



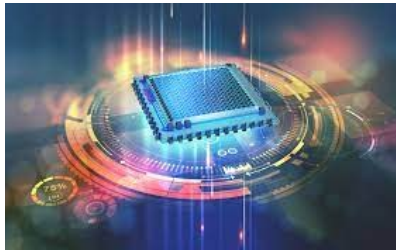
The Connect

DEPARTMENT OF ELECTRONICS AND COMMUNICATION

Issue 13, July 2021

Quantum Computing

In the early 1900s, quantum mechanics evolved as a field of physics to explain nature on the scale of atoms, leading to the development of transistors, lasers, and magnetic resonance imaging. The idea of combining quantum mechanics and information theory appeared in the 1970s but received little attention until 1982, when



Quantum Chip

physicist Richard Feynman gave a presentation arguing that computing based on classical logic could not process computations representing quantum phenomena in a tractable manner. Computing that uses quantum phenomena to simulate other quantum phenomena, on the other hand, would not be affected by the same bottlenecks. Despite the fact that this application subsequently evolved into the field of quantum simulation, there was little research activity at

the time.

However, in 1994, mathematician Peter Shor invented a quantum algorithm that could quickly determine the prime factors of enormous numbers, sparking a surge in interest in quantum computing. "Effectively" indicates "in a period of practicality."

Both quantum and conventional computers attempt to solve problems, but their approaches to data manipulation are fundamentally different. This section explains what makes quantum computers special by introducing two quantum physics

principles that are critical to their operation: superposition and entanglement.

Superposition is the paradoxical ability of a quantum object, such as an electron, to exist in numerous "states" at the same time. One of these states for an electron may be the lowest energy level in an atom, while another could be the first excited level. If an electron is prepared in a superposition

of these two states, it has a chance of being in the lower and a chance of being in the upper state. Only once this superposition is destroyed by a measurement can it be said whether it is in the bottom or upper state.

Understanding superposition allows us to comprehend the qubit, which is the fundamental unit of information in quantum computing. Bits are transistors in traditional computing that may be turned on or off, corresponding to the states 0 and 1. In qubits like electrons, 0 and 1 are merely states that correspond to the lower and upper energy levels explained before. Qubits differ from conventional bits in that they can be in superpositions with variable probabilities that can be modified by quantum operations during calculations, whereas classical bits must always be in the 0 or 1 state. Entanglement occurs when quantum entities are formed and/or modified in such a way that none of them can be described without mentioning the others. Individual identities are being wiped out. When one examines how entanglement might persist over great distances, this concept

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is extremely difficult to grasp. A measurement on one member of an entangled pair instantly determines measurements on the other, giving the impression that information can move faster than light. This ostensibly distant motion was so frightening that Einstein dubbed it "spooky" (Born 1971, p. 158). According to popular belief, quantum computers achieve their speedup by trying every conceivable solution to a problem in concurrently. In actuality, a quantum computer uses entanglement between qubits and the probabilities associated with superpositions to perform a series of operations (a quantum algorithm) that improves specific probability (e.g., those of the quantum state). The likelihood of measuring the correct result should be enhanced when a measurement is done at the end of a computation. What distinguishes quantum computers from classical computers is the way they use probabilities and entanglement. The prospect of constructing a quantum computer capable of executing Shor's algorithm for huge numbers has been a major driver of progress in quantum computation. However, in order to gain a more comprehensive understanding of quantum comput-

ers, it's crucial to keep in mind that they'll most likely give massive speedups for only a few types of issues. Researchers are attempting to determine which issues are amenable to quantum speedups as well as developing algorithms to demonstrate them. In general, quantum computers are expected to greatly aid problems involving optimization, which are critical in anything from military to financial trading.

There are a variety of other applications for qubit systems that aren't connected to computing or simulation, and they're still being researched, but they're outside the focus of this discussion. (1) Quantum sensing and metrology, which take advantage of the extraordinary sensitivity of quantum dots, are two of the most significant domains. (2) quantum networks and communications, which may lead to revolutionary ways to share information.

Quantum computers have the potential to transform computation by allowing for the solution of previously unsolvable problems. While

no quantum computer has yet been developed to perform calculations that a classical computer cannot, significant progress is being made. A few large corporations and tiny start-ups currently have working non-error-corrected quantum computers with tens of thousands of qubits, and some of these are even available to the general public via the cloud. Quantum simulators are also making progress in domains as diverse as molecular energetics and many-body physics.

As more small systems become available, a discipline focusing on quantum computing applications for the near future is beginning to emerge. This progress could allow some of the benefits and insights of quantum computation to be realized long before the search for a large-scale, error-corrected quantum computer is complete.

FACULTY ACHIEVEMENTS

Name of the Staff	Name of the Award/Achievements	Year of Award	Awarding Agency
Dr. Nisha K C R	Best Performing Professor	15 th -Sep-21	Indian Technology Congress Association/(KPCN/CSPD)
	IIRS, NHCE- Nodal Center Coordinator - Machine Learning to deep Learning: A journey for remote sensing data classification	05 th -09 th July 2021	ISRO
	IIRS, NHCE- Nodal Center Coordinator—SAR Application for flood hazard mapping and monitoring	16 th July 2021	ISRO
Dr. B Mohan Kumar Naik	Session Chair—Computer Science & Technology Allies in Research (NCCSTAR)	16 th -17 th July 2021	RRIT,Bengaluru
Dr. Piruthiviraj P	Executive Committee member -ISF Meeting	28 th July 2021	IETE, Bengaluru
Ms. Ishani Mishra	Topper Award	Aug-Oct 2021	NPTEL
Ms. Ramanamma Parepalli	Topper Award	Jul-Sep 2021	NPTEL
Mr. Parag Jain	Topper Award	Jul-August 2021	NPTEL
Ms. Vansha Kher	ATAL FDP Speaker	19 th Oct 2021	AICTE - ATAL

Brain teaser

A cellphone company wants to test the durability of their phones in real-world conditions. All their product tester, Jerry, has at his disposal is two identical phones, and the company's 50 story building. Using only these objects, how can he determine how far the phones can safely fall using the fewest number of drops?

Answer to Brain teaser

Jerry should take one phone, and go up ten stories, and drop it out of the window. If it survives, he should go up ten stories more, and drop it again. He should repeat the process until the first phone breaks, and note the floor he dropped it from. Next, Jerry should take the second phone, go up ten floors below where the first one broke, and drop it from single-story increments. This will tell him how far the phone can safely fall with the lowest number of drops.

EXPERT LECTURES

(Coordinators : Prof. Tessy Tomy)

Name of the Industrial Expert	Company/Organization	Designation	Topic/ Subject	Semester	Hours engaged	Date
Mr. S.Lokesh	Ekalavya Group of Technologies	Chief Technical officer	Introduction to MSP430 MCU and NodeMCU ESP8266	V	2	20-11-2021
Mr.Prafulla Galphade	Cadence design system	Senior principal program manager	Sequential circuits	III	2	26-11-2021
Mr. Sagar Somashekhar	Nokia solutions	5G L1 architect	Key notes on 5G Wireless Technology	VII	2	27-11-2021
Mr. Raghul Prasanth E	Sr. Network Consulting Engineer	Cisco	Advancement in networking and it's configuration	V	2	03-12-2021

NEW HORIZON COLLEGE OF ENGINEERING
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Present
Online guest lecture on ADVANCEMENTS IN NETWORKING AND IT'S CONFIGURATION

3rd Dec 2021 @ 10:30 am

Resource Person

Raghul Prasanth E
Sr. Network Consulting Engineer, Cisco

Convenor: Dr.Sanjeev Sharma
HOD-ECE

Faculty Coordinator: Ms.Divya sharma, Tessy Tomy
Sr. Asst Professor, Asst Professor



NEW HORIZON COLLEGE OF ENGINEERING
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Present
ONLINE GUEST LECTURE
on
INTRODUCTION TO MSP430 MCU AND NODEMCU ESP8266

RESOURCE PERSON:

S.Lokesh,
CTO Ekalavya Group of Technologies, Mysore

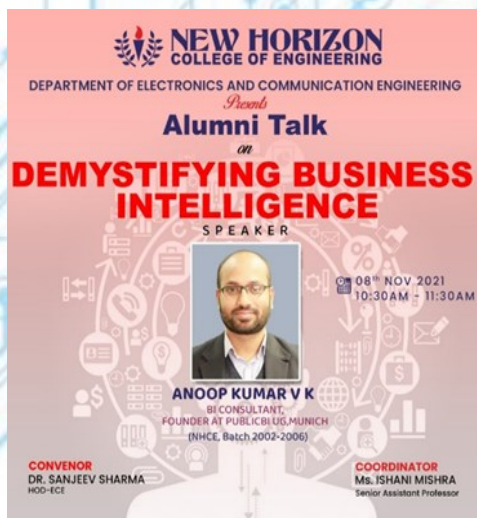
20-11-21 @ 2:30PM

CONVENOR: DR. SANJEEV SHARMA, HOD-ECE

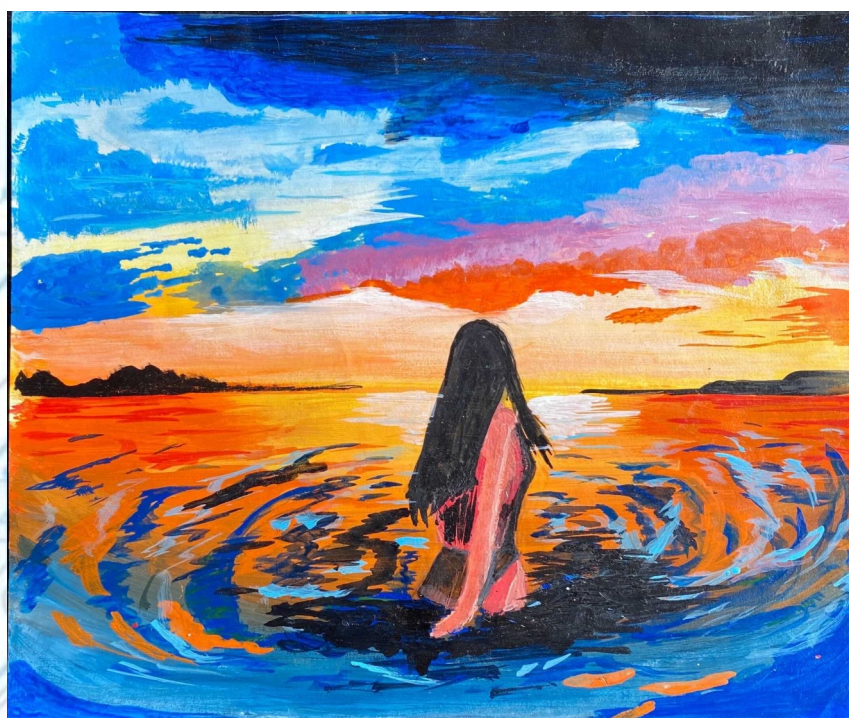
FACULTY COORDINATOR: MS. DIVYA SHARMA, SR. ASSISTANT PROFESSOR; MRS. TESSY TOMY, ASSISTANT PROFESSOR

ALUMNI TALK

Serial No.	Name of the Alumni and Current Designation	Date of the Event	Contribution
1	Anoop V K (Year of Graduation- 2006) Founder at PublicBI UG	8/11/21	Talk on - Demystifying Business Intelligence



STUDENT CORNER — A GLIMPSE TO THE CREATIVITY OF STUDENTS



1NH18EC725 -Kavyashree



1NH18EC094
RAKSHITH MV

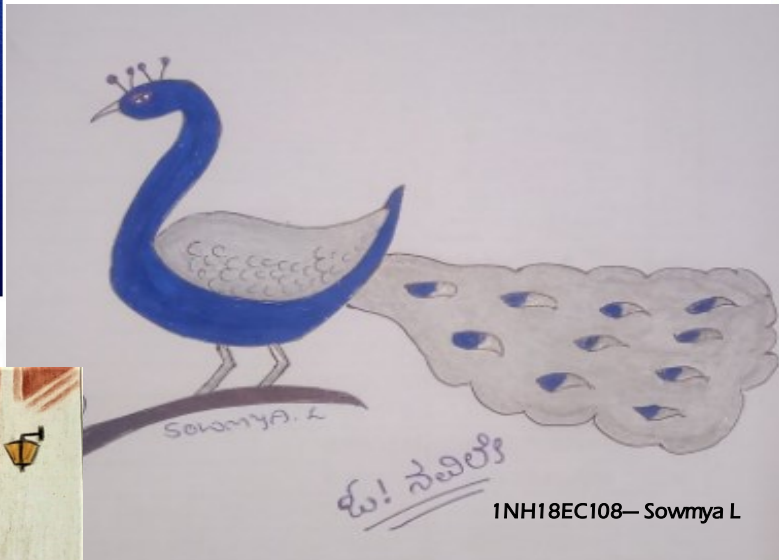
STUDENT CORNER—A GLIMPSE TO THE CREATIVITY OF STUDENTS



1NH18EC135—Greeshma MN



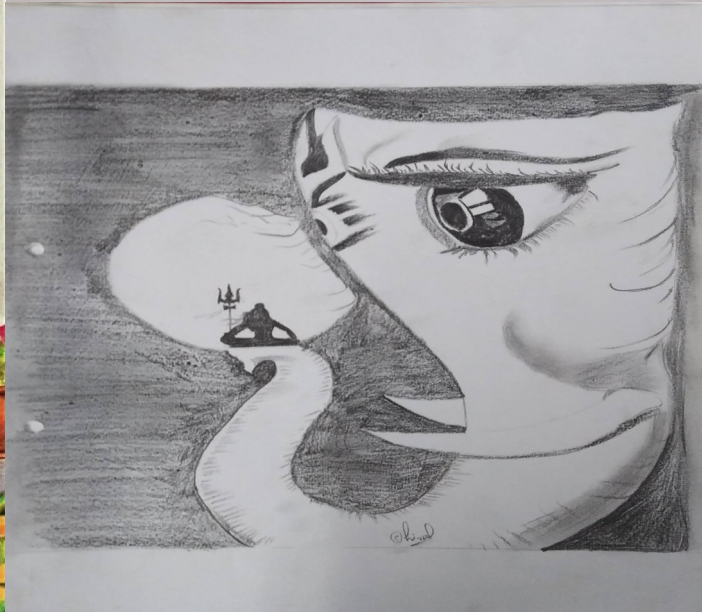
Nikitha M S (1NH18EC079)



1NH18EC108—Sowmya L



Bhumika K S 1NH19EC015



1NH20EC408 -Shiva Shankar L

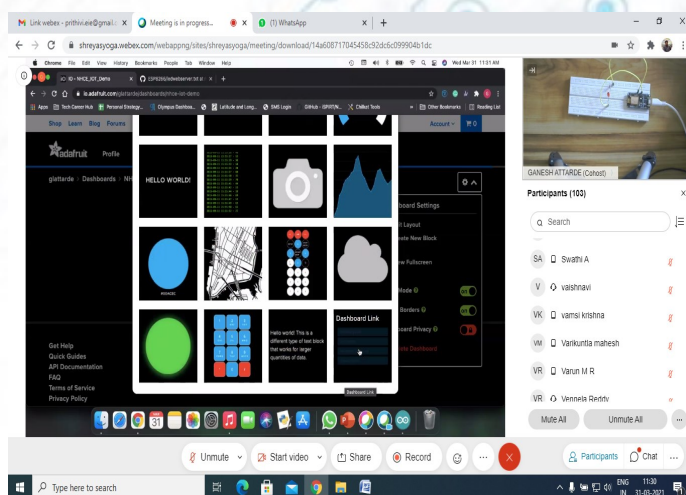
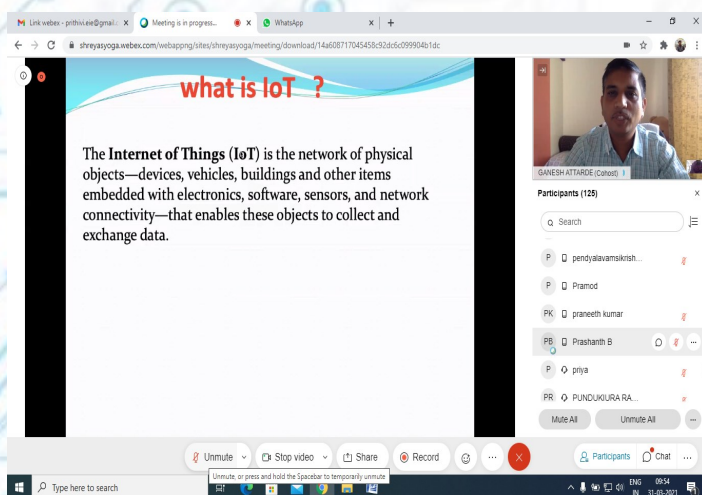
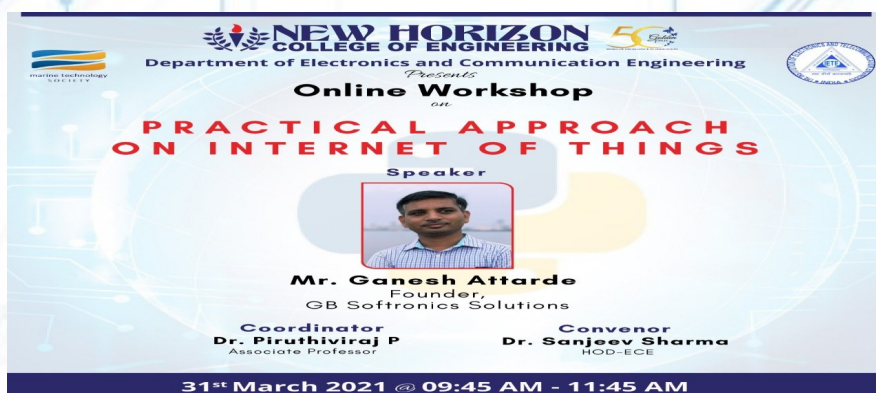
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WORKSHOPS:

(Coordinators: Dr. Piruthiviraj)

WORKSHOP

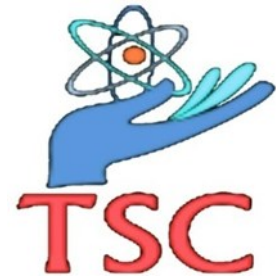
Date	Resource person	Title	Semester
25-11-2021	Mr.Kotresh Director ITK Bangalore	Workshop on PCB Designing and Fabrication	III



WORKSHOP ON PCB DESIGNING AND FABRICATION

TECHNOLOGY SHARING CLUB

(COORDINATORS : PROF. DEEPAK KUMAR S N , PROF. VANSHA KHER)



What we're about:

We as a club will provide the right platform to develop your thoughts to innovations which will suffice the need of the hour. Also gives you sorted insight on technology be it former or new-found. An open forum will also be provided for discussions. Lack of Knowledge often leads to mishaps, here at our club we aim to prevent any such mishaps by enhancing your knowledge through fun-learning. We will also provide adequate opportunities for you to share technical thoughts and technical symposiums.

Objective:

To provide insight into existing and evolving technology and product

ROLE	NAME
President	SURAJ SURESH
Vice-president	VIKAS R
Secretary	MELITA ROSE G
Treasurer	KAMALA VENNELA.V
Committee Member	AKSHAYA SRINIVASAN
Committee Member	SHIVSHANKAR
Committee Member	VYSHAK SHETTY
Committee Member	CHANDAN GOWDA M
Committee Member	DEVANSHI
Committee Member	KARTHICK
Committee Member	RENUKA S HEBBALLI

ISSUE 13, JULY 2021

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TECHNOLOGY SHARING CLUB

EVENT	DATE	DESCRIPTION
DECO HUNT	07-12-2021	Technical Quiz Treasure hunt with Technical Clues Event was conducted to encourage fun learning.



ELECTRONICS HOBBY CLUB

(COORDINATORS : Prof. Richard ,Prof. Rajesh)

What we're about:

The goal of this club is to implement and demonstrate electronics-based hobby projects and products. By motivating the enthusiasts in trying out the avenues of hardware and software domains of the electronics and communication, this club is aimed at enriching the intelligence as well as wisdom of the technical community.



The Club aims to cater to the various needs to keep in pace with the ever evolving field of electronics Innovation, Imagination and Application is the motto of the club. We aim to provide a platform for the students to showcase their innovative ideas. The Club deals from basics of electronics till the latest developments The Ideas learnt in theory classes can be applied in the real world.

Objective:

To implement and demonstrate electronics-based hobby projects and products.

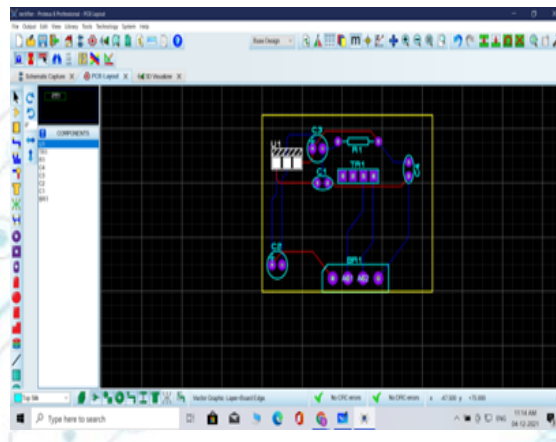
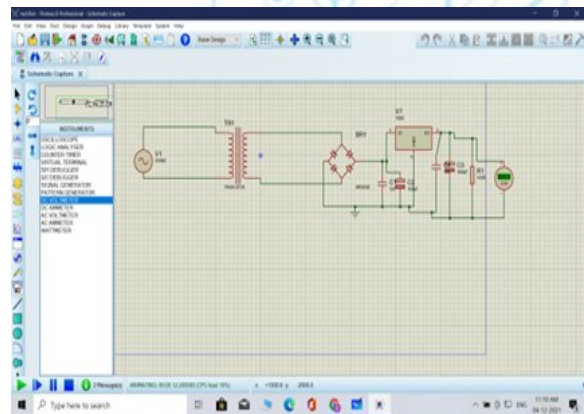
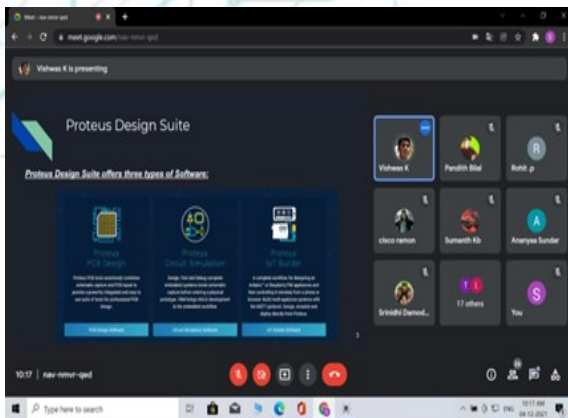
Role	Name
President	Yaseer Faiz Ahmed
Vice-president	Jerin
Secretary	Sushma
Treasurer	Kishan Kumar
Committee Member	Manoj
Committee Member	Bharath
Committee Member	Srinidhi
Committee Member	Suraj
Committee Member	Sanskruth
Committee Member	Varun
Committee Member	Rohit
Committee Member	Akash



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ELECTRONICS HOBBY CLUB

EVENT	DATE	DESCRIPTION
Virtual Workshop on Pursuing Proteus	04/12/2021	Introduction to Proteus Hands on experience on Proteus Software. Design of LED blinking circuit, panic alarm circuit.



Designing of LED blinking Circuit and Panic Alarm Circuit using Proteus Software

PROFESSIONAL CONNECT CLUB

(COORDINATORS : Dr.Gurulakshmi, Prof. Divya Sharma)

What we're about:

We help you connect with professionals, professional bodies, research organizations and companies.

We organize guest lectures, seminars, workshops, conferences and competition on technologies, projects and products.

We organize field trips to companies, research institutions and industry exhibitions. We help to facilitate active participation in external technical events.



Professional Connect
Club

Objective:

To connect with engineering professionals and conduct tech-

ROLE	NAME
President	Denzel George
Vice-president	SanjanaRanjan
Secretary	Shuvam Pal
Treasurer	Rahul S
Committee Member	Nikhil Riyaz
Committee Member	KushiPonnamma
Committee Member	Bhavana Savanth
Committee Member	Gautham Sinha
Committee Member	Saleh Junaid Ahmed
Committee Member	UditBahuguna
Committee Member	VidhyaJhadav
Committee Member	Rishita S



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PROFESSIONAL CONNECT CLUB

EVENT	DATE	DESCRIPTION
Enlighthronics	27-11-2021	Participants gained knowledge on applications of MATLAB followed by a Quiz and fun filled technical oration.



The Connect

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.

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 engage in independent and life-long learning in the broadest context of technological change.

The Connect

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

New Horizon College of Engineering
New Horizon Knowledge park,
Ring Road Marathalli

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

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 Accreditation (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 instill in students the urge to do better and bring out the best in them.



Dr. Sanjeev Sharma

Professor & Head

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 instill 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 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.