



**National University**  
Of Computer and Emerging Sciences

**Ignite**  
NATIONAL TECHNOLOGY FUND

# POST GRADUATE DIPLOMA IN IC DESIGN

LEADING TO M.S EE

Fully Funded by IGNITE Pakistan



Unique IC Design Training Programs Comprehensively Covering  
theoretical IC Design knowledge and hands-on end-to-end IC  
Design experience

## A Training From Idea to Product Design



**Licensed Cadence Tools**



**CMOS PDKs**



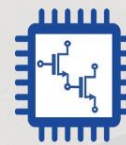
**Industry-Academia Collaboration**



**High Speed PCB Design**



**FAST**



**ICD**

Integrated Circuit Design Lab

## MORE INFORMATION



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[ic.design.lab@isb.nu.edu.pk](mailto:ic.design.lab@isb.nu.edu.pk)



**FAST National University, A.K. Brohi Road, H-11/4, Islamabad**

# Post Graduate Diploma in IC Design Objectives:

Department of Electrical Engineering at **FAST-NUCES Islamabad** is offering **10-months** Post Graduate Diploma in Integrated Circuits Design, which aims to equip graduate engineers with essential skill-set to join the local and globally high in-demand **(USD 700 Billion)** Integrated Circuit (IC) Design and Verification industry having excellent future prospects.

The program is sponsored by **IGNITE Pakistan** (<https://ignite.org.pk>). Sponsorship covers **30 students** post graduate diploma program fee, and **Rs. 25,000/- monthly** stipend for 10 months. The training is also supported by the **GSME Inc. USA**; which is a Silicon Valley company, and **10x Engineering**; which is Pakistan's startup in IC Design & Verification actively working since last four years.

The program delivers intensive, hands-on education which consists of **three modules with topics covering analog, digital, RTL synthesis, and verification**. These three modules are equivalent to HEC accredited **8 Graduate Level Courses (24 credit hours)** in 10 months (two semester).

Trainees receive over **200 hours of practical hands-on experience, which is the hall-mark and unique aspect of this full-time program**. Licensed **Cadence Tool Suite** and advanced process development kits PDKs (28nm, 65nm, 130nm, and 180nm) are used to prepare the fabrication ready designs.

Graduates will benefit from in-house research center GSME - FAST Microelectronic Training & Research Center (GF-METRC), and active collaborations with Gulf Region Universities and Semiconductor Industries. The program is tailored to meet national and international industry needs and enhance employability.

### **Eligibility:**

Candidates who have the degree or expecting the degree completion till 30 August 2025 in any of the below mention domains are eligible to apply for the program.

- I. BS Electrical Engineering (Major: Electronics)
- II. B.S Electrical Engineering (Major: Embedded)
- III. B.S Electrical Engineering (Major: Telecom)
- IV. B.S Electrical Engineering (Major: Power)
- V. B.S Electronics Engineering
- VI. B.S Telecom Engineering
- VII. B.S Mechatronics Engineering
- VIII. B.S Computer Engineering
- IX. B.S Biomedical Engineering
- X. B.S Robotics Engineering
- XI. B.S Electronics (4-Year Degree Like Quaid-i-Azam University)
- XII. M.S. Physics with Specialization in Electronics

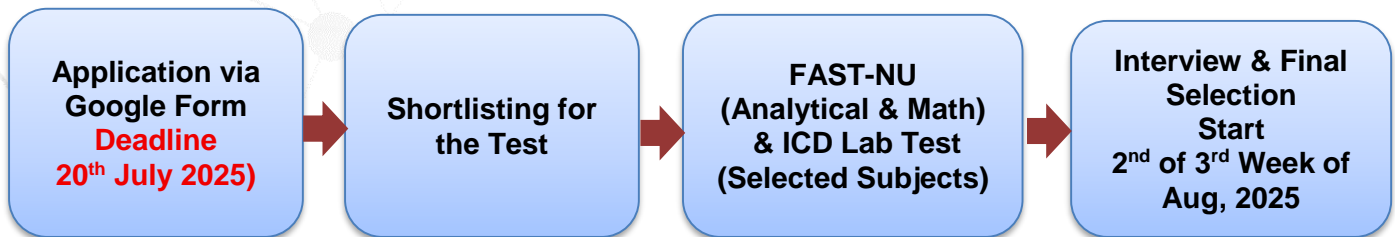
## Application & Admission Process:

Post Graduate Diploma in IC Design application deadline is 20<sup>th</sup> July 2025.  
The application form link is attached below.

<https://forms.gle/Ao7Xsha4Yaj9wCGFA>



The admission process consists of the following steps



### Test Shortlist Criteria:

- I. Matric or Equivalent Marks (10%)
- II. Intermediate or Equivalent Marks (20%)
- III. B.S or Equivalent Degree CGPA (50%)
- IV. Grade in Circuit Analysis or Equivalent Course (4%)
- V. Grade in Calculus-I or Equivalent Course (4%)
- VI. Grade in Electronics-I or Equivalent Course (4%)
- VII. Grade in Signal & Systems or Equivalent Course (4%)
- VIII. Grade in Digital Logic Design or Equivalent Course (4%)

Only Short listed candidates will be called for the Test.

### Final Selection Criteria after Test:

The final admission merit will be determined after interviews and will comprise the following:

- I. Matric or Equivalent Marks (5%)
- II. Intermediate or Equivalent Marks (5%)
- III. Degree CGPA (40%)
- IV. FAST-NU (Consisting of Analytical & Mathematics) (20%)
- V. IC Design Lab Test (15%)
- VI. Interview (15%)

Both FAST-NU & ICD Lab tests will consist of only Multiple Choice Question (MCQ), and will be conducted on the same date at the designated centers.

**Entire application, test, and admission process are totally free of any charges.**

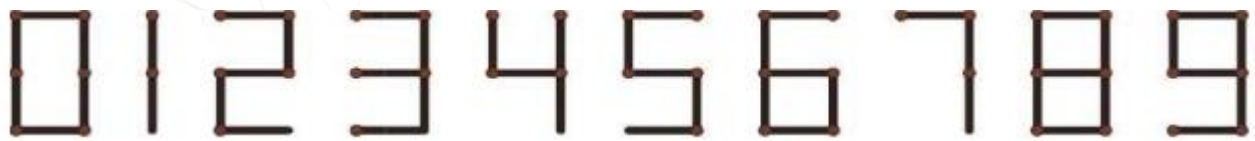


## Guide for the Analytical & Math & ICD Lab Test

**Analytical & Math:** This standard multiple-choice test is designed for candidates with a math that uses concepts covers concepts of math and physics till high school (garde10). It primarily aims to evaluate their IQ, analytical reasoning, and abstract thinking skills. While multiple-choice, the test will require basic calculations to determine the correct answers. To discourage random guesswork, negative marking will be applied.

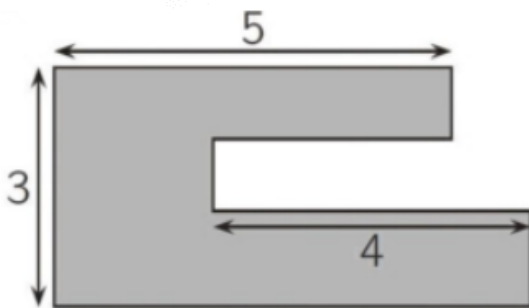
See couple of examples here:

**Q1 (Level Easy):** Matchsticks can be used to write digits, as shown in the diagram. How many different **positives integers** can be written using exactly five matchsticks in this way?



Ans: (A) 3 (B) 4 (C) 6 (D) 8 (E) 9;

**Q2 (Level Hard):** Observe the shape of Chaudary Allahdita sugarcane field as shown in the diagram. Its sides are all either parallel or perpendicular, and some dimensions are given. Determine the perimeter:



Ans: (A) 22 (B) 23 (C) 24 (D) 25 (E) 26

**ICD Lab Test:** This test will consist courses

Course: Sedra & Smith, 6<sup>th</sup> Edition

Part1 – Signals, Devices & Basic Circuits: Chapter 1, 3, 4 & 5 (4 Chapters)

Part2 – Chapter-9 Frequency Response, Only 9.1 to 9.3)

Part3 – Digital Logic Design; Morris Mano

<https://drive.google.com/file/d/11OnQp3HZ-nRltJyri6GI1p-hgIBTzs9z/view?usp=sharing>

Part3 – Digital Logic Design; Morris Mano Chapter 1, 2, 3 and Chapter 4 (up to 4.4)

<https://drive.google.com/file/d/1XWkpEjlcuzs6EvavQMUKTIBZF5fDIdjl/view?usp=sharing>

### Tentative Post Graduate Diploma in IC Design Road map:

Module – 1 (4 Months)			Module – 2 (5 Months)			Module – 3 (1 Months)		
A1	Analog Integrated Circuits	3	B1	Mixed Signal IC Design	3	C1	Technical Report	0
A2	Digital Integrated Circuits	3	B2	VLSI Design Verification	3	C2	AI Application in VLSI Design	0
A3	Verilog Design & VLSI Physical Backend	3	B3	Signal Integrity Packaging & PCB Design	3			
A4	Custom IC Design Project-1	0	B4	Custom IC Design Project-2	3			
RS1	Research Methodology & Soft Skills-1	3	RS2	Research Methodology & Soft Skills-2	0			
	<b>Total Credit</b>	<b>12</b>		<b>Total Credit</b>	<b>12</b>		<b>Total Credit</b>	<b>0</b>

#### Above is 24 Credit Hour Post Graduate Diploma in Integrated Circuit (IC) Design

The Post Graduate Diploma in IC Design is intensive **Full Time Program**. The Classes/Labs/Tutorials will be scheduled Monday to Friday 09:00 A.M. to 05:00 P.M. over duration of 10 Months.

The Post Graduate IC Design Diploma (PGD) comprises 24 graduate credit hours. To earn an M.S. degree, 30 graduate credit hours are required. PGD holders can obtain an M.S. EE Degree by completing an additional six credit hours.