NITTTR BHOPAL

EEE-5/2024-2025
AI for VLSI
03-03-2025 to 07-03-2025
NITTTR Bhopal

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Rationale

Training artificial intelligence (AI) for Very Large Scale Integration (VLSI) holds significant promise for optimizing and advancing chip design processes. VLSI design involves complex decision-making, from layout optimization to power efficiency enhancement, where AI can effectively contribute by streamlining design flows, reducing time-to-market, and enhancing chip performance. Through deep learning algorithms, AI can learn from vast datasets of chip designs, identifying patterns, and predicting optimal configurations, thus enabling more efficient use of resources and reducing design iterations. Furthermore, AI-powered tools can assist in identifying and mitigating potential design flaws, enhancing overall chip reliability and manufacturability. In essence, the integration of AI in VLSI training not only accelerates the design process but also fosters innovation, leading to the development of more advanced and efficient integrated circuits.

Programme Outcomes

-Equip faculty members with updated knowledge and teaching methodologies related to AI for VLSI
-Gain insights into cutting-edge research topics, methodologies, and trends, fostering a culture of innovation within academic institutions.
-Develop new courses or modules on AI for VLSI
-Acquire practical skills in using AI tools and techniques for VLSI design, such as machine learning algorithms, deep learning frameworks, and optimization methodologies.
-Acquire the pedagogical skills and instructional strategies necessary to effectively teach courses related to AI for VLSI, fostering student engagement and comprehension.

Programme Content

The content of this program on AI for VLSI encompasses a comprehensive exploration of both VLSI design fundamentals and artificial intelligence techniques, tailored to empower participants with the knowledge and skills necessary to leverage AI in semiconductor design. Beginning with an introduction to VLSI design principles, participants delve into the core concepts of AI, including machine learning and deep learning algorithms. Through practical sessions and case studies, they learn how AI can revolutionize various stages of VLSI design, from logic synthesis and placement to timing analysis and optimization. Hands-on sessions with chip dataset will be carried out.

Target Group

Faculty of Electronics Engineering & Computer disciplines

Coordinator & Co-Faculty

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