SeNSE
Centre for Sensors, Instrumentation and Cyber Physical System Engineering



Recruitment Brochure

2024-25

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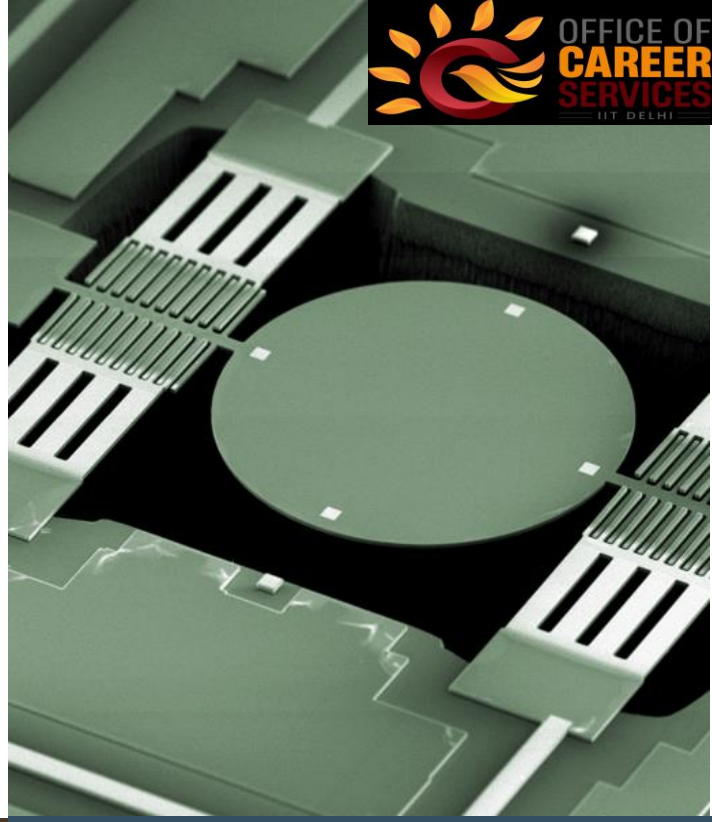
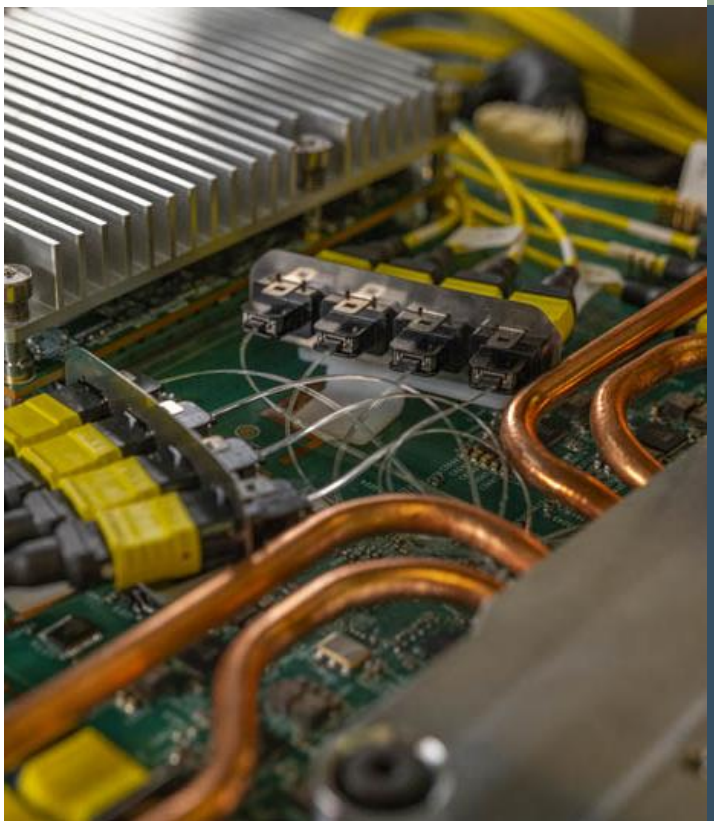
About Us

The Centre for Sensors, Instrumentation & Cyber-Physical System Engineering (SeNSE) offers an interdisciplinary M. Tech Course in Instrument Technology as well as MS(R) and Ph.D in specialized research areas combining multiple disciplines like microelectronics, electronic circuit design, optical & mechanical instrumentation engineering to design and develop complete systems.



About M.Tech Programme

M. Tech in Instrument Technology is an interdisciplinary program offered by the centre. It is a unique amalgamation of three major disciplines; Mechanical and Mechatronics, Electronics/ Electrical and Optical Engineering. This course is one of it's kind in India in which all the three disciplines come together to develop a sensor/instrument/system with great industrial and medical relevance.



Research Domains

There are six core areas of focus -

- Electronic system design
- Micro-opto-electro-mechanical systems
- Sensor technology and cyber-physical systems
- Advanced optical fabrication
- Optical engineering-quantum Technology

COURSES

Microelectronics and VLSI
- MOS VLSI Design
- Analog Integrated Circuits
- Introduction to MEMS Design

Embedded Intelligent Systems
- Embedded systems and applications
- Introduction to Machine Learning
- Embedded Intelligence
- Sensors and Transducers
- Operating systems
- Electronic Components and Circuits

Measurement and Instrumentation
- Laser Based Instrumentation
- Optical Components and Basic Instruments
- Instrument Design and Simulation
- Precision Measurement Systems

Mechanical Design
- Mechatronic Product Design
- Automation in Manufacturing
- Computer Aided Manufacturing (CAM)
- Material and Mechanical Design

ONGOING PROJECTS

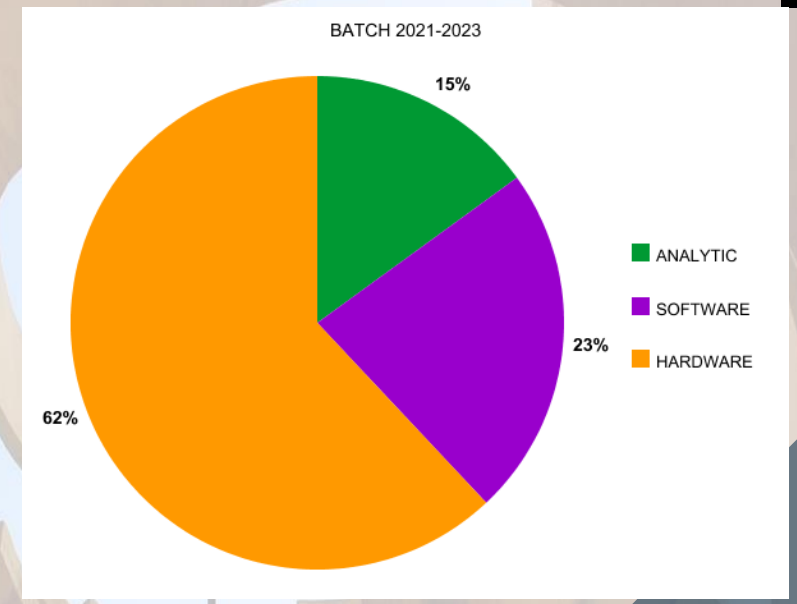
	Project Title
1.	Physics assisted and deep learning enabled lensless imaging
2.	Colorimetry based and machine learning assisted image analysis
3.	Auto-Range Adaption Based Mixed-Signal Interface for Capacitive Sensor
4.	FPGA based low-power safety harness system
5.	Avalanche Photodiode based fNIRS system development for BCI
6.	Magnetic Flux Leakage (MFL) Probe for Fault Detection in Metal Pipeline
7.	Neural Network Implementation in FPGA for In-Sensor Computing
8.	Resistive Sensor Interface Using Pseudo-Sine Wave
9.	Miniaturized electro-mechanical sensor

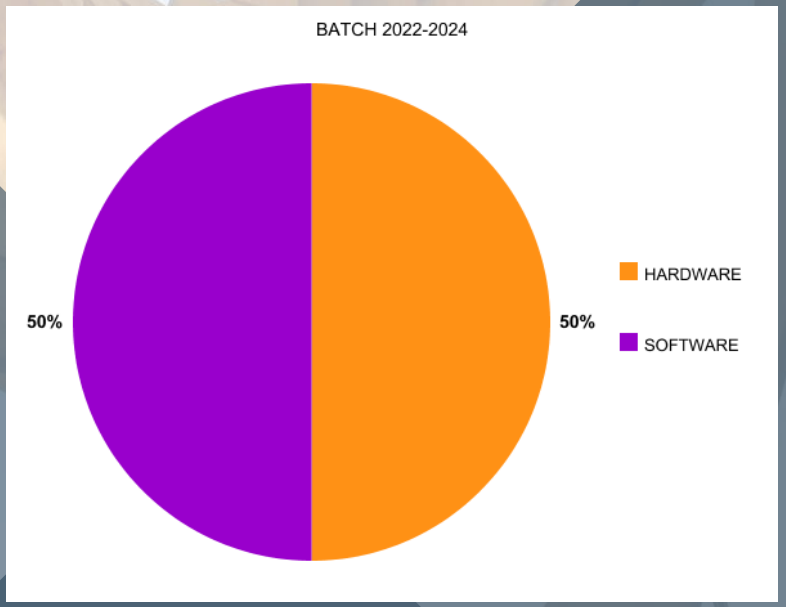
LAB FACILITIES

- Manpower Development in Instrument Technology Lab (MDIT)
- Circuits & Sensing Group
- Advanced Instrumentation Lab
- InfraRed Imaging Laboratory (IRIL)
- Laser Application and Holography Lab
- Optical Instrumentation Lab
- Optical Metrology Lab
- Optical Workshop
- Ultra-Precision Lab



PLACEMENT STATISTICS





BATCH 2021-23
CORE: 62%
NON-CORE: 38%

BATCH 2022-24
CORE: 50%
NON-CORE: 50%

PAST RECRUITERS

















































































FACULTY PROFILE

Prof Gufran Sayeed Khan (HOD)	Optical Instrumentation, Applied Optics, Aspheric Optics, Interferometry, X-Ray Optics, Diffractive Optical Elements,Computer Generated Holography, Computer Controlled Polishing, Diamond Turning
Prof Ravibabu Mulaveesala	InfraRed Vision and Industrial Imaging. Signal, Image and Video Processing Techniques for Non-invasive Imaging/Non-destructive Testing Methods. Non-destructive Testing & Evaluation. Structural Health Monitoring. Bio-medical Imaging. Thermal Non-destructive Testing/Thermal wave imaging. InfraRed Imaging.
Prof Satish Kumar Dubey	Digital Holography, Laser based instrumentation for measurement and monitoring systems, Opto-electronic sensing for PoC diagnostics.
Prof Jolly Xavier	Optoplasmonic Ultra Sensitive Single Molecule Biosensors, Integrated silicon photonic devices, Integrated Chip specific nano/micro fabrication, Linear and Nonlinear Optical Microresonators, Cavity integrated NEMS/MEMS devices
Prof Shahid Malik	Analog integrated Circuits, Signal Conditioning Circuits, Biomedical Instrumentation, Embedded Sensing Microsystems, Implantable/Injectable Sensors, Sensing Prosthetic, and Remote Sensing Instrumentation.
Prof Manish Kumar	Optical microscopy, Optical imaging, Optical systems, Bio-imaging, Fluorescence microscopy, Light sheet microscopy, Confocal microscopy, Optical instrumentation.
Prof Jasleen Lugani	Quantum optical technologies, Integrated quantum photonics, quantum information processing, Non-linear optics, optical memories, photon pair generation, photonic processors, Integrated optics platforms, photonic circuits.

RECRUITMENT PROCEDURE



Invitation to Recruiter



Filling of Job Notification Form (JNF) by Recruiter



Finalization of JNF and shortlisting of students



Recruiter has to register with the institute



On Campus interviews

CONTACT US



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