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"सही मार्गदर्शन, उज्ज्वल भविष्य।"

करियर शीट • CAREER SHEET

## इलेक्ट्रॉनिक डिजाइनर (वी.एल.एस.आई. / एम्बेडेड)

Electronic Designers are engineers who design electronic circuits, chips and devices — the tiny chips (VLSI), circuit boards (PCB) and embedded systems inside phones, cars, medical machines, satellites and smart gadgets. VLSI...



### Scan for everything on this career

Salary, exams, colleges, the routes in and the steps after — all on the portal.

[career.gsssjethantri.in/#/career/electronic-designer](https://career.gsssjethantri.in/#/career/electronic-designer)

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प्रधानाचार्य, डाइट बाड़मेर  
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#### श्रीमती संघमित्रा

वरिष्ठ व्याख्याता, डाइट बाड़मेर (सहयोग)  
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#### वनिता कुमारी

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व्याख्याता (राजनीति विज्ञान) • रा.उ.मा.वि. टापरा

करियर मार्गदर्शन कार्यशाला, डाइट बाड़मेर (14-17 जुलाई 2026) में विकसित व लोकार्पित  
Developed & unveiled at the Career Guidance Workshop, DIET Barmer (14-17 July 2026)

यह एक स्वतंत्र परियोजना है, जो सरकार की आधिकारिक करियर-मार्गदर्शन सामग्री पर आधारित है। • An independent project based on the Government's official career-guidance content.

## 1 About this career

Electronic Designers are engineers who design electronic circuits, chips and devices — the tiny chips (VLSI), circuit boards (PCB) and embedded systems inside phones, cars, medical machines, satellites and smart gadgets. VLSI designers use languages like Verilog/VHDL to design and verify chips containing millions of transistors, while embedded designers combine hardware with embedded software (C/C++) to give machines their 'brain'. With India's Semiconductor Mission and global chip companies expanding here, this has become one of the country's fastest-growing and highest-paying technical careers.

## 2 At a glance

|                       |                                                                    |
|-----------------------|--------------------------------------------------------------------|
| Minimum qualification | B.Tech ECE/EEE after Class 12 (PCM) + VLSI/embedded specialisation |
| Course duration       | 4-year B.Tech (+ optional 2-year M.Tech)                           |
| Starting salary       | ₹40,000–65,000/month                                               |
| Work mode             | Full-time engineering job at a semiconductor/tech company          |

## 3 What you need

### INTERESTS

- Deep curiosity about how electronics, chips and gadgets work
- Passion for building new technology and improving designs
- Interest in maths, physics and logical problem-solving

### ABILITIES

- Strong analytical and mathematical thinking
- Abstract thinking and ability to keep learning new tools
- Attention to detail and patience for debugging

**KEY SKILLS**

- Hardware description languages — Verilog and VHDL
- Digital and analog circuit design and PCB layout
- Design verification, simulation and testing
- Scripting (Python/TCL) and version-control knowledge
- Using EDA tools (Cadence, Synopsys, Mentor/Siemens)
- Embedded C/C++ and microcontroller programming
- Physical design, timing analysis and semiconductor fabrication basics

**4 How to get there**

- 1 Take Physics, Chemistry, Maths (PCM) in Classes 11–12 and score well in the boards.
- 2 Clear JEE Main/Advanced or a state engineering entrance and join B.Tech in Electronics & Communication (ECE)/Electrical (EEE).
- 3 During the degree, learn Verilog/VHDL, EDA tools and embedded C, and build chip/PCB projects.
- 4 For a VLSI specialist role, do an M.Tech (VLSI/Microelectronics) or take an internship and specialisation from a certified VLSI training institute such as Maven Silicon.
- 5 Join a company like Intel, Qualcomm, Texas Instruments or a semiconductor startup as a design/verification engineer.
- 6 With experience, advance into specialised roles like RTL design, physical design or embedded architect.

**MAIN EXAMS**

- JEE Main / JEE Advanced (B.Tech admission)
- State engineering entrance exams (e.g. REAP – Rajasthan)
- GATE (for M.Tech VLSI and public-sector jobs)

**5 Where to study****GOVERNMENT INSTITUTES**

- मालवीय राष्ट्रीय प्रौद्योगिकी संस्थान (MNIT) – ECE व M.Tech VLSI — Jaipur, Rajasthan ([https://www.mnit.ac.in/dept\\_ece/](https://www.mnit.ac.in/dept_ece/))
- राजस्थान तकनीकी विश्वविद्यालय (RTU) — Kota, Rajasthan (<https://www.rtu.ac.in/>)

- आईआईटी बॉम्बे – इलेक्ट्रिकल इंजीनियरिंग (VLSI/माइक्रोइलेक्ट्रॉनिक्स) — Mumbai (<https://www.ee.iitb.ac.in/>)
- आईआईटी दिल्ली — New Delhi (<https://www.iitd.ac.in/>)

#### PRIVATE INSTITUTES

- मणिपाल यूनिवर्सिटी जयपुर – B.Tech इलेक्ट्रॉनिक्स (VLSI डिज़ाइन एंड टेक्नोलॉजी) — Jaipur, Rajasthan (<https://jaipur.manipal.edu/fosta/b-tech-vlsi-design.php>)
- बिट्स पिलानी — Pilani, Rajasthan (<https://www.bits-pilani.ac.in/>)

#### ONLINE

- Maven Silicon – VLSI व एम्बेडेड सिस्टम प्रशिक्षण — Online / Bengaluru (<https://www.maven-silicon.com/>)
- NPTEL / SWAYAM – VLSI व एम्बेडेड ऑनलाइन कोर्स — Online (<https://nptel.ac.in/>)

#### FEES

B.Tech fees at government NITs/IITs are roughly ₹1.25–2.5 lakh per year (much lower after scholarships and fee waivers). At private universities it can be ₹2–4 lakh per year. Specialised VLSI/embedded training courses (e.g. Maven Silicon) cost roughly ₹50,000–2,00,000.

#### SCHOLARSHIPS

- राष्ट्रीय छात्रवृत्ति पोर्टल (NSP) (<https://scholarships.gov.in>)
- SJE राजस्थान छात्रवृत्ति (मुख्यमंत्री उच्च शिक्षा योजना) (<https://sje.rajasthan.gov.in/>)
- Buddy4Study – इंजीनियरिंग छात्रवृत्तियाँ (<https://www.buddy4study.com/>)
- इन्वेस्ट इंडिया – सेमीकंडक्टर अवसर व स्किलिंग पहल (<https://www.investindia.gov.in/team-india-blogs/semiconductor-opportunity-india-semicon-india-mission-new-fabs-global-partnerships>)

## 6 What the work is like

#### WHERE YOU WORK

Semiconductor design centres, chip companies' R&D offices, embedded-systems and electronics firms, EDA companies and startups — mainly in Bengaluru, Hyderabad, Noida and Pune; new fabs and design units are growing fast across India.

#### WORK CULTURE

Typically 5 days a week, 8–9 hours of office-based work; teams work to design, verification and tape-out deadlines. Continuous learning and collaboration with global teams are needed; many roles offer remote/hybrid options.

#### WHO HIRES

- Intel, Qualcomm and NVIDIA
- Texas Instruments, AMD and Broadcom

- Micron, Applied Materials and semiconductor fab companies
- Indian semiconductor/embedded startups and design-service firms
- EDA companies — Cadence, Synopsys, Siemens EDA
- Public sector — ISRO, DRDO, BEL and C-DAC (under the India Semiconductor Mission)

**DEMAND (2026)**

Global chip demand is soaring and India has begun huge investments in fabs and design units under the 'India Semiconductor Mission', creating both a shortage of and strong demand for skilled VLSI and embedded designers. The expansion of AI, electric vehicles, 5G and IoT is expected to create hundreds of thousands of jobs in the coming years — making it one of India's brightest and highest-paying technical fields.

**7 Career growth**

- 1 Design/Verification Engineer (entry level)
- 2 Senior VLSI/Embedded Design Engineer
- 3 Lead Engineer / Module Lead
- 4 Design Manager / Principal Engineer / Chip Architect

**EARNINGS**

|              |                         |
|--------------|-------------------------|
| Starting     | ₹40,000–65,000/माह      |
| Mid level    | ₹1,50,000–2,50,000/माह  |
| Senior level | ₹4,00,000–6,00,000+/माह |

Per 2026 industry data, VLSI design engineers start at roughly ₹5–12 LPA (₹40,000–65,000/month); at 5–8 years this rises to ₹20–38 LPA, and at senior/principal level to ₹45–75 LPA and beyond. Verification and physical-design specialists typically earn more. It is among India's highest-paying engineering careers.

## 8 The good parts · The challenges

### The good parts

- Very high pay and one of India's fastest-growing fields
- World-class opportunities in global companies and the Semiconductor Mission
- A chance to work on cutting-edge technology (AI, EV, 5G)

### The challenges

- Long, demanding study and pressure to keep learning new technology
- High pressure at tape-out deadlines and complex debugging
- Most top jobs are concentrated in big metro cities

## 9 Real-life journeys

### Nivruti Rai

Former Country Head, Intel India; MD & CEO, Invest India

Nivruti Rai led an engineering organisation of nearly 20,000 people as Country Head of Intel India and Vice President of Intel Foundry Services, making notable contributions to semiconductor chips and AI technology — for which she received India's 'Nari Shakti Puraskar' in 2022. Today, as MD & CEO of Invest India, she promotes semiconductor and technology investment in the country. Her journey shows how an Indian woman engineer can rise to global leadership in the field of chip design.

Wikipedia · [https://en.wikipedia.org/wiki/Nivruti\\_Rai](https://en.wikipedia.org/wiki/Nivruti_Rai)

### Sanjay Mehrotra

Chairman, President & CEO, Micron Technology; Co-founder, SanDisk

Born in India, Sanjay Mehrotra co-founded SanDisk in 1988 and built it into a world leader in flash memory; today he is Chairman, President & CEO of semiconductor giant Micron Technology. With over 40 years in the semiconductor memory industry and more than 70 patents, he is among the field's most respected leaders, and Micron is investing in a semiconductor plant (fab) in India. BITS Pilani has awarded him an honorary doctorate. His story shows young people that one can reach the very top of the world in chip design and semiconductors.

Micron Technology · <https://www.micron.com/about/company/leadership/sanjay-mehrotra>

## 10 If this route does not work out

One exam or one attempt does not close the door. The same subjects also open these routes — entry is usually easier, and you can return to this field later.

- Design Engineer
- Industrial Designer

- Product Designer

## 11 Sources & further reading

1. Rajasthan Career Guidance – Electronic Designer / VLSI / Embedded — <https://cg.rajasthan.gov.in/careerguidance/hi/career/%e0%a4%87%e0%a4%b2%e0%a5%87%e0%a4%95%e0%a5%8d%e0%a4%9f%e0%a5%8d%e0%a4%b0%e0%a5%89%e0%a4%a8%e0%a4%bf%e0%a4%95-%e0%a4%a1%e0%a4%bf%e0%a4%9c%e0%a4%be%e0%a4%87%e0%a4%a8%e0%a4%b0-%e0%a4%b5%e0%a5%80/>
2. India Semiconductor Mission (ISM) — <https://ism.gov.in/>
3. MNIT Jaipur – Department of Electronics & Communication Engineering — [https://www.mnit.ac.in/dept\\_ece/](https://www.mnit.ac.in/dept_ece/)
4. ChipXpert – VLSI Engineer Salary India 2026 — <https://chipxpert.in/vlsi-salary-india-2026/>
5. Invest India – Semiconductor Opportunity & Semicon India — <https://www.investindia.gov.in/team-india-blogs/semiconductor-opportunity-india-semicon-india-mission-new-fabs-global-partnerships>



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