NEW HORIZON COLLEGE OF ENGINEERING
AUTONOMOUS COLLEGE Permanently Affiliated to VTU, Approved by AICTE & UGC
Accredited by NAAC with 'A' Grade

The Connect

DEPARTMENT OF ELECTRONICS AND COMMUNICATION

Issue 20,December 2024

Cybersecurity 2.0: Leveraging AI to Reinvent Digital Defense

AI is revolutionizing cybersecurity by enabling real-time threat detection through machine learning algorithms. AI-powered systems analyze vast datasets to identify anomalies, malware patterns, and potential cyberattacks before they occur. Techniques like behavioral analysis and predictive analytics help security teams respond faster to threats. AI also automates routine security tasks, allowing cybersecurity experts to focus on more complex challenges, thereby enhancing overall digital defense strategies

AI-Driven Threat Detection :

AI enhances security by identifying sophisticated threats in real-time. For instance, Aston Martin replaced its legacy security system with SentinelOne, leveraging AI to monitor employee behavior and network traffic for signs of insider threats. Similarly, Amazon employs AI to process vast amounts of security data, enabling the detection of anomalies and potential threats at scale.

Predictive Analytics for Proactive Defense :

Predictive analytics utilizes data and analytical techniques to anticipate potential cyber threats. Machine learning models analyze historical data and current trends to forecast future threats, allowing organizations to

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implement proactive measures. This approach enhances threat identification and aids in developing preventative cybersecurity strategies.

Automated Response Systems :

AI-powered systems can swiftly analyze security incidents and automate responses to mitigate damage. For example, Visa established a team that uses AI to study and disrupt scam operations, preventing significant fraud attempts. Similarly, Darktrace's AI technology learns normal network behavior, autonomously responding to both known and novel threats in real-time without disrupting business operations.

How does AI help in preventing phishing and social engineering attacks ?

AI strengthens cybersecurity by detecting phishing emails and fraudulent websites using natural language processing (NLP) and image recognition . AI-driven security tools analyze email patterns, identify suspicious content, and block phishing attempts before they reach users. By continuously learning from previous attacks, AI improves over time, making it harder for cybercriminals to manipulate individuals through social engineering tactics , ensuring better protection against evolving cyber threats.

What role does AI play in detecting and combating deepfake threats ?

Deepfakes use AI to create highly realistic fake videos, audio, and images , posing serious cybersecurity risks. AI-powered deepfake detection tools analyze facial expressions, inconsistencies in pixels, and voice modulation to identify manipulated content. Organizations use AI models trained on vast datasets to differentiate real from fake media, preventing misinformation, fraud, and identity theft. As deepfake technology evolves, AI-driven detection techniques remain critical for maintaining digital trust and authenticity .

Can AI-powered cybersecurity systems work without human intervention?

While AI enhances cybersecurity through automated threat detection and response , it still requires human oversight. AI-driven systems can detect and neutralize cyber threats autonomously, but human experts provide strategic decision-making and ethical considerations. AI is effective in handling large-scale cyberattacks, but human intuition is crucial for complex, unpredictable scenarios. The best cybersecurity approach combines AI automation with human expertise to create a robust, adaptive defense mechanism against cyber threats.

The global market for AI-based cybersecurity products is projected to expand significantly, growing from $14.9 billion in 2021 to an estimated $133.8 billion by 2030.This substantial growth underscores the increasing reliance on AI technologies to combat evolving cyber threats.

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FACULTY ACHIEVEMENTS

Name of the Staff	Name of the award/achievements	Awarding Agency
Dr. Aravinda K	External BoS Member	Nagarjuna College of Engineering and Technology
Dr.Arun Kumar	Top 2% Scientist List by Elsevier and Stanford University	Elsevier and Standford
Dr.Arun Kumar	Implementation of MIMO wearable antenna Consultancy of 18050 THB equivalent to 46330.29 INR.	Price of Songkla University, Thailand , Phuket campus
Dr.Arun Kumar	Highest quality publication award	NHCE
Dr. Jayanti M	Recognition Award	Asian Journal of Research in Computer Science
Dr. Rajesh G	Process of innovation Development,Technology Readiness level Commercialization of lab technologies & Tech Transfer	NHC- Kasturinagar
Dr. Rajesh G	Design Thinking workshop: Minimizing Plagarism in Patent Drafting and Effective Reference Management for Young Innovators	Siddartha Institute of Science and Technology
Dr.Sudhakiran Ponnuru	Advanced Innovation in the Semiconductor Industry	Vemana Institute of Technology
Mr.Ajay Sudhir Bale	Best Researcher Award	NHCE
Mr.Ajay Sudhir Bale	NPTEL Topper	NPTEL
Mr. Shashi kiran S	BEST PAPER AWARD	NITTE
Ms. Salna Joy	NPTEL Discipline Star NPTEL Topper	NPTEL

EXPERT LECTURES

Coordinators : Dr. Jayanthi M & Dr. P Sudhakiran

Name of the Industrial Expert	Company Organization	Topic/ Subject	Semester	Hours engaged	Date
Mr. Mahesh Devagiri	Engineering Manager, Qualcomm	Workshop on Firmware Development Flow	VI 7&VII	2	26/09/2024
Mr. L Shivashankar	Associate Design Engineer, Insemi Technology Pvt. Ltd,Bengaluru	Clock Tree Synthesis and Timing Optimization Techniques	IV	2	14/11/2024

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ALUMNI TALK

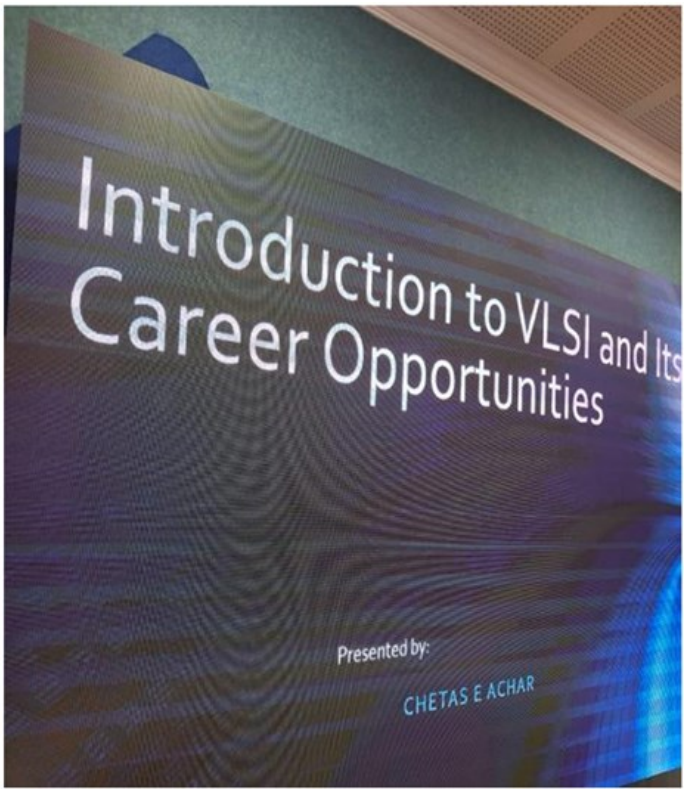
Coordinator: Prof. Ishani Mishra

Name of the Alumni and Current Designation	Date of the Event	Contribution
Mr.Chetas Achar,RTL Design Engineer, Ciantra Technologies,918861776508	09-10-2024	Introduction to VLSI and Career Opportunities
Mr.Naveen K R,Physical Design Engineer with Qualcomm,9035906084, naveenkr301197@gmail.com	15-10-2024	IC Design Flow and Core VLSI Career Opportunities
Mr.Ayush Bansal,Analog Layout Engineer at Capgemini Engineering,9927973457	09-11-2024	Unleash Your Potentials Through Hackathons

ALUMNI TALK

Coordinator: Prof. Ishani Mishra

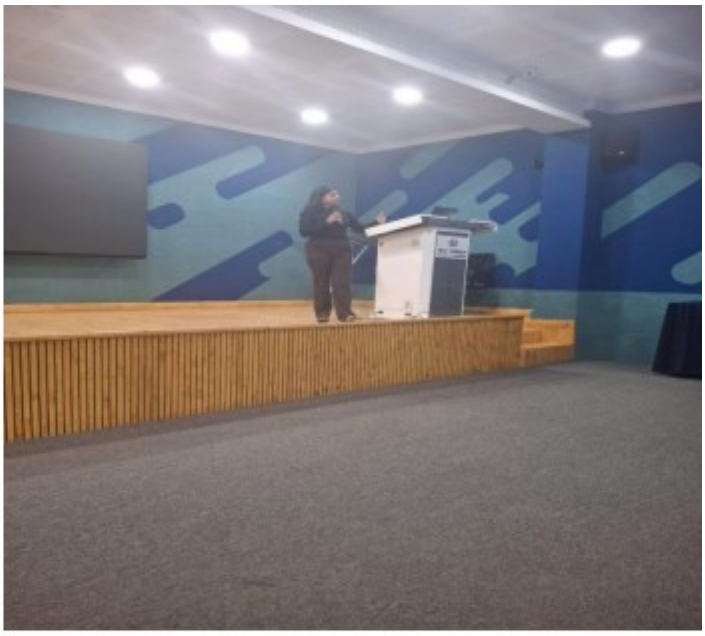
Name of the Alumni and Current Designation	Date of the Event	Contribution
Mr.Lakshya Sharma,Intern in Product Engineering at Cadence Design Systems,8618719166	12-11-2024	Books to Boards
Meghanashree C,Security Engineer at Andpad Inc, 9535139402	23-11-2024	Navigating your path to the IT Industry: Key Prerequisites, Smart Placements and Global Opportunities
Vikas R,n IP Design Engineer at Insemi Technology Services Pvt Ltd,8861720259	06-12-2024	Introduction to VLSI Design Flow:Unravel the mysteries of VLSI Design



ALUMNI TALK

Coordinator: Prof. Ishani Mishra

Name of the Alumni and Current Designation	Date of the Event	Contribution
Anju Gopinath,Senior Software Engineer, Hexaware Technologies, 9739254255	10-12-2024	Bridging the gap between college and corporate:Introduction to Data Engineering
Mr. Abhijit Bhargava,Stock Market Analyst at Convalexa Trading Training Centre, 8197283310	13-12-2024	Stock Market and Mutual Funds



WORKSHOPS:

Coordinators : Prof. T V S Adinarayana

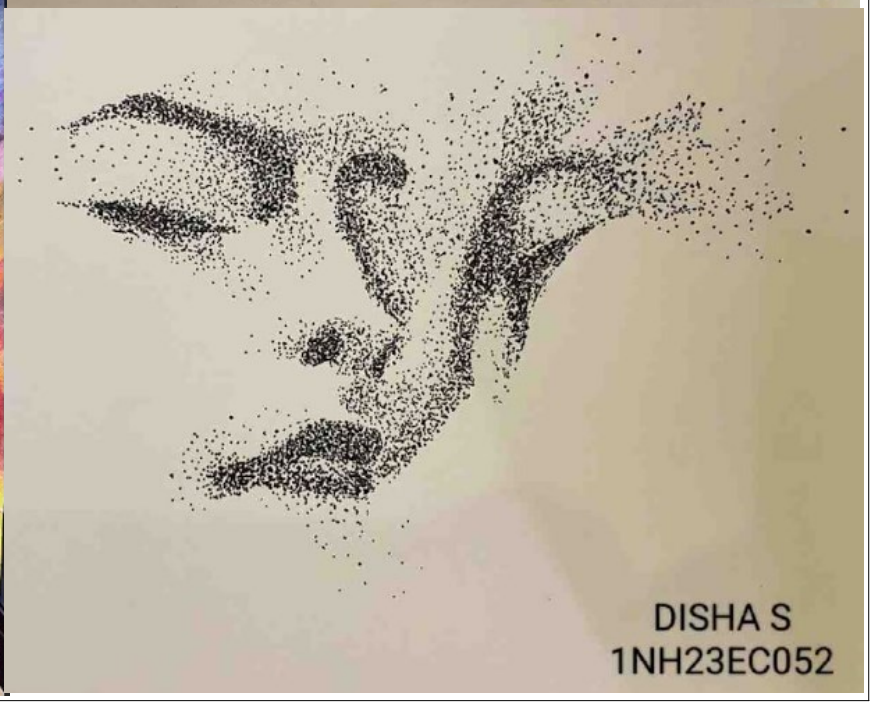
Date	Resource person	Title	Semester
03/10/2024	Mr. Sameer Kirve Principal Memory Layout Engineer, Laksh Semiconductor	Advanced CMOS VLSI Design Techniques: From Fundamentals to Cutting-Edge Innovations	V
11/07/2024	Mr. Basith Ahamed Shaik, Technical Head at Jacks Tech Soft Pvt. Ltd., Bangalore.	Automotive Protocols (CAN, CANFD, Ethernet	VI
15/11/2024	Mr. Raja Manoharan Founder and Operations Director ,Enverdent , Chennai	Basics of Intellectual Property Rights and its Importance for Innovators and Entrepreneurs	V

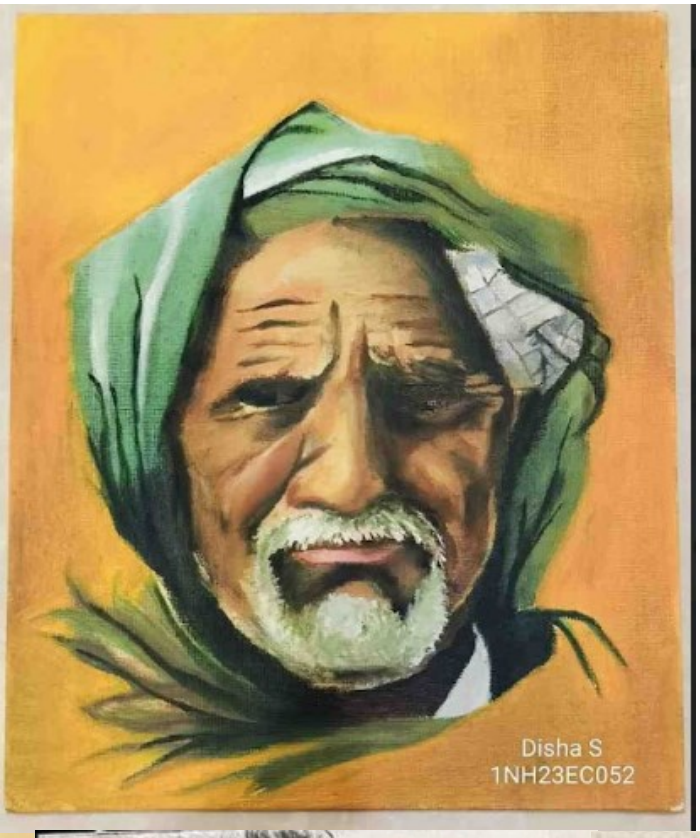
PLACEMENTS

(COORDINATORS : PROF. SABITABRATA BHATTACHARYA, PROF. MAHENDRA NAIK, DR. RAJESH

S.N	Name of the Organization	No of students placed	Salary Offered
1	Belc CO., LTD.	1	₹4.40L
2	Bulk Liquid Solutions	2	₹3.00L
3	Capgemini	65	₹4.25L
4	Cubic Logics	2	₹4.50L
5	Epicor Software India Pvt Ltd	1	₹9.40L
6	Ernst & Young	2	₹6.40L
7	Eurofins IT Solutions India Pvt Ltd	2	₹10.70L
8	Infogain	1	₹4.40L
9	INFOSYS	12	₹3.60L
10	Intellipaat	2	₹5.00L
11	KPIT	2	₹4.50L
12	LTI Mindtree	2	₹4.00L
13	Microland	3	₹4.00L
14	musigma	2	₹5.00L
15	Newjaisa	2	₹4.00L
16	Nineleaps Technologies	1	₹6.60L
17	Nokia	3	₹3.00L
18	Siemens	2	₹4.50L
19	Sopra Steria	3	₹6.00L
20	Spektra Systems	1	₹3.60L
21	UNISYS	1	₹8.00L
22	Zepto	5	₹4.50L
	Total No of students placed	**91**	
	Total No of offers	**117**	

STUDENT CORNER—*A GLIMPSE TO THE CREATIVITY OF STUDENTS*

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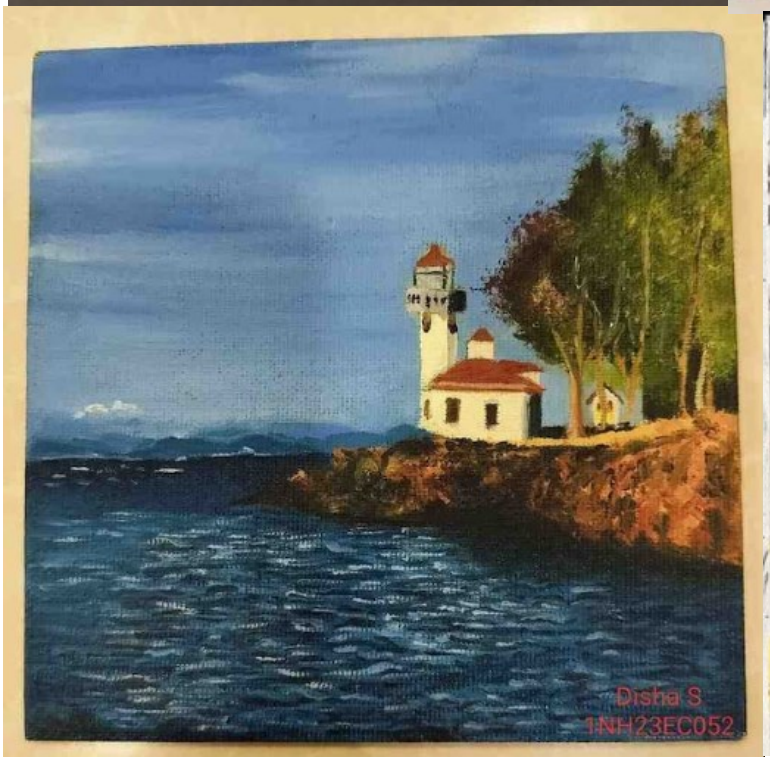
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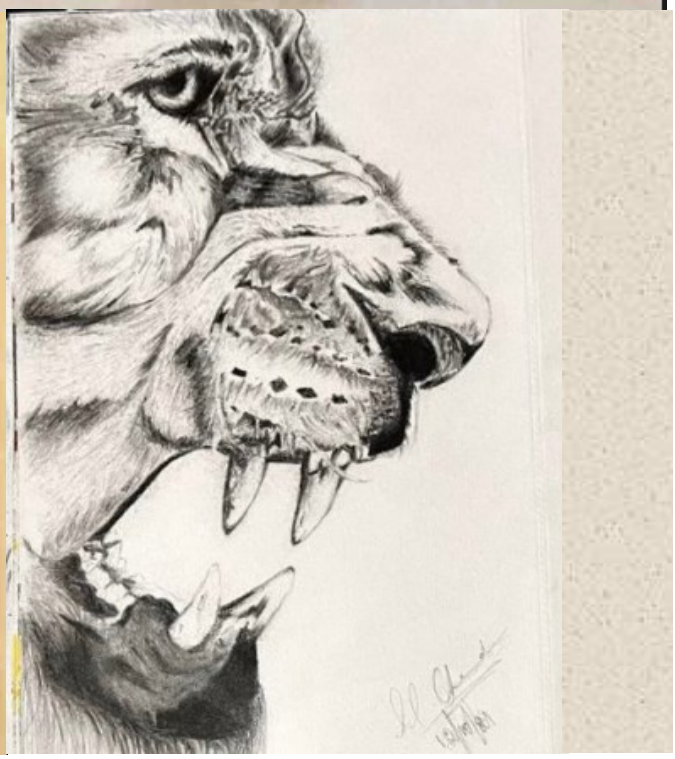

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Vision

To create high quality engineering professionals who can serve the society and earn global recognition.

Mission

- To build strong foundation in Electronics and Communication Engineering aspects by exposing students to state of the art technology and research
- To strengthen the curriculum through interaction with industry experts and to equip the students with the required competency.
- To mould students to share technical knowledge and to practice professional and moral values.

Program Educational Objectives

PEO 1: To produce graduates with understanding of fundamentals and applications of Electronics and Communication Engineering.

PEO 2: To hone graduates with ability to apply, analyze, design and develop electronic systems.

PEO 3: To enhance graduates with latest technologies to enable them to engineer products for real world problems in Electronics and Communication.

PEO 4: To build leadership qualities, management skills, communication skills, moral values, team spirit and lifelong learning ability for the graduates.

PROGRAM OUTCOMES

B. E graduate should possess the following Program Outcomes-

Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems in Electronics and Communication Engineering.

Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems in Electronics and Communication Engineering reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

Design/development of solutions: Design solutions for complex engineering problems and design system components or processes of Electronics and Communication Engineering that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments in Electronics and Communication Engineering, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities in Electronics and Communication Engineering with an understanding of the limitations.

The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice in Electronics and Communication Engineering.

Environment and sustainability: Understand the impact of the professional engineering solutions of Electronics and Communication Engineering in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

Life-long learning: Recognize the need for, and have the preparation and ability to en*gage in independent and life-long learning in the broadest context of technological change.*

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

PROGRAM SPECIFIC OUTCOMES

Program Specific Outcomes	
PSO1	To demonstrate the ability to design and develop complex systems in the areas of next generation Communication Systems, IoT based Embedded Systems, Advanced Signal and Image Processing, latest Semiconductor technologies, RF and Power Systems
PSO2	To demonstrate the ability to solve complex Electronics and Communication Engineering problems using latest hardware and software tools along with analytical skills to contribute to useful, frugal and eco-friendly solutions.

DEPARTMENT OF ELECTRONICS AND COMMUNICATION

Today the world has shrunk and the global village is marching towards technological revolution predominantly due to innovations in the field of Electronics and Communication. The field of Electronics and Communication opens the doors to a myriad of opportunities and exciting challenges for the go-getters. The department of electronics & communication engineering is accredited by the National Board of Accredita

http://newhorizonindia.edu/nhengineering/department-of-electronics-and-communication-engineering/

tion (NBA). The vision of the department is to create high quality engineering professionals who can transform society and earn global recognition.

The department is bestowed with well designed and well maintained infrastructure. It is well equipped with interactive classrooms and laboratories with latest equipment for students to experiment and state of the art facilities. The department also offers the VTU research centre for Ph.D. and M.Sc. (Engg.), for research. The enthusiastic teaching fraternity of the department besides being highly qualified, have the acumen to instil in students the urge to do better and bring out the best in them. Most of them have considerable experience in academics and research as.Few of them have industrial experience as well. The Electronics & Communication Engineering Program with its autonomous status is re-designed to cater to the needs of industry. The courses focus on intriguing areas like Embedded Systems, Communication, VLSI, Signal Processing, and Information technologies. Industry-relevant technology courses are a feather on the cap in the department. To run the same technology experts from reputed organization like IBM, HP, Texas Instruments, Sankalp Semiconductors, Audience Communication, Intel, ISRO, IISc. and other reputed institutes visit the department. The interaction of students with the experts gives them a niche over their peers in a world where technological growth and development is fast pacing and prepares them to chalk out solutions for the real world problems. To keep them updated on the technological scale, various workshops, seminars, competitive events, conferences and industrial visits are also organized on a regular basis.

To give them practical exposure and develop their technical and interpersonal skills the students of ECE department are required to execute various projects throughout their studies. Also they're motivated to publish research papers, and participate in national and international conferences as well. They take the lead in planning and executing various activities through Electronics Hobby Club, Technology Sharing Club, and Professional Connect club which definitely gives them an enthralling experience. Furthermore the students also undergo special placement training through value added programs. Most of them get placed in reputed organizations such as Intel, Texas Instruments, AMD, Qualcomm, ARM, Schneider Electric, Bosch, Cisco Systems, Juniper Networks, Vmware, Sony, Nokia, Accenture, Cap Gemini, IBM, HP, TCS, Infosys, Wipro, Mindtree and many more. Some students pursue higher studies in Indian and foreign universities, while there are quite a few of them who start their own ventures thereby contributing immensely in the growth of our society. As the famous quote goes "All work and no play makes Jack a dull boy. Students also engage themselves in cultural, sports and social activities. Many have taken it one step ahead and won gold medals and several trophies in sports and cultural events organized at different levels and several other institutions. Overall, the department provides a very positive and nurturing environment, for students to develop and grow into into knowledgeable, skilled and productive Electronics & Communication Engineers.