



Module PMRF-ISSS17

Micro-Nano Fabrication and Characterization

Name of the PMRF student

Sanket Jugade, IISc

Required background of the students taught

Students from the following backgrounds:

1. Electrical Engineering and Computer Science (EECS)
2. Instrumentation Engineering (IE)
3. Mechanical Engineering (ME)
4. Physics (PHY)

Faculty coordinator

Prof. Hardik J. Pandya, Department of Electronic Systems Engineering, Indian Institute of Science, Bangalore

Online session coordinator

Mr. Amit Tanwar, Tyndall National Institute, Ireland



Details of the content of the module

This course is focussed on understanding micro-nano fabrication and characterization techniques for applications such as Electronics, Optics, and Healthcare.

Lecture 1: Introduction to Micro-Nano Fabrication

Lecture 2: Review of Crystal Structure

Lecture 3: Silicon Growth

Lecture 4: Substrate Cleaning Processes

Lecture 5: Doping, Ion-Implantation

Lecture 6: Thermal Oxidation

Lecture 7: Chemical Vapor Deposition

Lecture 8: Physical Vapor Deposition

Lecture 9: Lithography Basics

Lecture 10: Photolithography

Lecture 11: Dry Etching

Lecture 12: Wet Etching

Lecture 13: Introduction to Micro-Nano Characterization Techniques, Optical Microscopy, Ellipsometry, Atomic Force Microscopy

Lecture 14: Electron Microscopy

Lecture 15: X-ray Diffraction, Raman Spectroscopy

Lecture 16: Electrical Probe Station

Schedule of the module

Course Start Date: 02/06/2021

Course End Date: 15/09/2021

Lecture Day: Wednesday

Time: 10 AM - 11 AM

Meeting link:

bit.ly/mnfclecture (Microsoft Teams)

Contact email ID: issf.forum@gmail.com

Registration link: bit.ly/issmfnfc