



# Department of Multidisciplinary Engineering

UG PROGRAMMES

PG PROGRAMMES

RESEARCH PROGRAMMES

B.Tech in ECE with specialization in Embedded Systems and VLSI Design

ABOUT THE COURSE

ADMISSION DETAILS

## About

“Through 2020, integration work will account for 50% of the time and cost of building a digital platform” as said Massimo Pezzini, research Vice President and Gartner fellow, signifies that there is undergoing a digital transformation with attention on sleek new looks, improved efficiency, and higher speeds.

At NCU India, B-Tech ECE with Embedded systems & VLSI Design specialization offers students theory and practice to enable them to design and develop IC-based systems(Application Specific Integrated Circuits). As one of the best Electrical, Electronics, and Communication Engineering Colleges in Delhi NCR, our specialized curriculum lays the foundation of VLSI Design fundamentals along with various computer-aided design (CAD) tools and methodologies. It also provides the students a broad base and understanding of the semiconductor industry, enabling them lucrative opportunities in future endeavors, placing it among the best Electrical Engineering courses in Haryana.

### Market Trends of Embedded System & VLSI Design:

- The global semiconductor market will be \$655.6B in 2025 compared to \$342.7B in 2015 with CAGR of 6.7%. (**White paper IBS**)
- The forecast for revenue by global semiconductor industry will be \$415.4B by the end of 2020. (**Gartner**)
- ‘**Make in India**’ campaign to promote domestic manufacturing, on the way to setup two fabrication facilities in Gujarat and Utter Pradesh, that gives great thrust to VLSI industry.
- The Indian semiconductor and embedded design industry is expected to earn revenues of \$114.2B in 2025 compared to \$27.6B in 2015, with a CAGR of 15.3% (**India Semiconductor Association (ISA)**)

### Unique Selling Points of the Specialization:

- Industry-oriented curriculum which enables the students prepare for technical careers to design, develop and prototype VLSI systems(both Front end & Back end designs), apply verification methods, design-for-test techniques to IC designs for testable designs and high yield, low power design techniques, mixed mode design methodologies and use hardware description languages to design cores and standalone logic.
- Provides a sound understanding of Embedded system and VLSI methodology to implement various models for gates and synthesize their physical layouts as well as how to validate complex hardware.
- Focus on the development of hands-on skills in designing semiconductor devices and circuits, architecting systems using embedded components such as CPU, memory and peripherals.
- Integration of Artificial Intelligence and Embedded systems concepts to facilitate for smarter decision making.
- Offers strong knowledge in the Embedded system design covering thrust areas, such as, Advanced Embedded Microcontrollers, Real Time Embedded Systems, Advanced Embedded System Design and System On Chip.
- Industry aligned curriculum, designed by Industry Experts

- Well-trained and qualified faculty
- Project Guidance & Mentoring by Industry Experts
- Blended Learning 24 \* 7
- Well Equipped Labs for hands on learning
- Holistic Pedagogy–Emphasis on development of additional skills with strong emphasis on:
  - Communication & soft skill modules
  - Compulsory Foreign Language course
  - Large number of open electives with interdisciplinary learning
  - Flexibility in curriculum to choose electives
  - Exposure through Fine Arts and Liberal Study courses for creative thinking

## Programme Educational Objectives (PEOs)

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1. To provide comprehensive knowledge of Electronics and Communication engineering and related subjects for professional development and other creative pursuits in science and technology. Our comprehensive approach make us one of the top b tech colleges in Gurgaon.
2. To develop the ability to demonstrate technical competence in the fields of Electronics and Communication engineering by teaching new and advanced courses and provide an environment for technology related research.
3. To equip our students to apply scientific, mathematical and engineering fundamentals to provide innovative solutions to real-life problems in Electronics and Communication engineering and related fields. Our professional way makes us the best b.tech college in Delhi NCR.
4. To develop the qualities of effective communication, interpersonal skills and leadership to deliver effectively in a multi-disciplinary team and professional environment.
5. To impart value to their knowledge and enable them to practice profession with ethics and a sense of social responsibility, by making them more aware of contemporary issues.

## Programme Outcomes (POs)

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**PO1: Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

**PO2: Problem analysis:** Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using the first principles of mathematics, natural sciences, and engineering sciences.

**PO3: Design/development of solutions:** Design solutions for complex engineering problems and system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

**PO4: Conduct investigations of complex problems:**Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

**PO5: Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

**PO6: The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

**PO7: Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

**PO8: Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

- PO9: Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multi-disciplinary settings.
- PO10: Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
- PO11: Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multi-disciplinary environments.
- PO12: Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.





## Programme Specific Outcomes

- PSO 1** Ability to comprehend basic subjects of Electronics and communication engineering with specialized knowledge in IOT, VLSI, Embedded System etc. to assimilate technological advancements for analyzing and designing system and processes of real world problems.
- PSO 2** Acquire problem solving skills for effectively using hardware and software technologies pertinent to research and industry practices in the field of Electronics & Communication Engineering.
- PSO 3** Develop skills to get opportunities for premium jobs in MNCs, private and public sector, higher education, become a successful Entrepreneur and a worthy global citizen.

## Want to learn more about NCU?

Be a part of an interesting journey, a journey that will take you to the heights.

### Contact Us

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