VLSI

TS
TECH TEACH
EDUCATIONALSOLUTIO

OUR MISSION :

"Our mission is to empower learners worldwide through innovative technology, personalized learning experiences, and accessible educational resources. We strive to cultivate a community where every individual can achieve their full potential, regardless of their background or circumstances."

OUR VALUES :

"To pioneer the future of education by leveraging cutting-edge technology to make learning more engaging, effective, and inclusive. We envision a world where education transcends boundaries, creating opportunities for lifelong learning and fostering a society enriched by knowledge and creativity."

COURSE CURRICULUM:

Week 1: VLSI Fundamentals Review

- Day 1-2: Overview of VLSI
  - Introduction to VLSI technology and its significance.
  - History and evolution of VLSI.
- Day 3-4: VLSI Design Flow
  - Understanding the VLSI design flow.
  - Design entry, synthesis, place and route, verification.
- Day 5: Introduction to CAD Tools
  - Overview of popular CAD tools (Cadence, Synopsys, Mentor Graphics).
  - Hands-on: Basic operations in CAD tools.

COURSE CURRICULUM:

Week 2: Digital Design and HDL

- Day 1-2: Digital Logic Design
  - Review of combinational and sequential logic design.
  - Logic gates, flip-flops, multiplexers, decoders, etc.
- Day 3-4: Hardware Description Languages (HDL)
  - Introduction to Verilog and VHDL.
  - Writing basic HDL code.
- Day 5: Simulation and Verification
  - Simulating HDL designs using tools like ModelSim.
  - Hands-on: Writing testbenches and simulating designs.

COURSE CURRICULUM:

Week 3: Advanced Digital Design

- Day 1-2: Synthesis and Optimization
  - Logic synthesis and design optimization techniques.
  - Timing analysis and optimization.
- Day 3-4: Design for Testability (DFT)
  - Techniques for making designs testable.
  - Built-in self-test (BIST) and scan chains.
- Day 5: Hands-on Project
  - Implementing a small digital design project from specification to synthesis.

COURSE CURRICULUM:

Week 4: Analog and Mixed-Signal Design

- Day 1-2: Analog Circuit Design
  - Fundamentals of analog circuits.
  - Operational amplifiers, comparators, analog filters.
- Day 3-4: Mixed-Signal Design
  - Designing mixed-signal circuits (ADCs, DACs).
  - Challenges and solutions in mixed-signal design.
- Day 5: Hands-on Project
  - Designing and simulating a simple mixed-signal circuit.

COURSE CURRICULUM:

Week 5: Physical Design

- Day 1-2: Floorplanning and Placement
  - Understanding the concepts of floorplanning and placement.
  - Techniques for optimizing area and performance.
- Day 3-4: Routing and DRC/LVS
  - Detailed routing strategies.
  - Design rule check (DRC) and layout versus schematic (LVS).
- Day 5: Hands-on Project
  - Completing a physical design task using CAD tools.

COURSE CURRICULUM:

Week 6: Advanced Verification Techniques

- Day 1-2: Functional Verification
  - Advanced techniques for functional verification.
  - Assertion-based verification and formal verification.
- Day 3-4: Timing Verification
  - Static timing analysis (STA).
  - Techniques for ensuring timing closure.
- Day 5: Hands-on Project
  - Performing functional and timing verification on a design.

COURSE CURRICULUM:

Week 7: Power and Performance Optimization

- Day 1-2: Power Analysis and Optimization
  - Techniques for power analysis.
  - Dynamic and static power reduction strategies.
- Day 3-4: Performance Optimization
  - Techniques for performance analysis.
  - Trade-offs between power, performance, and area.
- Day 5: Hands-on Project
  - Optimizing a design for power and performance.

COURSE CURRICULUM:

Week 8: Final Project and Presentations

- Day 1-4: Project Development
  - Students work on a comprehensive final project that integrates multiple aspects of the curriculum.
- Day 5: Project Presentation and Evaluation
  - Students present their projects.
  - Feedback and evaluation.

Our Partners Company's

FOR SUPPORT

+91 9652379012

www.techteachedsols.com

tech.ed.sols@gmail.com

THANK YOU

www.techteachedsols.com