NEXUS-SEMICON

MUMBAI-CHANDIGARH

HYBRID MODEL LEARNING (ONLINE / OFFLINE)

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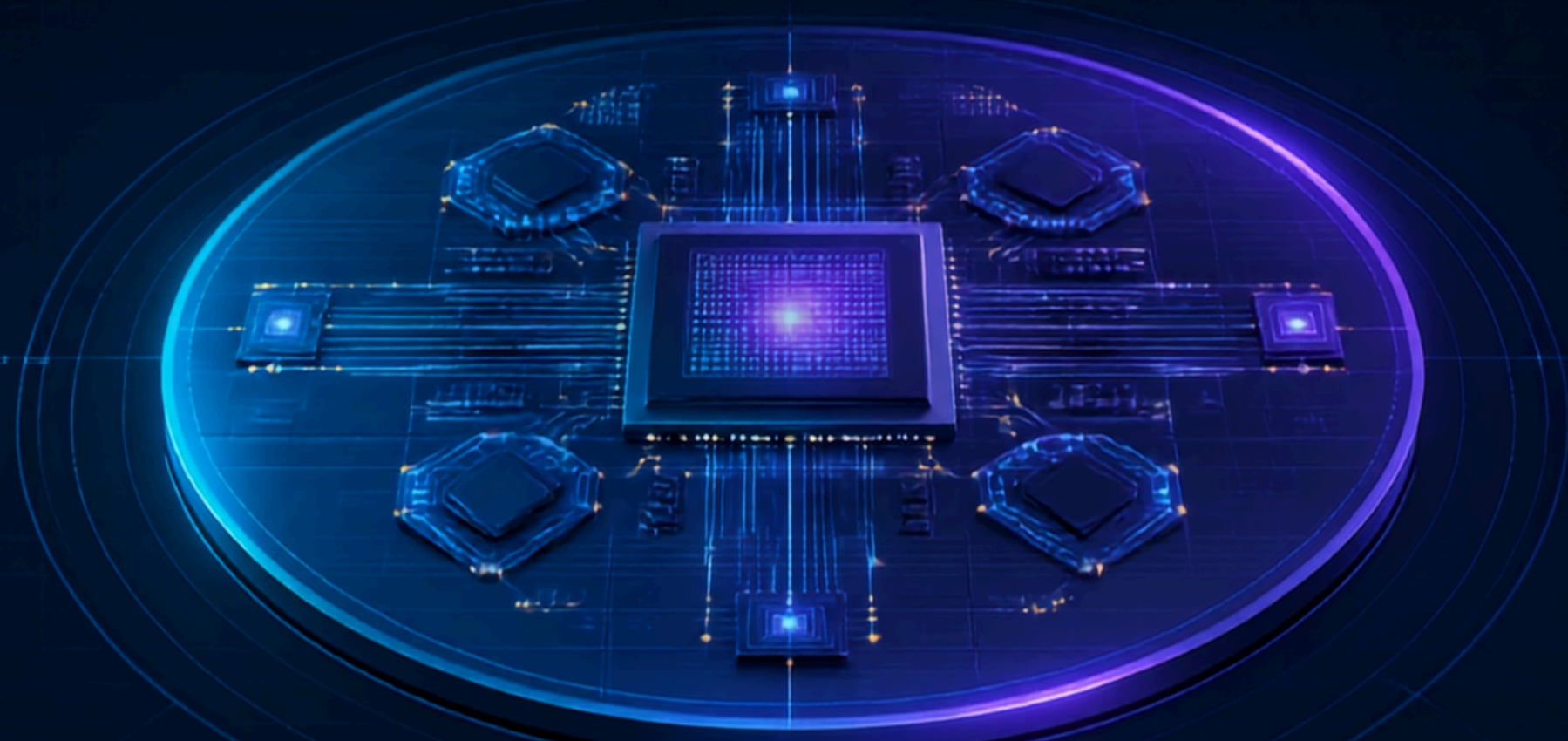

Postgraduate Certificate in

Semiconductor Technology & Systems

Advanced Semiconductor Education • Industry Specialization • Research • Innovation

Buiding the Semiconductor Workforce of the Future

www.gndgu.com | Email: admissions@gndgu.com

NEXUS-SEMICON

POSTGRADUATE CERTIFICATE PROGRAM

02
OF 06

CONNECTING KNOWLEDGE, POWERING INNOVATION, SHAPING THE SEMICONDUCTOR FUTURE.

One program. The complete semiconductor ecosystem.

The Nexus-Semicon Postgraduate Certificate Program prepares the next generation of semiconductor engineers, technology professionals, researchers, and innovation leaders for the rapidly evolving global semiconductor ecosystem.

The program combines advanced semiconductor fundamentals, VLSI and SoC design, AI hardware, semiconductor materials, advanced packaging, research methodology, technology management, and industry-focused specialization.

01 Devices → 02 Materials → 03 Design → 04 AI Hardware → 05 Packaging → 06 Manufacturing → 07 Systems → 08 Applications → 09 Commercialization

DEVICES
Semiconductor physics, device structures, characterization

MATERIALS
Semiconductor materials, processes, and emerging materials research

DESIGN
VLSI, Svc, Etat. tools, verification, validation, and RTL to GSS flow

AI HARDWARE
AI accelerators, neural architectures, edge AI and ML systems

PACKAGING
Advanced packaging, 3D integration, thermal and reliability

MANUFACTURING
Fab processes, equipment, yield, test, and quality management

SYSTEMS
System architecture, embedded systems, integration and test

APPLICATIONS
Automotive, IoT, SGP66, HPC, consumer, industrial, healthcare, aerospace

COMMERCIALIZATION

Academic architecture: foundation to innovation

Year 1 Academic Architecture

SEMESTER 1

Advanced Semiconductor Foundation + Specialization — **25 CREDITS**

CODE	CORE LEARNING	CREDITS
SEM501	Advanced Semiconductor Devices	3
SEM502	Advanced VLSI & SoC	3
SEM503	Semiconductor AI & Intelligent Systems	3
SEM504	Advanced Packaging & Integration	3
SEM505	Advanced Semiconductor Materials	3
SEM506	Research Methodology	2
SEM507	Technology Strategy & Management	2
PG SPECIALIZATION II	PG SPECIALIZATION III	3

SEMESTER 2

Research + Industry Application + Innovation — **28 CREDITS**

CODE	CORE LEARNING	CREDITS
SEM508	Advanced Research Seminar	6

RESEARCH-TO-INDUSTRY PROGRESSION

Specialize where technology meets industry

Students select four specialization courses from a broader portfolio of six-course clusters.

01 Automotive Semiconductor Systems

- Automotive SoC
- ADAS Hardware
- EV Semiconductor Systems
- Automotive AI
- Functional Safety
- Vehicle Semiconductor
- Architectural & Fabric Attore

02 AI & Computing Semiconductor

- AI Accelerer Architecture
- NPU/GPU Design
- HPC Architecture
- Chiplets
- Advanced Memory
- Hardware AI Optimization

03 Power & Energy Semiconductor

- SIC Devices
- GaN Devices
- Advanced Power Ic
- EV Power Systems
- Grid Electronics
- Energy Semiconductor Materials

04 Telecom & G6 Semiconductor

- RFIC, mmWave
- 66 Hardware
- RF Front-End
- Optical Communication
- Satellite Semiconductor Systems

05 Aerospace & Defense

- Radiation-Hardened Devices
- Secure Chips
- Radio Electronics
- Space Electronics
- Avionics
- Defense Semiconductor Reliability

06 Medical Semiconductor

- Biosensors
- Medical ASICS
- Wearable Chips
- Biomedical Imaging
- Implantable Electronics
- Medical AI Hardware

07 Semiconductor Manufacturing

- Advanced Process Technology
- Process Integration
- Lithography
- Yield Engineering
- Fab Automation
- Semiconductor Digital Twins

08 Advanced Packaging

- 2.5D Packaging
- 30 Ics
- Chiplets
- Heterogeneous Integration
- Thermal Engineering
- Advanced Testing

09 Photonics & Quantum

- Silicon Photonics
- Phontonic IC
- Quantum Devices
- Optical Computing
- Quantum Semiconductor Materials
- Emerging Architectures

POTENTIAL RESEARCH AREAS

advanced devices · AI accelerators · materials · chiplets · 3D integration · SIC/GaN · automotive · RF/G6 · radiation-hardened electronics · medical systems · silicon phonics · quantum technologies · manufacturing

Year 2: Earn While Learn

Learn. Work. Earn. Build. Get Industry Ready.

Eligible students enter structured, industry-connected internships while continuing postgraduate studies, research, project work, thesis and professional development.

₹7,500 per month

₹7,500 × 12 months = ₹90,000 potential annual learning-and-earning support, subject to the applicable internship/ employment arrangement and eligibility requirements.

CLASSROOM → INDUSTRY → EXPERIENCE → RESEARCH → EMPLOYMENT

Student | Industry Intern | Skilled Practitioner | Research Contributor | Professional Engineer

7-STEP PATHWAY

1. Learn
2. Prepare
3. Enter Industry
4. Work & Learn
5. Research
6. Demonstrate
7. Transition

Year 2 structure

Industry Internship	Paid industry experience
Industry Research Project	Solve a real-world technology problem
Advanced Seminar	Research presentation and knowledge sharing
Thesis / Capstone	Advanced technical project
Specialization	Deep domain expertise
Technology Commercialization	Converting technology into impact

From semiconductor education to semiconductor employment

1. **Year 1: LEARN**
   Advanced Semiconductor Foundation + Specialization
2. **Year 2: EARN + LEARN**
   Industry Internship + Research + Thesis + Specialization
3. **Graduation: DEMONSTRATE**
   Qualification + Industry Experience + Technical Portfolio
4. **Career: EMPLOY**
   Semiconductor Industry, Research, Design, Manufacturing, Packaging, AI Hardware, Automotive, Energy, Telecom, Aerospace, Medical, Photonics.

Dual mentorship model

Industry Mentor + Academic Mentor = Dual mentorship model

Industry mentor: technical guidance, project supervision, workplace mentoring, industry exposure, performance feedback.

Academic mentor: academic supervision, research guidance, thesis supervision, assessment, academic quality assurance.

The NEXUS-SEMICON graduate

- Understand advanced semiconductor technologies; connect devices, materials, design, packaging and systems;
- apply technologies to industries;
- research emerging problems;
- design solutions and prototypes;
- evaluate architectures;
- collaborate across disciplines;
- innovate across the value chain;
- commercialize promising technologies and intellectual property.

Learn the technology. Understand the ecosystem. Specialize in an industry. Solve real problems. Build the future.

Design companies · Foundries · OSAT/ATMP · Materials · Automotive & EV · AI & Computing · Telecom · Energy · Aerospace & Defense · Medical Technology · Research Laboratories · Startups

NEXUS-SEMICON