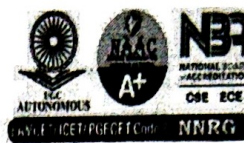


NALLA NARASIMHA REDDY

Education Society's Group of Institutions - Integrated Campus

(UGC AUTONOMOUS INSTITUTION)



School of Engineering

Department of Electronics and Communication Engineering

Date: 10-03-2025

Report

on

Two -Day Workshop: Intensive PCB Design & Manufacturing Workshop

Date Organized	Title of Program	Name of Resource Person	Participants
06/03/2025 – 07/03/2025	“Intensive PCB Design & Manufacturing Workshop”	Dr. D. Venugopal, Project Manager, Qualcomm, Hyderabad	B. Tech. ECE II (40 Students) and ECE faculty members



Purpose of the Program

The workshop was organized to provide students with practical knowledge of professional PCB design and manufacturing processes followed in the electronics industry. The primary objective was to familiarize participants with schematic design, PCB layout, component placement, design rule verification, fabrication techniques, assembly methods, testing procedures, and quality assurance standards. The workshop aimed to bridge the gap between theoretical circuit design and industrial hardware development while improving students' practical competencies in electronic product design.

Day-wise Report

Day 1: The first day introduced students to PCB fundamentals, including different PCB types, schematic capture, component selection, PCB layout design, signal integrity, design rule checking, and PCB design software. The resource person demonstrated the complete PCB design process using professional design tools and explained best practices followed in electronic hardware industries.



Day 2: The second day focused on PCB fabrication, Gerber file generation, assembly processes, soldering techniques, surface mount technology (SMT), inspection methods, testing procedures, and troubleshooting. Students observed the complete manufacturing workflow and learned quality control measures adopted in industrial PCB production. The workshop concluded with interactive discussions on electronic product development and career opportunities in PCB design.



Program Highlights

The workshop included practical demonstrations of professional PCB design software, Gerber file generation, PCB fabrication techniques, assembly processes, and testing methods. Students interacted with an industry expert from Qualcomm and gained valuable insights into industrial hardware development practices. The sessions were enriched with real-world case studies, troubleshooting demonstrations, and discussions on current trends in PCB manufacturing technologies.

Outcome of the Program

By the end of the workshop, students acquired practical knowledge of PCB design, fabrication, assembly, and testing. They developed the ability to create PCB layouts using professional design software, understand manufacturing workflows, generate production files, and apply quality assurance techniques. The workshop significantly enhanced their hardware design skills, improved industry readiness, and motivated them to undertake projects in electronic product development.

PO-PSO-SDG Mapping

Program Outcomes (POs)	Program Specific Outcomes (PSOs)	Sustainable Development Goals (SDGs)
PO1 – Engineering Knowledge	PSO1 – Apply Electronics Design Concepts	SDG 4 – Quality Education
PO2 – Problem Analysis	PSO2 – Design Embedded Hardware Systems	SDG 8 – Decent Work & Economic Growth
PO3 – Design & Development		SDG 9 – Industry, Innovation & Infrastructure
PO5 – Modern Tool Usage		
PO9 – Individual & Team Work		
PO12 – Life-long Learning		

Outcome Analysis

Assessment Parameter	Analysis
Student Participation	Excellent participation throughout both days
Technical Knowledge	Significant improvement in PCB design concepts
Practical Skills	Enhanced through software demonstrations and hands-on sessions
Interaction Level	High interaction during practical sessions and discussions
Overall Feedback	Very Good to Excellent

Overall Impact

The workshop successfully enhanced students' practical understanding of PCB design and manufacturing. The program strengthened their technical competency and industry readiness while encouraging innovation in electronic hardware development.


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