# (077-E&E-02-03) VLSI SYSTEM DESIGN

**Significance of the Program:**

Very Large Scale Integrated (VLSI) system Design is the process of designing a large computer chip, using computer-aided design (CAD) tools. The recent advancements in VLSI design have enabled most systems to become compact and reliable and to deliver data at high speed M.Tech in VLSI system Design is a postgraduate programme that aims to impart knowledge of VLSI system design, covering design automation algorithms, hardware description languages, physical design and verification techniques, simulation and synthesis, low power design techniques etc. Currently, there is a high demand for the engineers in chip design industry, as the applications are moving towards low power, ultra scale technology.

**Career Options:**

Pursuing M.Tech. VLSI system design course, students can explore the following opportunities.

- They can work as physical design engineers for chip fabrication.
- They can work as CAD engineers to design, simulate and synthesize integrated circuits and systems.
- They can work as as VLSI system, testing and verification engineers.
- They can pursue research and development in research institutions, industries, to conduct cutting-edge research in areas such as nano-electronics, low-power VLSI.

**Program Objective:**

The objectives of the post graduate program of VLSI system design are

1. To Identify, formulate and analyze technical problems in the semiconductor technologies.
2. To Design, implementation, verification and testing of VLSI architectures using FPGA.
3. To use modern techniques and tools to evaluate and analyze the performance of the systems in VLSI domain.

**Outcomes of the Program:**

- Enables to demonstrate high level of competency to address multidisciplinary and complex problems related to VLSI System Design.
- Enables them to offer solutions to issues related to device level design and testing.
- Enables them to characterize and design analog, digital, and mixed signal subsystems under deep sub-micron environment

**Major Course Outlines:**

- VLSI Design Verification and Testing
- Digital Integrated Circuit Design
- Analog Integrated Circuit Design
- CMOS Mixed Signal Circuit Design
- Signal processing Techniques for VLSI
- System On Chip Architecture
- Semiconductor Memory Design & Testing
- Design Automation algorithms for VLSI