



MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE

Madanapalle-517325, Annamayya Dist., Andhra Pradesh, India.

MITS DEEMED TO BE UNIVERSITY

(Declared under section 3 of UGC Act, 1956 by Govt. of India - MoE)



A Seminar on
“Integrating VLSI with Industry 5.0: A New Era of Smart Manufacturing”

Organized by

Department of Electronics & Communication Engineering

In Association with MITS IEI Student's Forum

19.09.2025

Report Submitted by: Dr. G. Reddy Hemantha, Assistant Professor, Dept. of ECE, Mrs. K. Revathi, Assistant Professor, Dept. of ECE,

Resource Person Details: Dr. B. Chandrababu Naik, Assistant Professor, Department of Electronics and Communication Engineering, NIT-Tiruchirappalli.

Participants: 80 (Students and Faculty)

Mode of Conduct: Online



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Department of Electronics & Communication Engineering

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Date: 19.09.2025

Time : 10:00AM - 12:00 Noon

Venue : Seminar Hall - D



Resource Person

Dr. B. Chandrababu Naik

Assistant Professor,

Department of Electronics and Communication Engineering,
NIT-Tiruchirappalli

Chief Patron

Dr. N. Vijaya Bhaskar Choudary
Founder & Chancellor

Patron

Mrs. Keerthi Nadella
Executive Director

Program Chair

Dr. C. Yuvraj
Vice Chancellor (I/c)

Convenor

Dr. S. Rajasekaran
HoD/ Dept. of ECE

Event Coordinators

Dr. G. Reddy Hemantha Asst. prof, ECE
Mrs. K. Revathi Asst. prof, ECE

www.mits.ac.in

The Department of Electronics & Communication Engineering, in association with **The Institution of Engineers (India)** and the **MITS IEI Student's Forum**, organized a seminar on "*Integrating VLSI with Industry 5.0: A New Era of Smart Manufacturing*". The event was aimed at sensitizing second year students of ECE, faculty, and researchers to the rapidly evolving domain of Very Large-Scale Integration (VLSI) and its pivotal role in Industry 5.0 applications.

The seminar brought together eminent academicians, faculty members, and aspiring engineers to discuss the challenges and opportunities presented by the convergence of **semiconductor technology, artificial intelligence, and smart manufacturing**.

The session began with a formal welcome address by Dr. S. Rajasekaran, Convenor and HoD, Department of ECE, who extended his greetings to the dignitaries, resource person, faculty members, and student participants. He emphasized the importance of such academic-industry-oriented seminars in preparing students for cutting-edge research and professional careers. He also highlighted the need for engineers to embrace interdisciplinary knowledge to keep pace with Industry 5.0 developments.



The highlight of the seminar was the expert lecture delivered by Dr. B. Chandrababu Naik, Assistant Professor, Department of Electronics & Communication Engineering, NIT Tiruchirappalli. In his session, Dr. Naik provided an in-depth exploration of how VLSI technologies are evolving to meet the demands of Industry 5.0. His talk covered the following key areas:

Smart Manufacturing Ecosystem: How VLSI chips are enabling real-time monitoring, automation, and decision-making in industrial systems.

Integration with AI and IoT: Synergistic role of AI algorithms, IoT devices, and semiconductor hardware in creating self-adaptive production units.

Industrial Case Studies: Practical examples of VLSI-driven smart factories and their efficiency improvements.

Research Directions: Cutting-edge topics like neuromorphic computing, low-power chip design, and hardware accelerators for AI.

Challenges and Opportunities: Issues related to design complexity, cost optimization, and sustainability in semiconductor manufacturing.



The lecture was followed by an interactive Q&A session, during which students and faculty raised pertinent questions regarding career opportunities, research pathways, and the application of VLSI in future technologies.

The seminar on “*Integrating VLSI with Industry 5.0: A New Era of Smart Manufacturing*” was highly impactful and well-received by the participants. It provided a comprehensive understanding of the crucial role played by VLSI in shaping the future of smart industries. Students gained valuable insights into **advanced technologies, research trends, and career opportunities** in the field of VLSI and Industry 5.0. The interactive discussions enriched their knowledge and motivated them to explore innovative solutions in electronics and communication engineering.



Program Outcomes:

The seminar was designed to align with the Program Outcomes (POs) and Program Specific Outcomes (PSOs) of the Electronics and Communication Engineering program. By the end of the session, participants were expected to:

1. Gain insights into the emerging role of VLSI in Industry 5.0.
2. Understand the integration of smart manufacturing with semiconductor technologies.
3. Enhance their ability to analyze and evaluate industrial case studies related to VLSI applications.
4. Develop awareness about research challenges and opportunities in next-generation semiconductor design.
5. Strengthen communication, teamwork, and problem-solving abilities through interaction with experts.

The event concluded with a **Vote of Thanks** delivered by **Dr. G. Reddy Hemantha, Assistant Professor and IEI coordinator, Department of ECE**, who expressed sincere gratitude to the **MITS Deemed to be University Management, Dr. C. Yuvaraj sir, Vice Chancellor, Dr. P. Ramanathan sir, Principal, Dr. S. Rajasekaran sir, Head of the Department of ECE** for their

continued support in organizing alumni engagement programs that benefit students.