- ❖ Functional & Performance Testing
- ❖ White & Black Box Testing
- ❖ Design & Development of ATE
- ❖ Electrical Characterization
- ❖ Board Level Integration Testing
- ❖ Regression & Reliability Assessment

Facilities

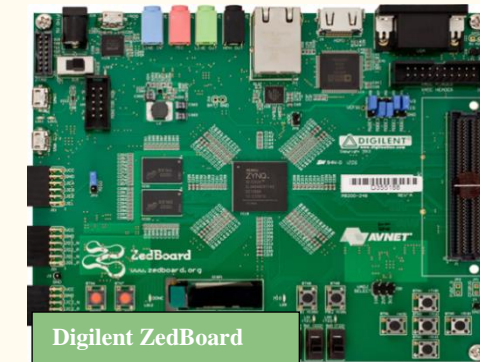
- ❖ Xilinx Spartan 3E FPGA Kits
- ❖ Altera DE2 115 Developer Boards
- ❖ Logic Analyzer
- ❖ Spectrum analyzer
- ❖ Digital Storage Oscilloscope
- ❖ TMI Analog and digital IC testers
- ❖ Cadence OrCAD PCB suite
- ❖ NI Multisim
- ❖ Kinect MSXB1045 Xbox 360
- ❖ Software Defined Radio Kit
- ❖ Digilent ZedBoard
- ❖ Analog Devices-FMC-COMMS-EBZ
- ❖ Vector Signal Analyzer



Network Analyzer



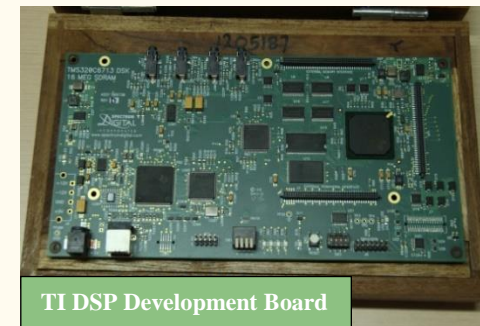
Altera Development Board



Digilent ZedBoard



Xilinx Virtex-5

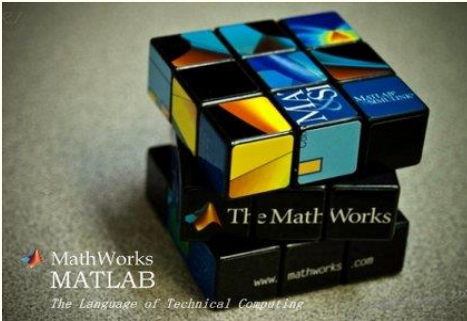
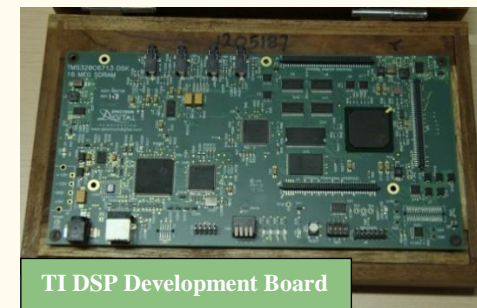


TI DSP Development Board

Digital Signal Processing

Key Offerings

- ❖ Acoustic Simulations & Modeling
- ❖ Algorithm Development
- ❖ Digital Filter Design
- ❖ Real-time Implementation
- ❖ System Optimization
- ❖ Audio/Speech Coding and Processing
- ❖ Digital Control Systems
- ❖ Spatialization and System Identification
- ❖ Voice Architecture Framework using Nuance tool
- ❖ Speech Recognition Product Prototyping
- ❖ Testing Scripts for ASR Systems
- ❖ Active Noise and Vibration Control
- ❖ Biomedical System Design
- ❖ Medical Image Processing



Facilities

- ❖ TI C6713 DSP Boards
- ❖ Xilinx Virtex 5 SXT Boards
- ❖ TI DM355 DaVinci
- ❖ ARM TMDSSK 3358 Sitara
- ❖ AM335X ESA MCB-51
- ❖ ARM 9 STR912
- ❖ Logic Analyzer
- ❖ TI MSP430 Kits
- ❖ AM3359 ICE Kits
- ❖ NI DAQ Cards
- ❖ MATLAB

Wireless Communication & Networking

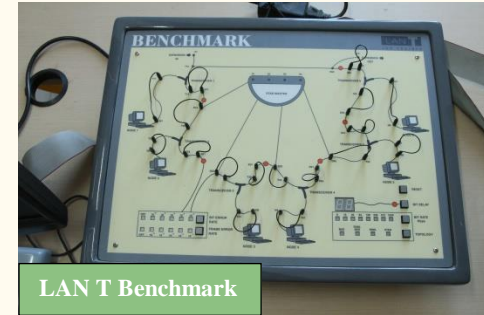


Key Offerings

- ❖ Cloud based Processes & Applications
- ❖ Wireless Ad-hoc & Sensor Networks
- ❖ Performance Evaluation & Simulation

Facilities

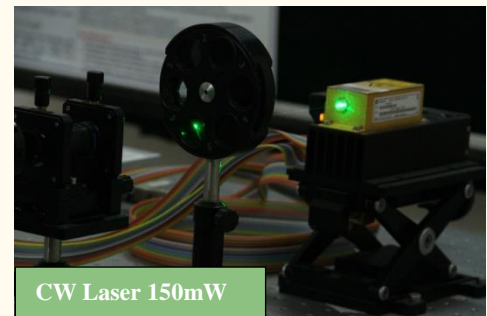
- ❖ Benchmark LAN-T
- ❖ Benchmark NETSYS-T WLAN-T
- ❖ NetSim – Network Simulator & Emulator
- ❖ Network Simulator NS2 NS3
- ❖ MATLAB & Simulink



Fibre Optics & Photonics

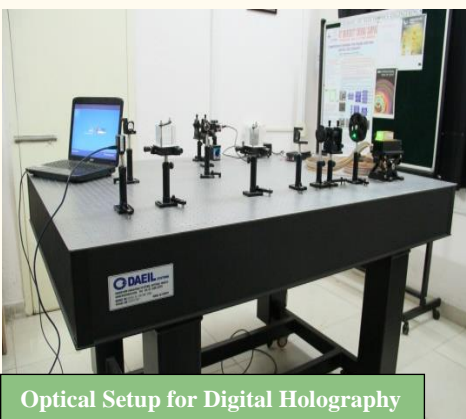
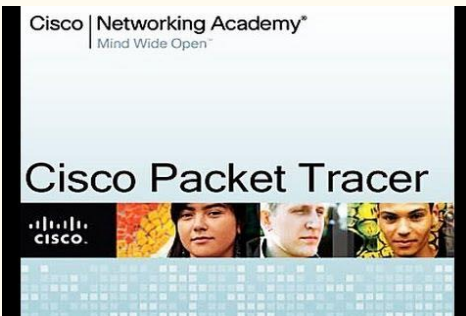
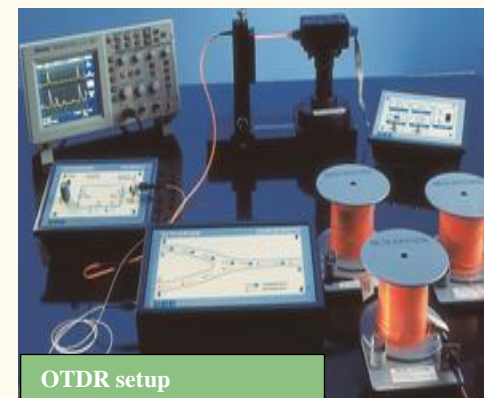
Key Offerings

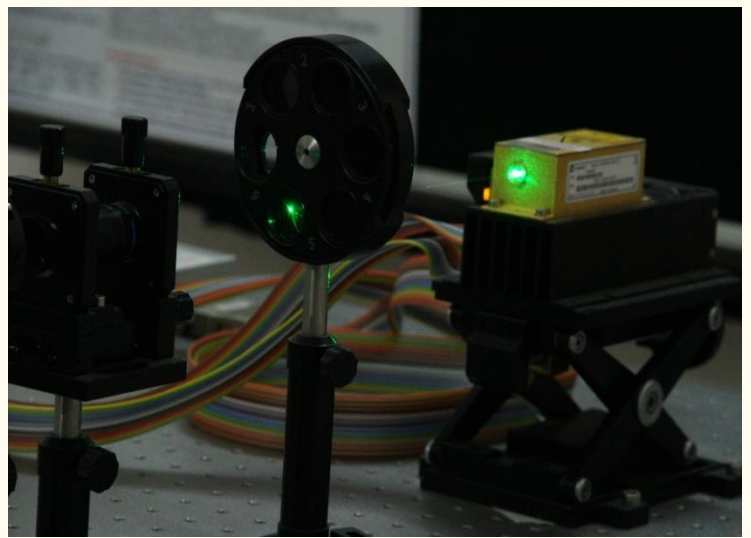
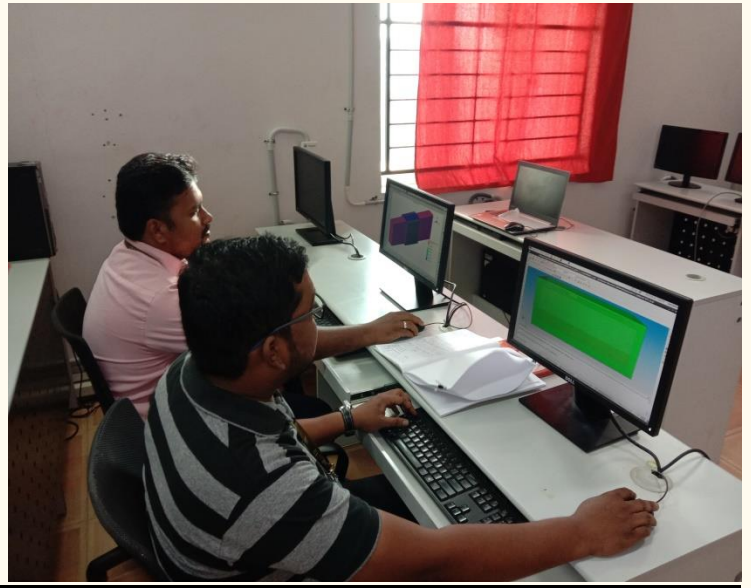
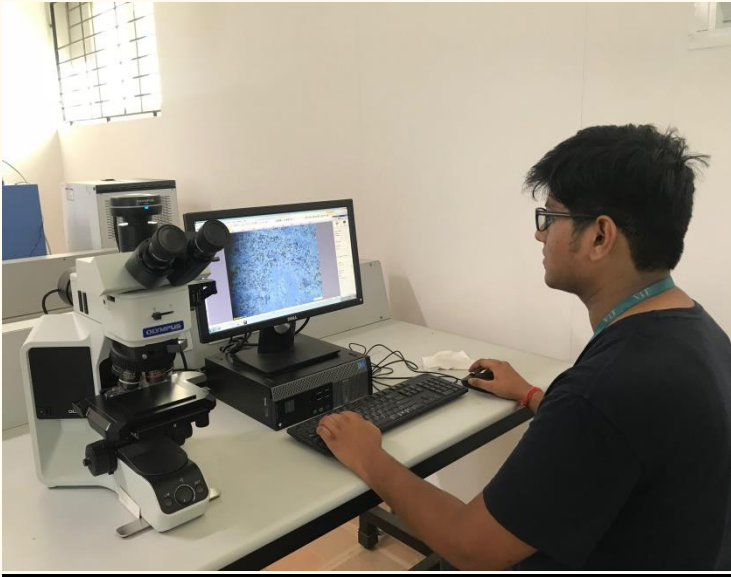
- ❖ Optical and Digital Interferometry
- ❖ Microstructure Testing
- ❖ Holography and Digital Holography
- ❖ Microscopic & Phase Contrast Imaging



Facilities

- ❖ Vibration Isolation Platform
- ❖ CW Green Laser
- ❖ CMOS Sensor
- ❖ Laser Beam Collimation Tester
- ❖ Optic Wave Design Software
- ❖ Laser and Detection Module
- ❖ DWDM & EDFA Modules
- ❖ OTDR setup
- ❖ Lumerical – Photonics Simulation

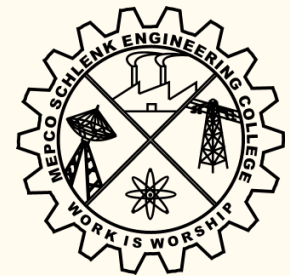




Major Projects

Project	Funding Agency	Amount (INR in Lakhs)
Design and Development of MEMS based Electronically Steerable Antennas	DST-SERB	23.46
High Performance Bipolar Li-Ion Supercapacitors: Design and Fabrication	DRDO	49.38
Process Variation study and performance analysis of nano scale MOSFETS and Tunnel FETs: Tunnel FETs based Mixed Signal Integrators Circuits for System-on-chip Applications.	DST-SERB	25.27
Development of Digital Holographic Techniques for the Characterisation of Micro-Optical components	DRDO	28.19
Synthesis and Fabrication of metal oxides and lithium intercalation metal oxides based memristive structure	UGC-DAE CSR	17.76
Development of a Modelling Framework for Variability-Aware Design of Strained FinFET based Mixed Signal Circuits	DST-YSS	22.15
Test Bed for Hardware Implementation of All Optical Bi-Directional Switching Node	DST-YSS	18.45
Development of a SPICE-Compatible Model for Single Event Transients for Circuit Simulations and its Application in SET-Tolerant DLL Design	DST-SERB	44.73
Thermal-Drift Aware Modeling and Design of Surface Stress based Micro/Nano Composite Cantilevers with Integrated Piezoresistors for Bio-sensing Applications	DST-SERB	22.12
Study on solar pumped fiber optic modules for maintaining essential optical communications during disasters	DST-GITA	25.96
An artificial intelligence based non-invasive system for the identification and assessment of children with Autism Spectrum Disorders	DST-TIDE	24.12
Design and Development of a Simulation Model for predictive analysis of load carriage	DRDO-LSRB	19.44
Development of a real time high resolution compressive digital holographic microscopic imaging technique for dynamic events	DST-CRG	44.86
Lower Atmospheric Wind Profile (LAWP)- MST Radar signal processing using Variational Mode Decomposition (VMD) based Adaptive Structures: implementation using FPGA	ISRO	28.42

Major Customers



CONTACT

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