

DIPLOMA PROGRAM IN **SEMICONDUCTOR TECHNOLOGY**

Program Code:

2275930

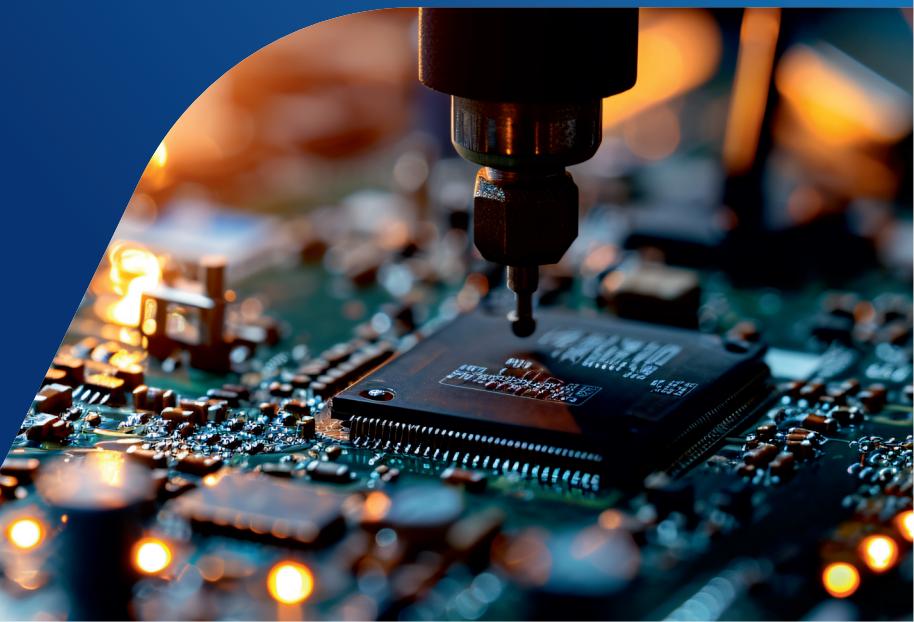
Course Duration:

1 Year

Course Fees:

Rs. 25,000/- & \$450

For Indian and International Candidates



PARUL UNIVERSITY

Parul University is an intellectual and a creative quest for all its stakeholders viz. Indian and International Students, Parents, Alumni, Faculties, Industry & Academic partners as well as society at large. We believe in proliferating our efforts towards quality education and environment. Every year we advance our targets to make headway to our scholarly endeavors.

Our University brings to everyone the best of all worlds. Be it its ethics, global exposure, contemporary educational practices, innovation and growth, PU outshines in all of these. We aim to make successful academic pursuits through entrepreneurship, research, modernization and partnerships with educationally inclined organizations, thus enhancing our position as the finest education destination.

We have been pioneers in accepting various interdisciplinary programs and have included them to our ideal and promising higher education curriculum. Starting with this decade it's our collective effort to empower more youth towards the pursuit to continuously learn, enhance skills, generate better employment opportunities and become competent entrepreneurs. For this very purpose, we are initiating a plurality of short term courses.

CENTRE FOR CONTINUING EDUCATION & ONLINE LEARNING

In this present day world, each year creates a generation gap which leads to change in the demand of job skills by the employers. Parul University has embarked on filling this gap by enlightening students and working professionals with the most updated skill based education and to transform them into adept industry professionals and talented entrepreneurs.

Parul University is introducing multiple programs under Centre for Continuing Education & Online Learning which are developed as per industry requirements and in compliance with the changing market needs.

DUAL DEGREE PROGRAM - LETS YOU EARN TWO CREDENTIALS IN DISTINCT DOMAINS

With the ever increasing knowledge and skills in today's competitive world, Parul University's Dual Degree opportunities allow you to pursue two degrees at the same time. Pursuing dual degrees will provide you with the most competitive advantage, and will give you diverse knowledge in multiple fields and disciplines. Undergraduate and Postgraduate students can undergo two degree programs in distinct fields. All programs offered by Parul University under Dual Degree are designed in line with NEP 2020 and guidelines suggested by University Grants Commission (UGC).

Surprising Benefits of Graduating with a Dual Degree

- Enhancing Employability and Entrepreneurship Skills
- Increase in Knowledge Base
- Diverse Career Options
- Enhancement of Multi-disciplinary Talent
- Saving of Time and Money

PREAMBLE

Semiconductor technology is the backbone of modern electronics, driving innovations in computing, power systems, and communication. Power Semiconductor Devices focus on high-efficiency switching components essential for power electronics applications. VLSI for Computer Arithmetic explores the design of optimized arithmetic circuits used in processors and digital signal processing. VLSI Design covers Integrated Circuit (IC) design, fabrication, and System-on-Chip (SoC) integration. Analog CMOS VLSI Design emphasizes low-power analog circuits for mixed-signal applications. Introduction to Semiconductor provides fundamental knowledge of semiconductor physics and device operation. Digital Electronics delves into logic circuits, sequential design, and FPGA-based systems. Semiconductor Device Fabrication introduces key manufacturing processes like wafer processing, lithography, and doping. Optoelectronic Devices study light-emitting and sensing components used in communication and imaging technologies. Semiconductor Packaging and Testing ensures the reliability of integrated circuits through advanced packaging techniques and quality control methods. These subjects equip students with the essential skills required for careers in semiconductor design, fabrication, and testing, shaping the future of electronic technology.

Program Name: Diploma Program in Semiconductor Technology

Program Type: Diploma

Program Duration: 1 Year

For Whom: Individuals with 10+2 education or relevant education

Program Fees: The program fee is Rs. 25,000/- for Indian Candidates and \$450 for International Candidates.

PROGRAM HIGHLIGHTS

- One year Diploma in Semiconductor Technology
- In-depth study of semiconductor physics, device fabrication, VLSI design, and optoelectronics.
- Hands-on training in IC design, semiconductor packaging, and testing techniques.
- Equipping students for roles in semiconductor design, manufacturing, and research sectors

CAREER OPPORTUNITIES

A candidate by undergoing this program shall have the following career opportunities:

On successful completion of the course the candidates can either get employed or become a self-employed Entrepreneur in the following fields:

<ul style="list-style-type: none">• Semiconductor Design Engineer• VLSI Design Engineer• Process Engineer	<ul style="list-style-type: none">• Semiconductor Test Engineer• Packaging Engineering
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PROGRAM OBJECTIVES AND OUTCOMES

Program Objectives	Program Outcomes
Define key testing techniques for semiconductor devices, including I-V characteristics and failure analysis methods.	Retrieve various testing techniques, such as I-V characterization and failure analysis, used to evaluate the performance and reliability of semiconductor devices.
Explain principles and techniques involved in designing, simulating, and testing both analog and digital semiconductor-based circuits, including their components and functionalities.	Describe the key concepts and processes in the design, simulation, and testing of analog and digital semiconductor circuits, recognizing interaction between their components to achieve desired circuit behavior.
Demonstrate cleanroom safety protocols, handle specialized equipment, and execute semiconductor processing techniques to ensure safe and efficient operations in a controlled environment.	Implement cleanroom safety procedures, use semiconductor processing equipment effectively, and carry out specific tasks in semiconductor fabrication while adhering to industry-standard protocols.
Relate the operation and characteristics of semiconductor devices such as diodes, transistors, and MOSFETs, focusing on their behavior, applications, and performance under varying conditions.	Examine the key operating principles and characteristics of semiconductor devices, including diodes, transistors, and MOSFETs, and evaluate their performance in different electronic circuits and systems.
Select semiconductor fabrication processes such as photolithography, doping, etching, and thin-film deposition in terms of their effectiveness, limitations, and impact on device performance.	Evaluate various semiconductor fabrication techniques, justifying their role in optimizing device functionality, improving yield, and addressing challenges in semiconductor manufacturing.

Program Objectives	Program Outcomes
Design key testing techniques for semiconductor devices, including I-V characteristics and failure analysis methods, to enhance reliability and performance.	Develop advanced testing techniques, such as I-V characterization and failure analysis, to assess the performance and reliability of semiconductor devices.

COURSE CURRICULUM:

Semester - I					
Sr. No.	Subject Name	Teaching Scheme (Contact hrs/week)			Credit Assigned
		Theory	Practical/Tutorial	Total	
1	Overview of Semiconductors	3	2	5	4
2	Digital Electronics	3	2	5	4
3	Semiconductor Device Fabrication	3	-	3	3
4	Optoelectronic Devices	3	-	3	3
5	Semiconductor Packaging and Testing	2	-	2	2
6	Project: I	-	8	8	4
				TOTAL	20

Semester - II					
Sr. No.	Subject Name	Teaching Scheme (Contact hrs/week)			Credit Assigned
		Theory	Practical/Tutorial	Total	
1	Power Semiconductor Devices	3	2	5	4
2	VLSI For Computer Arithmetic	4	-	4	4
3	Very Large Scale Integration	3	2	5	4
4	Analog CMOS VLSI Design	3	2	5	4
5	Project: II	0	8	8	4
				TOTAL	20