



THE ELECOMM

A Quarterly Newsletter

Department of Electronics & Communication Engg, Echelon Institute of Technology, Faridabad

VOLUME-XV ISSUE-I

JULY - SEP - 2023

INSTITUTE VISION AND MISSION

Vision:

The institute is committed to fulfilling its vision of "Technical and Management leaders engaged in the evolution of life, being at the frontiers of the continuous technological and administrative breakthroughs, inspired by ongoing exploration of self, society, and nature through self-reflective consciousness by building a culture of inspiration, exploration and growth."

Mission:

- M-1 Having a culture of inspiration, exploration and invention through effective, experiential teaching-learning giving rise to ever evolving knowledge and wisdom.
- M-2 To have self-inspired students ever engaged in continually working upon and sharpening and deepening computational, creative, innovative and leadership consciousness.
- M-3 Having students established in self-reflective consciousness, committed to personal, social & human integrity, and engaged in deep inquiry and conversation, giving rise to shared, inter-subjective human values and consciousness.



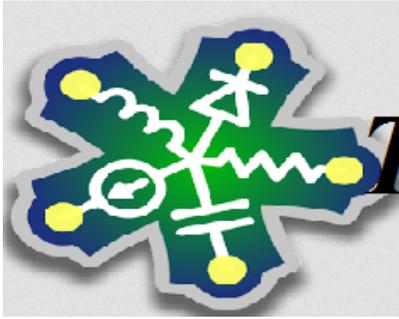
DEPARTMENT VISION AND MISSION

Vision:

To create highly skilled, trained, and confident Electronics and Communication Engineers having professional ethics, strong fundamental knowledge, passion for technology and competence to adapt to the rapid changes in technology with the time.

Mission:

- M-1 To impart sufficient technical knowledge, skill, and exposure to the students to make them a tech-savvy professional in the areas of VLSI, analog signal processing, digital system, embedded system, communication system etc.
- M-2 To have well qualified and competent faculty members in the department who are in a position to impart quality technical education.
- M-3 To regularly update the labs by incorporating experiments beyond syllabus and other value-added contents in keeping with current industry requirement.
- M-4 To ensure effective counselling and career guidance facility to the students to help them achieve their goals.
- M-5 To develop overall personality of the students by encouraging them to participate in technical and non-technical club activities, sports, and personality development programs.
- M-6 To encourage and prepare the students to participate in national level examinations like GATE.
- M-7 To encourage faculty and staff members to pursue higher education, research and to update themselves with the latest trends in technology being used in the field of electronics and communication.



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This is the first issue of “THE ELECOMM” of the academic year 2022-2023. I would like to take this opportunity to motivate all the students to enroll in the internship programs and SWAYAM MOOCs to enhance their skills and earn the required credits.

Nitu Chauhan

Editor

Highlights

- ❖ Article on 5G Technology
- ❖ Activities in the department
- ❖ Orientation Day celebration
- ❖ Anti-ragging day celebration
- ❖ Faculty achievements

5G Technology

Unveiling the Evolution of Mobile Networks:
From 1G to 5G

The journey of mobile communication has been nothing short of extraordinary, marked by remarkable advancements that have transformed the way we connect and interact with the world around us.

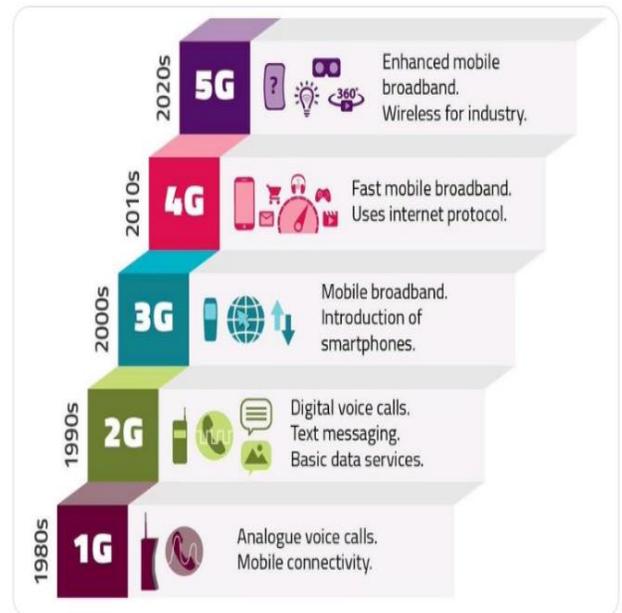


Figure 1. Evolution from 1G to 5G

At the forefront of this evolution stands the development of mobile networks, each generation bringing forth innovations that push

the boundaries of possibility. As we delve into the fifth generation, or 5G, let's embark on a retrospective voyage through the ages, tracing the remarkable evolution from 1G to 5G.

1G: Laying the Foundation

The inception of mobile networks dates back to the 1980s with the introduction of the first generation, commonly known as 1G. It revolutionized communication by enabling wireless voice calls, albeit with limited coverage and analog technology. 1G networks paved the way for mobile telephony, setting the stage for future advancements in the realm of wireless communication.

2G: The Era of Digitalization

The dawn of the 1990s heralded the arrival of 2G networks, characterized by the transition from analog to digital communication. With the introduction of digital voice encoding techniques, 2G offered improved voice quality and enhanced security features. Short Message Service (SMS) also made its debut during this era, marking a significant leap forward in mobile communication capabilities.

3G: The Birth of Mobile Data

As we ventured into the new millennium, the emergence of 3G networks heralded a paradigm shift in mobile communication. Building upon the foundations laid by its predecessors, 3G

introduced high-speed data transmission, enabling users to access the internet, stream multimedia content, and engage in video calling. This era marked the dawn of the mobile internet age, revolutionizing how people communicate and consume information on the go.

4G: Empowering the Mobile Ecosystem

The advent of 4G networks brought forth unprecedented levels of connectivity, delivering blazing-fast data speeds and low latency. Leveraging technologies such as Long-Term Evolution (LTE), 4G facilitated seamless multimedia streaming, online gaming, and the proliferation of Internet of Things (IoT) devices. With 4G, mobile communication evolved into a ubiquitous and indispensable aspect of modern life, fueling innovation across industries and transforming the digital landscape.

5G: Unleashing the Power of Connectivity

Enter the fifth generation of mobile networks, aptly named 5G, poised to redefine the very fabric of connectivity. Built upon a foundation of cutting-edge technologies such as millimeter-wave spectrum, massive MIMO (Multiple Input Multiple Output), and network slicing, 5G promises to deliver unprecedented speed, capacity, and reliability. With data rates reaching gigabit-per-second levels and latency reduced to mere milliseconds, 5G opens the door to a plethora of transformative applications,

including autonomous vehicles, augmented reality, remote surgery, and much more.

Conclusion: A Promising Future Ahead

As we reflect on the evolution of mobile networks from 1G to 5G, it becomes evident that each generation has played a pivotal role in shaping the way we communicate, collaborate, and innovate. With 5G poised to usher in a new era of connectivity, the possibilities are limitless. From empowering smart cities to revolutionizing healthcare and driving economic growth, 5G holds the promise of a future where connectivity knows no bounds. With 5G as the catalyst for unprecedented connectivity, we stand at the brink of a digital revolution that will redefine industries, empower communities, and bridge the gap between imagination and reality. As we embrace this transformative journey, let us harness the potential of 5G to create a future where innovation knows no bounds.

- Sonal Kaushik

Assistant Professor (ECE)

Activities in the department

Seminar on “Digital Initiatives in Higher Education in India”

The Department of ECE organized a seminar on the topic “Digital Initiatives in higher education in India” on 18th Sep, 2023. Ms. Nitu Chauhan, HOD of ECE Dept. was the speaker. It was

focused on delving into the realm of digital initiatives within higher education.

The seminar highlighted the growing adoption of online learning platforms and their role in enhancing accessibility and flexibility in higher education. A significant emphasis was placed on the role of digital initiatives in preparing students for the demands of the future workforce. Students were introduced to various digital platforms such as SWAYAM, NDL, E-Vidwan, FOSSEE Virtual Labs, and ePGpathshala, designed to enhance the teaching and learning experience. They were sensitized about the usage of open educational resources (OER).

All faculty members of ECE Dept. and students of ECE were present in the seminar.

Anti-ragging Day celebration

The campus celebrated Anti-Ragging Day on August 11, 2023, with great enthusiasm. Students engaged in a variety of activities including poster making, essay writing, slogan writing, and rangoli making. Participants were recognized for their efforts with certificates and prizes. Furthermore, students delivered a poignant Nukkad Natak, shedding light on the issues surrounding ragging and its repercussions. The vibrant atmosphere of the event resonated with the collective commitment towards fostering a safe and inclusive campus

environment. Through creative expressions and thought-provoking performances, students reaffirmed their dedication to upholding values of respect and dignity for all. Anti-Ragging Day served as a poignant reminder of the collective responsibility to cultivate a culture of mutual respect and support within the campus community.

Glimpses of the event



Orientation Day Celebration ~ *Diksharambh 2023*

Orientation program 2023 was conducted for 1st year students in two phases.

On 19th Aug 2023, BBA and BCA students were welcomed. The event was organized beautifully followed by *Hasya Kavi Samelan* and then a wholesome lunch.

On 9th Sep 2023, Students of B.Tech, M.Tech, MCA and MBA were welcomed. A motivational Speaker, Mr. Shikhar Prajapati was invited at the event. He interacted with the students and motivated them with his words of wisdom.

A Band called Azaadi was invited at the event. All the faculty members, students and staff enjoyed the mesmerizing performance of the band.

Glimpses of the event





Additionally, a Club Exhibition was organized, where students had the opportunity to showcase both their minor and major projects.

Faculty Achievements:

Following faculty members of the department participated in several faculty development programs and workshops:

Ms. Mrinal Manjari

- Participated in the 5-day online FDP on Outcome Based “Curriculum and Accreditation Criteria“ conducted by NITTTR Chandigarh from 03rd July 2023 to 07th July 2023.
- Participated in the 2-day online FDP on Outcome Based “National Education policy 2020 for sustainable quality education“ conducted by Indraprastha Engineering

college Ghaziabad from 21st July 2023 to 22nd July 2023

- Participated in the 5-day online Workshop on “VLSI to system design – Silicon to end application approach“ organized by AICTE, ARM education and STMicroelectronics from 31st July 2023 to 4th August 2023.

Ms. Nitu Chauhan

- Participated in the 5-day online FDP on Outcome Based “Curriculum and Accreditation Criteria“ conducted by NITTTR Chandigarh from 03rd July 2023 to 07th July 2023.
- Participated in the 2-day online Workshop on Outcome Based “National Education policy 2020 for sustainable quality education“ conducted by Indraprastha Engineering College Ghaziabad from 21st July 2023 to 22nd July 2023

Mr. Diksha Kushwahae

- Participated in the 5-day online FDP on Outcome Based “Curriculum and Accreditation Criteria“ conducted by NITTTR Chandigarh from 03rd July 2023 to 07th July 2023.
- Participated in the 2-day online Workshop on Outcome Based “National Education policy 2020 for sustainable quality education“ conducted by Indraprastha

engineering college Ghaziabad from 21st July 2023 to 22nd July 2023.

Mr Neeraj

- Participated in the 5-day online Workshop on “VLSI to system design – Silicon to end application approach “ organized by AICTE, ARM education and ST Microelectronics from 31st July 2023 to 4th August 2023.

Acknowledgment

For the publication of “THE ELECOMM” I would like to thank the members of faculty of the ECE department for their valuable contribution.

Editorial Board:

Faculty coordinators:

Nitu Chauhan

Diksha Kushwahae

Sonal Kaushik

Students coordinators:

Muskan (ECE 3rd)

Raj Chaudhary (ECE 5th)

(Editor -The Elecomm)

For any queries and suggestions contact:

ernituchauhan@gmail.com

dikshakushwahae@eitfaridabad.co.in

sonalkaushik@eitfaridabad.co.in