Centre for Sensors, INstrumentation and Cyber Physical System Engineering (SeNSE)

Placement Brochure (2022-2023)

https://sense.iitd.ac.in/
The Centre for Sensors, INstrumentation & Cyber-Physical System Engineering (SeNSE)-formely known as IDDC 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. In keeping with modern trends, industrial/societal expectations with the national goals, two more research areas - Sensor Technology and Cyber Physical Systems - have been included in its theme and the centre has been renamed as SeNSE. The Centre has made significant contribution through various sponsored R&D projects in developing Sensors/Systems for defense, Medical sector and industry. It aims to achieve the national goals and foster excellence in state-of-the-art technologies. There are six core areas of focus - electronic system design, advanced optical fabrication, micro-opto-electro-mechanical systems, sensor technology and cyber-physical systems, optical engineering-Quantum Technology. The Centre consists of distinguished faculty members in these areas, renowned for their contribution through patents, papers published in reputed journals, book publications. They have also been recipients of national and international awards.

“The post graduate students of SeNSE contribute towards sponsored R&D activities via their Masters Thesis projects.”
- Prof. Ravibabu Mulaveesala
INSTRUMENT TECHNOLOGY
SENSE, IIT DELHI
### Faculties & Area of Research:

<table>
<thead>
<tr>
<th>Faculty Name</th>
<th>Research Areas</th>
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<tbody>
<tr>
<td>Prof Anuj Dhawan (HOD)</td>
<td>Integrated nano-scale systems, Optical Sensors: Chip-based and Fiber Optic, Integrated Photonic devices, Computational electromagnetics, Biosensors and Biophotonics, Flexible Electronics, Nanofabrication</td>
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<tr>
<td>Prof Gufran Sayeed Khan</td>
<td>Computer Generated Holography, Optical Instrumentation, Applied Optics, Aspheric Optics, Interferometry, X-Ray Optics, Diffractive Optical Elements</td>
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<tr>
<td>Prof Satish Kumar Dubey</td>
<td>Digital Holography, Laser based instrumentation for measurement and monitoring systems, Opto-electronic sensing for PoC diagnostics.</td>
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<td>Prof Jolly Xavier</td>
<td>Optoplasmonic single molecule Bio-Sensor, Cavity integrated NEMS/MEMS devices Integrated Nanophotonic Sensors, Advanced Quantum Photonic Sensing and Imaging</td>
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<td>Prof Manish Kumar</td>
<td>Optical microscopy, Optical imaging, Optical systems, Bio-imaging, Fluorescence microscopy, Confocal microscopy</td>
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<tr>
<td>Prof Jasleen Lugani</td>
<td>Integrated quantum photonics, quantum information processing, Non-linear optics, optical memories, Integrated optics platforms, photonic circuits</td>
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List of Courses Offered:

- Introduction to Machine Learning
- MOS VLSI Design
- Analog Integrated Circuits
- Introduction to MEMS Design
- Electronic Components and Circuits
- Embedded systems and applications
- Embedded Intelligence
- Sensors and Transducers
- Digital Image processing
- Automation in Manufacturing
- Mechatronic Product Design
- Operating systems
- Computer Aided Manufacturing (CAM)
- Precision Measurement Systems
- Display Devices and Technology
- Instrument Design and Simulation,
- Instrument Organization and Ergonomics
- Technology of RF and Microwave Solid State Devices
- Material and Mechanical Design
- Optical Components and Basic Instruments
- Optical Materials and Optical Techniques in Instrumentation
- Laser Based Instrumentation
Lab Facilities:

- Manpower Development in Instrument Technology Lab (MDIT)
- Advanced Instrumentation Lab
- InfraRed Imaging Laboratory (IRIL)
- Circuits & Sensing Group
- Laser Application and Holography Lab
- Optical Instrumentation Lab
- Optical Metrology Lab
- Optical Workshop
Ongoing M.Tech. Projects:

<table>
<thead>
<tr>
<th>Sr.No</th>
<th>Project Title</th>
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<tbody>
<tr>
<td>1.</td>
<td>Applications of active infrared imaging for breast cancer screening</td>
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<tr>
<td>2.</td>
<td>Development of EEG recording system</td>
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<tr>
<td>3.</td>
<td>Development of fNIRS system</td>
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<tr>
<td>4.</td>
<td>Development of a wearable ultrasonic system</td>
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<tr>
<td>5.</td>
<td>High speed sensor interface with digital filtering for wearable sensors</td>
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<tr>
<td>6.</td>
<td>Dual-mode Magnetic Induction Based Ranging and Localization System</td>
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<tr>
<td>7.</td>
<td>Design and development of front end and data acquisition system for frequency modulation based fNIRS system</td>
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<tr>
<td>8.</td>
<td>Applications of machine learning algorithms to infrared nondestructive testing and evaluation of solids</td>
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<tr>
<td>9.</td>
<td>Detection and classification of slags inclusions in weldments</td>
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<tr>
<td>10.</td>
<td>Development of electronic system for health monitoring of capacitive sensors</td>
</tr>
<tr>
<td>Sr.No</td>
<td>Project Title</td>
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<tr>
<td>11.</td>
<td>Low cost optical seismometer</td>
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<tr>
<td>12.</td>
<td>Novel studies on non-linear matched filtering for subsurface sensing and imaging applications</td>
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<tr>
<td>13.</td>
<td>Background Oriented Schlieren (BOS) Imaging</td>
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<tr>
<td>14.</td>
<td>Electro-mechanical miniaturized devices for fluid mechanics</td>
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<td>15.</td>
<td>Miniaturized Optomechanical devices</td>
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<tr>
<td>17.</td>
<td>Mobile Manipulations with RoboMuse 5.0</td>
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**Categories:**
- DSP & Communication
- MEMS
- Machine Learning
- Robotics
Recruitment Procedure:

**STAGE 01**
Invitation To Recruiters

**STAGE 02**
Filling Job Notification Form (JNF) by Recruiters

**STAGE 03**
Recruiters has to register with the Institute on https://ocs.iitd.ac.in/portal/recruiter/auth

**STAGE 04**
Finalization of JNF & Short-listing of students

**STAGE 05**
On-campus interviews & enlisting the selected students
Placement Statistics:

- Core: 54%
- Software: 38%
- Management: 8%

100% Placement of Batch 2020-22
Past Recruiters:

Intel
Texas Instruments
Mediatek
John Deere
GE
ICICI Bank
Rakuten
MaxLinear
Samsung
Infineon
Siemens
Tata Motors
TVS
National Instruments
Toshiba
LT
Qualcomm
HCL
Havells
Axtria
MathWorks
Delta
Applied Materials
Honeywell
Lam Research
Reliance Industries Limited
Cisco
Relaxo
Bosch
Tata Consultancy Services
Famic Technologies Inc.
Cypress
EVM
DRDO
ONGC
Indian Oil
Bharat Electronics

...and many more
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