

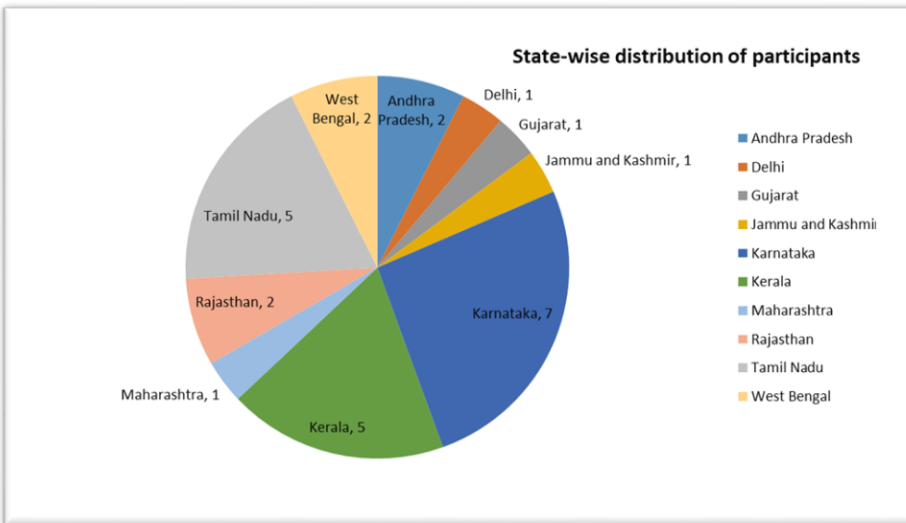
INUP i2i Hands-on Training on Nanofabrication and Characterization Techniques was conducted from 18-28 April 2022: <https://www.inup.cense.iisc.ac.in/hands-on-training>

Brief description of the hands-on training: Hands-on training program was conducted on Nanofabrication and Characterization Techniques at IISc from 18-28 April 2022, for the selected researchers based on the research proposal. The researchers were provided 11 days (about 1 and a half weeks) of rigorous training on equipment and the processes that are likely to be used for their project execution. 131 candidates applied for this training program out of which 27 candidates were selected for participation. The following were the submitted Research Proposal of the participants under different modules:

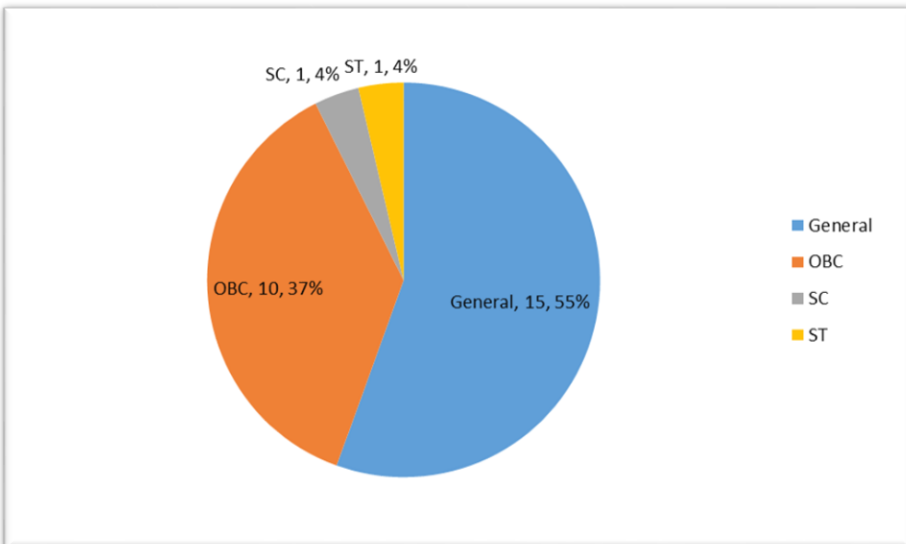
- ***MEMS Cantilever:***
 - Fabrication and characterization of Ni/Ti/Zr/Cu shape memory alloy multi-layer thin films for High temperature applications
 - High voltage/ conducting 3D nanostructures as AC line filtering devices
 - Field Programmable Photonics Gate Arrays
 - Study of Thermoelectric Phenomenon in Two Dimensional materials
 - Magneto-transport studies in Two-Dimensional Transition Metal Dichalcogenides
 - Machine learning assisted synthesis of HER nano catalyst for the enhanced catalytic activity
- ***MOS Capacitor***
 - Real-time Detection of Volatile Organic Compounds (BTX) using Saw based Nano sensors
 - Design, Fabrication and Characterization of Piezoresistive Tactile Sensor for Static Finger-Mount Applications
 - Study of Resistive Switching phenomena in Low Dimensional Nanoscale material
 - Investigating the effects of photonic band gap on the radiative losses in photo plasmonic metamaterials
 - GaN & Ga₂O₃ as Transparent Conducting Oxide
 - Flexible metal/rGO nanocomposite thin films for room temperature gas sensing applications
 - Multifunctional nanoparticle for Photonics Application
- ***Photovoltaic cell:***
 - Effect of Fe concentration on Cu₂FeSnS₄ thin films for solar cell applications
 - 2D MXene-silicon Schottky barrier solar cell with transition metal chalcogenide as an interlayer
 - Mixed Dimensional Halide perovskites based stable and efficient solar cells
 - Evaluation of the Photo response Characteristics of ZnO based Thin Film Photodetectors
 - Inverted Flexible perovskite solar cells based on graphene electrode
 - Fabrication and Characterization of Highly Efficient Non-Fullerene Acceptor based Inverted Organic Solar Cell
 - Specialized detectors for self-powered visible light communication systems
- ***Gas Sensors:***
 - Development of microencapsulated phase change material incorporated composites for thermal buffering applications
 - Sensors for Precision Agriculture

- Performance Analysis of Photonic Crystal (PhC) based Micro-Opto-Electro-Mechanical Systems (MOEMS) Pressure Sensor
- Development of ENose (VOC Sensing Array) Prototype for Healthcare Applications
- Quantum sieving based hydrogen isotope separation through subatomic spaces in heterostructures
- An artificial intelligence driven air quality monitoring framework with an indigenous sensor design to monitor multiple pollutants
- Synthesis of multilayer Al doped ZnO for CO₂ Gas Sensing

State-wise distribution:

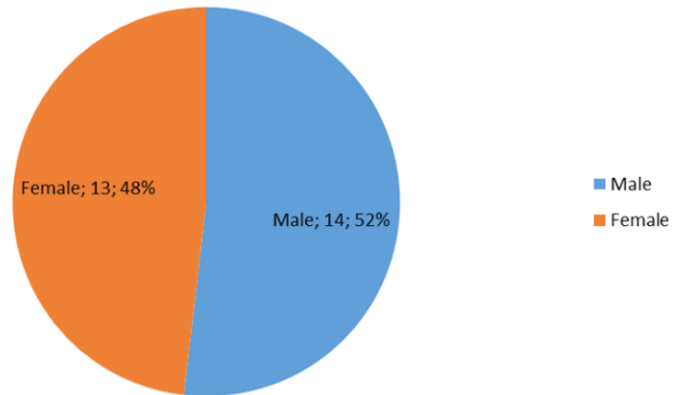


Category-wise distribution:

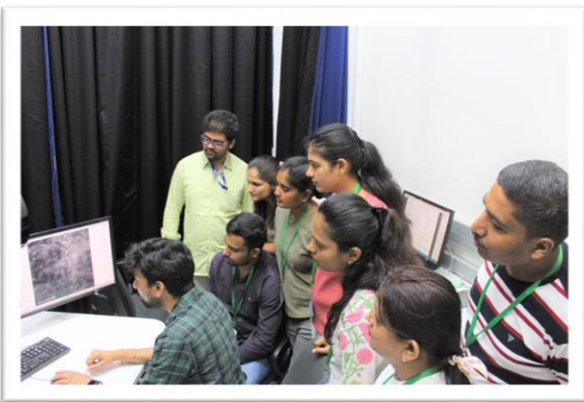


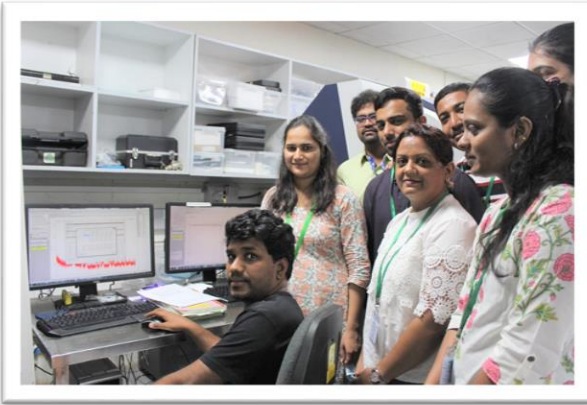
Gender-wise distribution:

Gender-wise distribution of participants



Some pictures of the workshops:





Feedback from the participants for the training program:

Jaya Choudhary from REVA University, Bangalore, Karnataka, *“It was very much useful related to my Ph.D. Because it gives me exposure to the Fabrication and Characterization of different kind of materials with different techniques which helps a lot to proceed for the research work in a good and correct direction. I liked the presentation and interaction session because the suggestions came from experts and FTs is very much useful.”*

Yashaswini P R from Malnad College of Engineering, Hassan, Karnataka, *“Training met my expectations. I don't have the fabrication facility in my parent institute. So I could see how things happen practically. The experience was awesome. I got to know that there is a lot of difference between the theory and practical stuff.”*

Lalita from IIT Gandhinagar, Gujarat, *“It has helped me in understanding many parts of characterizations and fabrications about which I was confused earlier. The interaction with experts opens a new way to think about minor detailing that we often overlook. All the FTs were very helpful, knowledgeable and engaging.”*

Ganesh Mahendra from KLE Technological University, Hubballi, Karnataka, *“I was able to learn technical information and handling of various scientific instruments. The fabrication lab maintained its safety and cleanliness standard, whereas the coats being provided were in pristine condition. The laboratory are well maintained and the clean rooms are really good for fabrication of devices.”*

Shilpa R from SRM Institute of Science and Technology, Kattankulathur Campus, Chennai, Tamil Nādu, *“It was a focused comprehensive learning experience on all characterization and fabrication tools under one roof. Fabrication lab was very professional and provided an insight towards realistic problems that arise during device fabrication.”*

Karthikeyan M from SRM University, Amaravathy, Andhra Pradesh, *“All the high end equipment are available to use inside the institute. this program will be helpful for the students coming from campus under development.”*

Nishi. G. Nampoothiri from Amrita University, Kollam, Kerala, *“It has helped me in knowing about all the different types of equipment available for characterization and also the different methods or steps involved in fabrication. But more is needed to learn for the fabrication of devices.”*

Nikhila Patil from College of Engineering, Pune, Maharashtra, *“I got to know many characterization techniques, clean room and very proper way for fabrication of the devices. It was very good experience. FT have cleared all the doubts.”*

Aravind N from National Institute of Technology, Tiruchirappalli, Tamil Nadu, *“I was able to get acquainted with many fabrication and characterization facilities. Really good experience. Got to see many techniques which we had only read about so far.”*