



The Connect

DEPARTMENT OF ELECTRONICS AND COMMUNICATION

Issue 10, Jan 2020

Is Artificial Intelligence a threat or Benefit?

Artificial Intelligence is growing. That should not be a frightening thought to a generation that is growing up with it in the background. Its development has expanded extensively that it is not confined or limited to research laboratories anymore. Artificial Intelligence has been continuously gaining influence in different sectors, even in business, by its innovation to learn specific tasks with minimal command or input. Companies have taken notice of this.

With the benefits of AI as an attractive package, businesses have begun investing in research and development to refine what Artificial Intelligence can do. Streamline it to focus its purpose for getting tasks done and witness taking advantage of the benefits that AI brings to their industries, whether it is local or worldwide.

Artificial Intelligence is the advancement of computer systems capable of accomplishing

tasks that require intelligence. These tasks include decision-making, speech and emotion-recognition, and visual perception. This is just the basic things that AI can do. We are talking about computer systems and algorithms that can replicate human skills.



Artificial Intelligence, as well as machine learning and deep learning, are able to recognize different patterns and make necessary algorithms to replicate human behavior. These technologies can perform these tasks with large quantities of data available, based on what humans think and how they perform tasks.

Changes in the Workplace

Whether large or small enterprises, the workplace is affected by the impact of Artificial Intelligence. One obvious benefit of AI for companies is the ability to improve the quality and

accuracy of production results while performing tasks faster. With the enormous amount of data that AI can use to "learn," decisions will be made with a higher rate of accuracy. We, humans, are creatures of habit, and we tend to fear what we do not understand, especially if it brings in the possibility of being replaced by a machine, a program, or even an app. In some way, that notion has basis and credibility since machines for production and service efficiency have replaced workers. But "jobs" and skills that AI is being implemented for are meant to take off the mundane and monotonous part of the workplace help human resources go to the next level. If we fear AI, then we are significantly underestimating who we are and what we are truly capable of.

Changes in Communication

Development in communication technology and the integration of AI into systems of communication has led to leaps of improvements in speech recognition and translation. Access to data and powerful computing capacity is available for your communication needs.

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INDUSTRIAL VISIT (COORDINATORS : Prof. Jayanthi, Prof. Puvirajan)

Date	Place of Visit	Semester
01-08-2019	Kaynes Technology India Private Limited	V
23-08-2019	NAL	III
23-08-2019	Raman Research Institute	VII
04-10-2019	SITAR	VII
25-10-2019	Credence Robotics LLP	V

INDUSTRIAL VISIT TO KAYNES TECHNOLOGY PVT LTD

Department of Electronics and Communication Engineering had arranged a half day industrial visit to Kaynes Technology India Private Limited on 1 st Aug 2019, 36 students of 3rd year and two faculties had taken part.

As we reached the place a briefing was given about Kaynes Technology India Pvt Ltd. This company is a leading domestic player in the Electronics System & Design Manufacturing. Apart from its mother plant at Mysore, it has additional manufacturing facility at Mysore

and it has five manufacturing plants at Bangalore, Chennai, Manesar, Parwanoo, and Selaqui. The company is involved in component level

ence management Services and Support. Kaynes undertakes conceptual design, manufacture and testing of high reliability PCBAs, Box Build, Products and Systems Integration Services, Military Wire/Cable Harness for Defense and Aerospace Electronics and all other segments of Industry. This company offers services like Systems Design & Engineering, Equipment Installation and Commissioning including Support for On Board Systems, Overhauling and Maintenance of Electronic and Electrical Equipment's, Component level Electronic Card Repair and Re-Engineering, Obsolescence Management, PLC Programming and System Commissioning and Systems Integration Activities



Hardware Repair, Design Development, re-engineering and obsolescence management Services and Support.

INDUSTRIAL VISIT TO CREDENCE ROBOTICS LLP

It gave us an great opportunity to explore the different working domains of Credence robotics research and development. It focus on providing innovative and affordable high-end technological solutions for global humanitarian challenges under IoT and Robotics & Artificial Intelligence under a single roof. Credence Robotics offers avant-garde Research and Development facilities, Highly Qualified and Expe-

rienced Electronics System Designing, Apps & Algorithm Development Engineers, Knowledgebase from Analytics to final Production in various industrial sectors. Credence Robotics is working on Alphonso Industry X.0 (Combining emerging, connected and smart technologies to digitally transform industry) a secure platform for IOT based industrial automation.



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PENCIL
SKETCH



Harsha E(7th Sem Student)

REVIEWER CERTIFICATE

International Journal of
Circuit Theory and Applications

THIS CERTIFICATE IS AWARDED TO

ARAVINDA KOITHYAR

WE HEREBY NOTIFY THAT THE PERSON ABOVE HAS BEEN SERVING AS A REVIEWER OF
INTERNATIONAL JOURNAL OF CIRCUIT THEORY AND APPLICATIONS.

WE ARE GRATEFUL TO ARAVINDA KOITHYAR FOR REVIEWING 1 MANUSCRIPT IN 2018.

Ángel Rodríguez-Vázquez
Editor-in-Chief

16 July 2019

WILEY

FACULTY
ACHIEVEMENTS

GUEST LECTURES

(COORDINATORS : Prof. Dharmambal , Prof. Divya Sharma)

Date	Resource person	Title	Semester
24-08-2019	Ms.Tabassum V Mulla Senior Member of Technical Staff, Invecas Technologies, Bangalore	VLSI Design	V
24-8-2019	Mr. Galphade Prafulla Senior Principal Program Manager, Cadence Design Sys-	Sequential Circuits	III
26-10-2019	Mr.Vaishak Sundaresh Academia and IT industry Expert	Application of Data Structures	V
13-11-2019	Mr.Gopalakichenan Ganesan Program Manager, IBM India Pvt. Ltd., Bangalore	Microcontroller and its Significance in Real World	V

GUEST LECTURE ON SEQUENTIAL CIRCUITS

The lecture gave us an insight on combinational and sequential circuits, their significance, working and industrial applications. The session started with him giving an introduction on combinational circuits wherein the response of the circuit depends solely on the current input. This was followed by an introduction to sequential circuits wherein the response of the circuit depends on the previous inputs. He further went on to elaborate about the concept of latches and flip flops, in which he covered the basic design, characteristics and working of

the various primarily used latches and flip flops such as SR Latch, D-flip flop and JK flip flop. He also focused on the concepts of clock signals - synchronization and asynchronization, and where the respective concepts should be used. The places of practical usage of these circuits in today's technological developments were also stressed upon.



GUEST LECTURE ON APPLICATIONS OF DATA STRUCTURES

On 26/10/2019 he conducted a seminar for the students of ECE (semester : V) on the topic of " Application on Data Structures". He gave us an insight on the industrial application and usage of the various types of available data structure. He kept the session engaged with the various available data structures and each types' specific application. The entire session was extremely informative and practical-

ly for students. It not only gave us an insight on the topic of Data Structures, but also on the various opportunities and fields available in the industry for the application of such.



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WORKSHOP

(COORDINATORS : Prof. Piruthiviraj)

Date	Resource person	Title	Semester
31-08-2019	Mr.Kotresh Director ITK Bangalore	Workshop on PCB De- signing and Fabrication	III,V
30-09-2019 01-10-2019	Mr Goutam Director, Glacko	Two Days Workshop on Robotics	V



**WORKSHOP ON PCB DESIGNING AND FABRICATION
WORKSHOP ON ROBOTICS**

TECHNOLOGY SHARING CLUB

(COORDINATORS : Prof. Divya Sharma , Prof. Neethu Johny)

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 sort-of insight on technology be it former or newfound. 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
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TECHNOLOGY SHARING CLUB

Event	Date	Description
Block chain and IOT workshop	26-10-2019	Technical Talk on Blockchain by Mr. Musaveer (alumni) IOT hands-on session using NODEMCU-ESP8266 WIFI Module.
Paper Presentation on Emerging technologies	13-09-2019	Students presented innovative ideas on the latest trending technologies like Artificial Intelligence, IOT, Machine Learning, Blockchain etc



**WORKSHOP ON IOT AND BLOCKCHAIN
PAPER PRESENTATION ON EMERGING TECHNOLOGIES**

ELECTRONICS HOBBY CLUB

(COORDINATORS : Prof. Dharmambal , Prof. Richard Lincoln Paulraj)

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 to enable students to have hands on experience on current technologies.

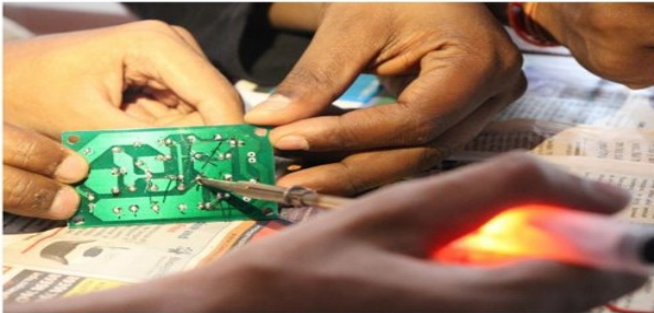
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Committee Member	Kushi Ponnamma
Committee Member	Kishan
Committee Member	Sushma
Committee Member	Yasir
Committee Member	Sripadh



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ELECTRONICS HOBBY CLUB

Event	Date	Description
DIY Workshop part -I	31-08-2019	EFY kits to have hands on experience in circuit building and soldering. Students learnt about various electronic devices and IC's used and also had the opportunity to explore their functionalities.
DIY Workshop part -II	26-10-2019	Participants were given the kits from EFY which consisted of different circuits.



DIY WORKSHOP (PART-I & PART-II)

PROFESSIONAL CONNECT CLUB

(COORDINATORS : Prof. Naveen H , Prof. Gurulakshmi)

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 technical events.

ROLE	NAME
President	Jagadeesh D
Vice-president	K Girivardhan
Secretary	Dennis Vincent
Treasurer	Bipin Dixit H
Committee Member	Devashrutha
Committee Member	S Rishitha
Committee Member	Naveen K M
Committee Member	Hari Prasad
Committee Member	GirishJattu Gouda
Committee Member	Lingesh T
Committee Member	Isabella Paul
Committee Member	Kavya S



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PROFESSIONAL CONNECT CLUB

Event	Date	Description
Electronics for Dummies	24-08-2019	The aim of the event was to make sure that each and every Electronics student knew the theory and also knew how to implement with their very own hands using smartphone.
Subjected Oriented Activity on Engineering Electromagnetic	14-11-2019	The Model exhibition, Paper presentation, Role play, Scientific Tempershowed how the laws of electromagnetic can be explained using different methods.



**SUBJECT ORIENTED ACTIVITY ON ENGINEERING ELECTROMAGNETICS
ELECTRONICS FOR DUMMIES**

IEEE ACTIVITIES

(COORDINATORS : Prof. Nisha KCR)



Orientation Programme on Benefits of IEEE and Opportunities

Ms.Athira Ajay , Vice chair welcomed the gathering. Dr.Ram Kumar, HoD EEE chaired the meeting

Dr. Nisha, NHCE IEEE BC has briefed about the membership benefits of IEEE. She inspired the audience by her talk on the importance of being a member of professional network .

Mr.Denzel Chair-2018 has briefed the activities they have conducted in 2018 . Mr. Nikhil Riyaz has briefed his success story how IEEE has helped him in global recognition and networking. The program concluded with vote of thanks by Sushma, Secretary

Application Reliability of a Wide Bandgap (WBG) Semiconductor Power Electronics switch

The IEEE Power Electronics Society (PELS) Bangalore chapter in association with the local IEEE Industrial Electronics Society (IES) chapter organized a seminar entitled "Application Reliability of a Wide Bandgap (WBG) Semiconductor Power Electronics Switch".

The lecture was delivered by Dr. Krishna Shenai, IEEE PEELS Distinguished Lecturer and a pioneer in solid-state power conversion.

Dr. Nisha Shaji, Professor of Electronics and Communication Engineering (ECE) at NHCE and IEEE PEELS Bangalore chapter ExCom member, formally welcomed the gathering on behalf IEEE PEELS Bangalore chapter and Ms. Athira Ajayakumar, Vice-Chair of IEEE Student Branch at NHCE introduced the speaker to the gathering and Dr. Sanjeev Sharma, Head of the ECE department presented the souvenir.

Prof. Shenai started his presentation with a brief discussion on the benefits of becoming a member of IEEE PEELS and followed it with an inspiring one-hour lecture on the application reliability of modern power semiconductor devices. The discussion mainly focused on three major applications driving the current Indian economy – grid integration of solar power, electric vehicles and advanced motor drives. In his inspiring lecture,



Dr. Shenai emphasized the need to develop converter designs that optimize performance, cost and reliability metrics. He illustrated a systematic technology development approach that is needed in order for rapid market adaptation of new and emerging power conversion technologies such as those based on Silicon Carbide (SiC) and Gallium Nitride (GaN) semiconductors. He also stressed the importance of developing a holistic engineering education that focuses on application engineering of advanced solid-state power conversion technologies in order to develop optimum solutions for impending energy and environmental challenges.

Dr. MiniSujith, Secretary, IEEE PEELS , Bangalore Chapter has honoured the guest with a token of appreciation. Prof. Dharmambal V of NHCE has rendered Vote of thanks to the guest and the participants. Total of 64 participants including faculty members from NHCE,UG students from departments of ECE, EEE and also research scholars of NHCE, Amrita School of Engineering, Amrita School of Engineering and PG students and research scholars of UVCE have attended the Talk. The event concluded with a vigorous discussion and lively intellectual exchange of many novel research ideas with the participants.

Industrie 4.0 - Evolution, Components, Roles and Challenges

Dr. B. Hariram Selvamurugan Satheesh with his 12 years of industrial experience in flight control and industrial automation domains has a wide exposure of technologies and applications. Prior to industry he worked as professor for about 13 years. He served as Research Area Coordinator for the research area of "Embedded Platforms and Processes" in ABB Global research for two years. The research opportunities he got in the area of Industrial Communication at ABB opened up his interests to move from just embedded platforms to challenges in system wide solution. Various projects he executed in application of wired and wireless communication for industrial applications helped him to bridge the gap in the research challenges. With the wide range of technological experience in the field of power and automation his current research areas are time sensitive networking and edge computing which enables monitoring and control applications in a system to distributed while being deterministic and reliable

The talk began with Industrie 4.0, its evolution, roles and challenges to the audience. An overview of the latest developments in intelligent computer control system, industry communication and automation has been delivered which was inline with the interests of Industrial Electronics Society. While giving more emphasis on the trends in industrial communication, role of other enabling technologies such as IoT, AI/ML has also been qualitatively discussed which helps to shape the digital eco system of industry globally



FACULTY DEVELOPMENT PROGRAMMES

(COORDINATORS : Prof. Sanjeev Sharma, Prof. Dhivya M, Prof. Reema Sharma)

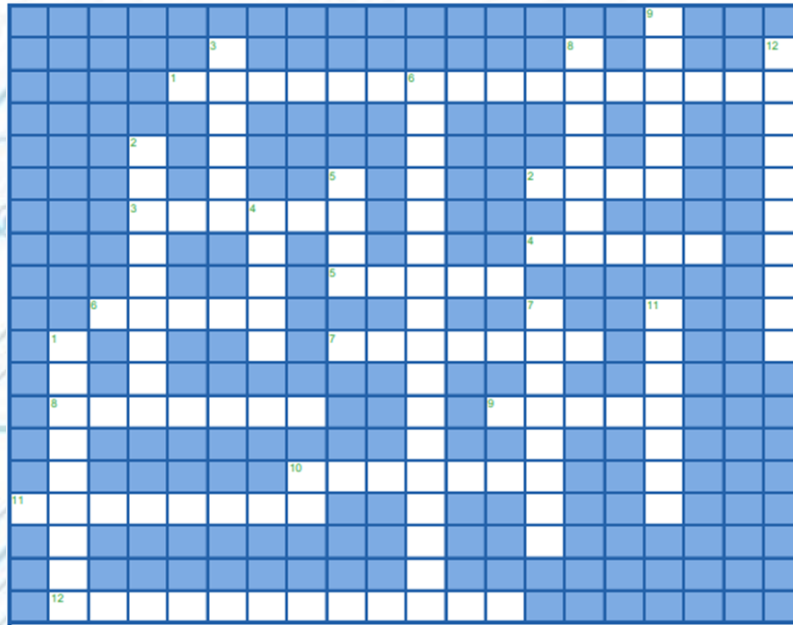
Orientation Programme on Benefits of IEEE and Opportunities

The Department of ECE organizes Faculty Development Programme (FDP) every semester to enrich the knowledge of the faculty members for carrying out research, testing & consultancy in the area of recent technologies and latest innovations.

Event	Date	Description
Cyber Security and Digital Forensics	12.12.2019 to 14.12.2019	<p>The main aim of this faculty development program is to stimulate research aspects in cyber security which includes information, network and data security. It will help in understanding current internet security techniques and learning relevant tools available for network and data protection from cyber-attacks with demonstration.</p> <p>To train the participants in theoretical and practical concepts of Internet security To help the audience understand importance of cyber security aspects in real life scenarios To get acquainted with relevant cyber security tools To provide Hands-on Training to configure Cisco firewall technologies</p>



CROSSWORD



Across

1. Two resistors connected together, across a power supply (9, 7)
2. Process used to remove unwanted copper from a PCB (4)
3. Colour band used to indicate the number 7 (6)
4. Colour band used to indicate the number 0 (5)
5. Connects the components together on a PCB (5)
6. A component which allows current to flow only in one direction (5)
7. Makes a sound (7)
8. A collection of components, connected together (7)
9. The L in LED (5)
10. Flows through a circuit (7)
11. Electronics that works with real voltages (9)
12. Type of capacitor, which is polarised (12)

Down

1. Shape of the schematic symbol for a resistor (9)
2. Stores charge (9)
3. Electrically joints components to a PCB (6)
4. Energy that allows the electronics to work (5)
5. Check the board works, after construction (4)
6. A chip / part with two row of pins (10, 7)
7. Component with coloured bands to determine it's value (8)
8. Something that can only be true / false, 0 or 1 (7)
9. Used to turn things on and off (6)
10. Letters used to mark commercial electronics sold in Europe (2)
11. Measured across components such as batteries (7)
12. A component that acts like an electronic switch (10)

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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 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.

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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/>



Dr. Sanjeev Sharma

Professor & Head

and social activities. The students of ECE department have obtained gold medals and many ranks in the university. They have also won several trophies in sports and cultural events.

The students also undergo special placement training through value added programs. They 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 others. Many students pursue higher studies in Indian and foreign universities, while some of them have setup their own ventures.

Overall, the department provides a very positive and nurturing environment, for students to develop and grow into knowledgeable, skilled and productive Electronics and Communication Engineers.

The department of Electronics and Communication is accredited by the National Board of Accreditation (NBA). The field of electronics and communication engineering is one that offers a whole new world of exciting challenges and opportunities. To automate or to interact with any device or a system, electronics plays the key role. Whether it is planetary mission or remote sensing, smart-city or self-driving cars, robots or smart mobiles or internet of things, electronics and communication is at the core.

The electronics and communication engineering department at New Horizon College of Engineering has a vision to create high quality engineering professionals who can transform society and earn global reputation. The department consists of highly qualified faculty members with rich experience both in academics, research, and industry. Apart from regular faculty, technology experts from reputed organization like IBM, HP, Texas Instruments, Sankalp Semiconductors, Audience Communication, Intel, ISRO, IISc. and other institutes visit the ECE department to interact with students and run industry-relevant technology courses.

The department has interactive classrooms and laboratories with latest equipment for students to experiment. The department also offers the VTU research center for Ph.D. and M.Sc. (Engg.), for research. Various workshops, seminars, competitive events, conferences and industrial visits for our students are also organized on a regular basis.

The Electronics and Communication Engineering Program with its autonomous status is re-designed to meet the needs of industry. The courses focus on Embedded Systems, Communication, VLSI, Signal Processing, and Information technologies. The students of ECE department execute various projects throughout their studies, publish research papers, and participate in national and international conferences. They also plan and execute various activities through Electronics Hobby Club, Technology Sharing Club, and Professional Connect club, as well as participate in cultural, sports