

M. Tech. in Semiconductor Materials and Devices (A.Y. 2024-25)

Department of Materials Science &
Metallurgical Engineering

<https://msme.iith.ac.in/>

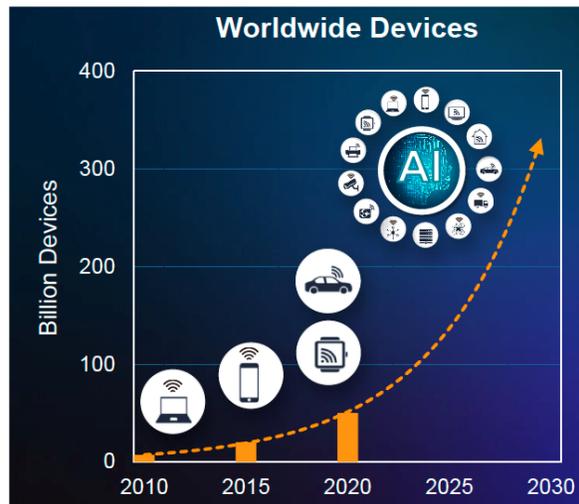
MATERIALS SCIENCE &
METALLURGICAL ENGINEERING

Atoms to Applications



About The Program

- ❖ The program aims to nurture expertise in Semiconductor Materials and Devices, one of essential resources to make India as the global hub for Electronic Systems and Manufacturing. The program is in line with the recent expansion of the vision of Aatmanirbhar Bharat in setting up of India Semiconductor Mission

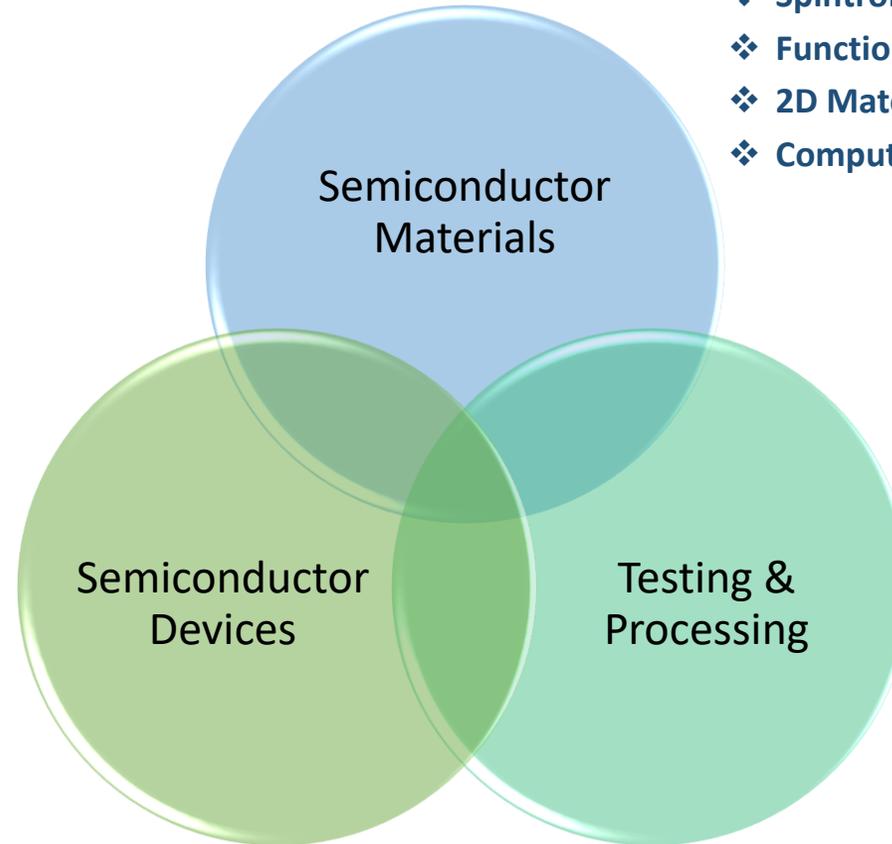


- ❖ By the year 2030, the global need of AI+IoT devices are predicted to be >350 billion (source: 2020 IEEE ISSCC, Cisco VNI Global IP Traffic Forecast 2017-2022).
- ❖ The specialized degree programs such as Semiconductor Materials and Devices is of paramount importance to meet the technological growth and demands both nationally and globally.

- ❖ In the recent initiatives of the Indian government Rs.76000 crore (>10 billion USD) has been approved for development of semiconductors and manufacturing ecosystem in the country (source: investindia.gov.in). The current academic program is meant for enthusiastic bright candidates who are willing to take a career path on semiconductor technology.

Courses

- ❖ Semiconductor Devices
- ❖ Electronic Materials and Devices
- ❖ Smart Materials and Transducers
- ❖ Flexible Electronics
- ❖ Device Simulations
- ❖ Thin Film Technology

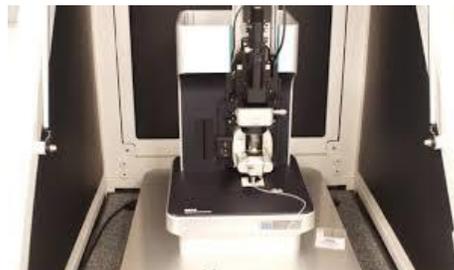
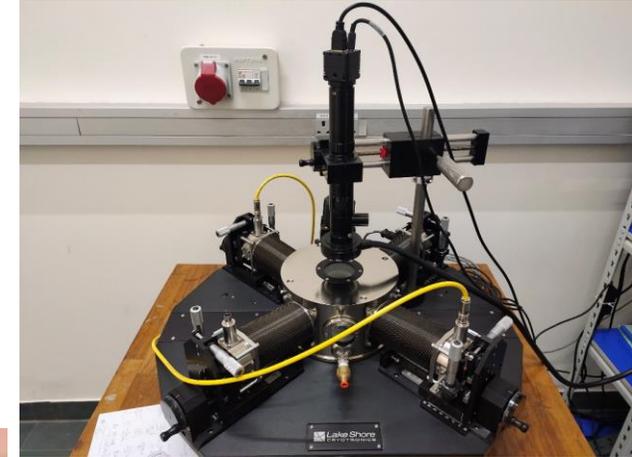
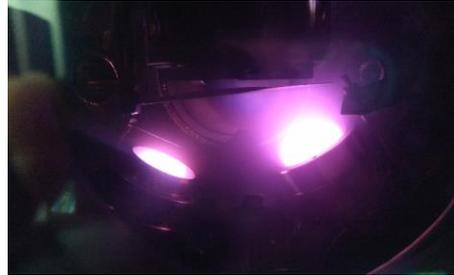


- ❖ Fundamentals of Semiconductor Materials
- ❖ Spintronic Materials and Devices
- ❖ Functional Polymers & composites
- ❖ 2D Materials: synthesis, characterization and applications
- ❖ Computational Materials Science

- ❖ Semiconductor Extraction & Purification
- ❖ Micro and Nanofabrication
- ❖ Solidification Processing
- ❖ Electrochemical processes in semiconductors
- ❖ Semiconductor Materials Characterization lab
- ❖ Semiconductor Devices Characterization lab
- ❖ Materials Characterization
- ❖ Diffusion analysis in Materials Engineering

- ❖ Industry lectures on semiconductor devices, electronic packaging and e-waste management

Research Facilities



Eligibility & Admission (A.Y. 2024-25)

- ❖ **MoE Fellowship**: Candidates having B.E./B.Tech. or equivalent in Metallurgy /Ceramics /Mechanical /Production /Industrial/Electrical/Electronics/Instrumentation Engineering/Polymer or related discipline or M.Sc. in Materials Science/Nanotechnology/Physics/Chemistry or related discipline with minimum first class. **Valid GATE score required in EE/EC/MT/ME/PI/PH/CY/XE for MoE fellowship.**
- ❖ Applications shall be submitted online. Please visit www.iith.ac.in for more details.
- ❖ **Contact**: Program Coordinator (M.Tech. in Semiconductor Materials and Devices)
Department of Materials Science and Metallurgical Engineering
Indian Institute of Technology Hyderabad
Kandi , Sangareddy , Telangana 502284, India
Email: smd@msme.iith.ac.in

Eligibility & Admission (A.Y. 2024-25)

- ❖ **Self-sponsored:** Candidates having B.E./B.Tech. or equivalent in Metallurgy /Ceramics /Mechanical /Production /Industrial/Electrical/Electronics/Instrumentation Engineering/Polymer or related discipline or M.Sc. in Materials Science/Nanotechnology/Physics/Chemistry or related discipline with minimum first class. **The selection will be based on written test and/or interview for self-sponsored seats.** GATE Score is not mandatory.
- ❖ Applications shall be submitted online. Please visit www.iith.ac.in for more details.
- ❖ **Contact:** Program Coordinator (M.Tech. in Semiconductor Materials and Devices)
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