A QUARTERLY STUDENT NEWSLETTER

ConnectHUB

Digital Revolution: Transforming Healthcare and Engineering

FOUNDATION FOR EXCELLENCE
Nurturing Brilliance ★ Transforming Generations

Nurturing Brilliance. Transforming Generations.

Digital Revolution: Transforming Healthcare and Engineering

The digital era is redefining the boundaries of possibility, transforming industries at an unprecedented pace. In healthcare and engineering, technological innovations are not just enhancing efficiency but revolutionizing how we approach challenges. This transformation is not an end—it's an ongoing process of reimagining the world with cutting-edge tools and ideas.

The Evolution of Digital Transformation: A Historical Perspective

The Foundation (1950s–1980s)

Early breakthroughs in semiconductors, microchips, and basic computing set the stage for digital tools.

Industries transitioned from manual methods to automated processes, laying the groundwork for innovation.

The Internet Era (1990s–2000s)

The rise of the internet connected systems globally, enabling seamless data sharing and collaboration.

Healthcare saw the introduction of electronic medical records, while engineering moved toward computer-aided design.

The Mobile Revolution (2007–2019)

Smartphones and apps became essential, reshaping communication, design, and service delivery.

In healthcare, mobile applications empowered patients with health monitoring, while in engineering, remote collaboration tools became the norm.

Patients could track their health metrics, such as blood pressure, heart rate, and glucose levels, using mobile apps

Apps could remind patients to take medications on time, improving adherence to treatment plans.

Teams could collaborate seamlessly on projects, regardless of their physical location, using mobile collaboration tools like Slack and Microsoft Teams.

The Pandemic Catalyst (2020–2022)

COVID-19 accelerated digital adoption, with telemedicine, remote work, and online collaboration becoming necessities.

This era highlighted the potential of digital solutions in maintaining continuity during crises.

The Generative AI Era (2023–Present)

AI is now automating design, diagnostics, and decision-making. Tools like ChatGPT and AI-driven software are revolutionizing both creative and technical fields.

AI is driving the development of self-driving cars, drones, and robots, transforming industries like transportation and logistics.

AI tools can create stunning visual art and compose original music.

AI-powered tools can automate video editing tasks, saving time and effort.

Healthcare: A Digital Revolution in Patient Care

Personalized Medicine	Genomics and AI: Advanced genetic sequencing is driving precision medicine, offering tailored treatments for conditions such as cancer and genetic disorders.
	Smart Therapeutics: AI-powered devices adjust treatments in real time, ensuring optimal outcomes.
AI-Driven Diagnostics	Algorithms now analyze medical images with high accuracy, detecting diseases earlier and more reliably.
	Predictive analytics identify health risks, enabling preventive measures.
Telemedicine and IoMT (Internet of Medical Things)	Remote consultations and wearable devices have made healthcare accessible in rural and underserved areas.
	Continuous glucose monitors and connected pacemakers provide real-time insights, reducing emergencies.

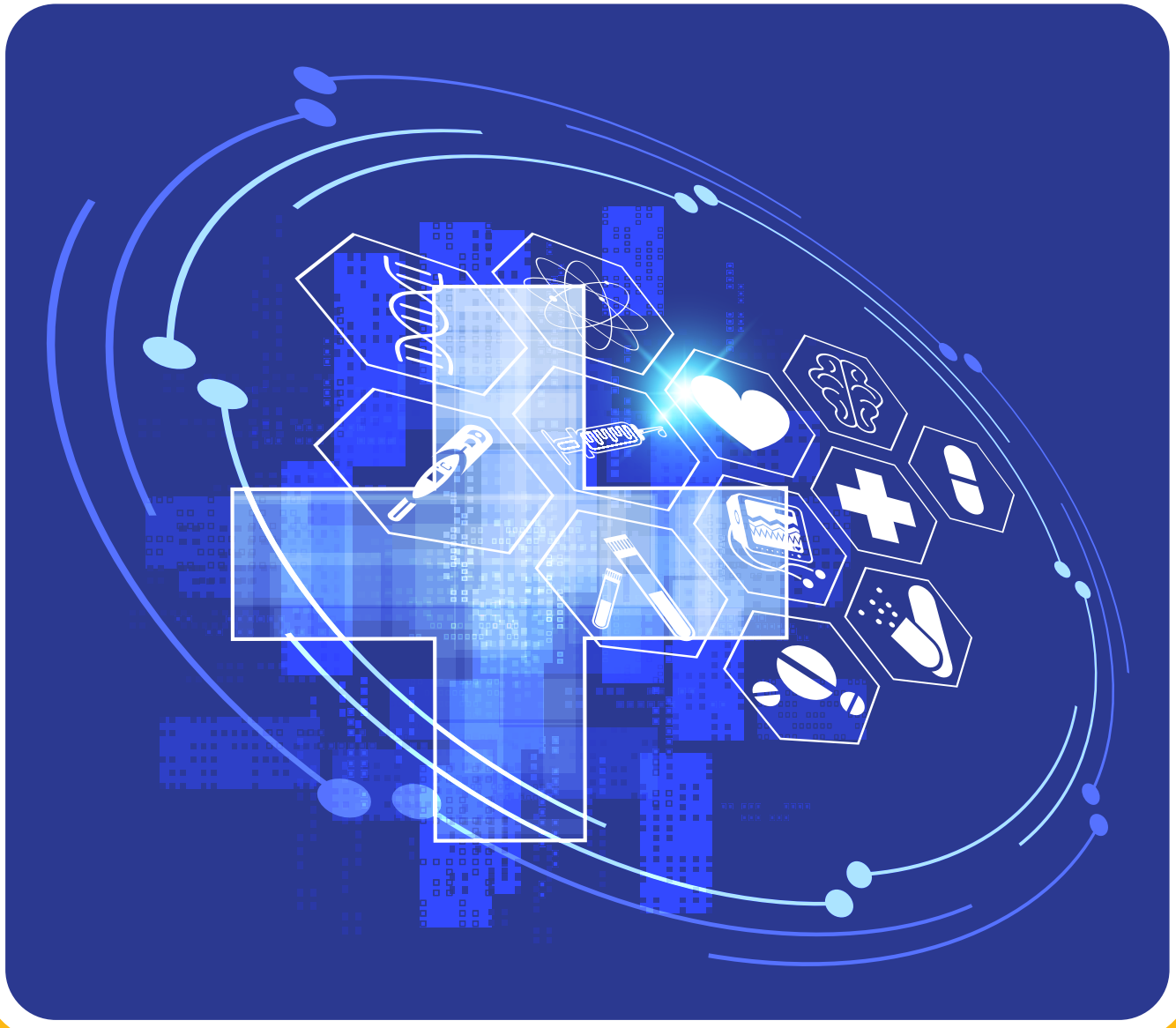
Robotics in Surgery

Robotic systems enable minimally invasive procedures, improving precision and reducing recovery times.

Remote robotic surgeries are expanding access to specialized care globally.

Healthcare for All

By integrating digital tools with public health systems, countries like Taiwan have demonstrated how technology can streamline pandemic responses and resource allocation.



Engineering: Shaping the Future with Technology

AI in Design and Manufacturing	Generative Design: AI generates multiple design solutions, optimizing cost, strength, and efficiency.
	3D Printing: Revolutionizing production, it enables rapid prototyping and complex custom designs.
Smart Cities and Infrastructure	IoT sensors embedded in infrastructure monitor energy usage, traffic flow, and structural integrity.
	Data analytics optimize urban planning for sustainability and efficiency.
Sustainability and Renewable Energy	Innovations in solar panels, wind turbines, and energy storage are critical in combating climate change.
	AI-driven solutions ensure efficient resource utilization in construction and energy management.

Nanotechnology and Materials Science

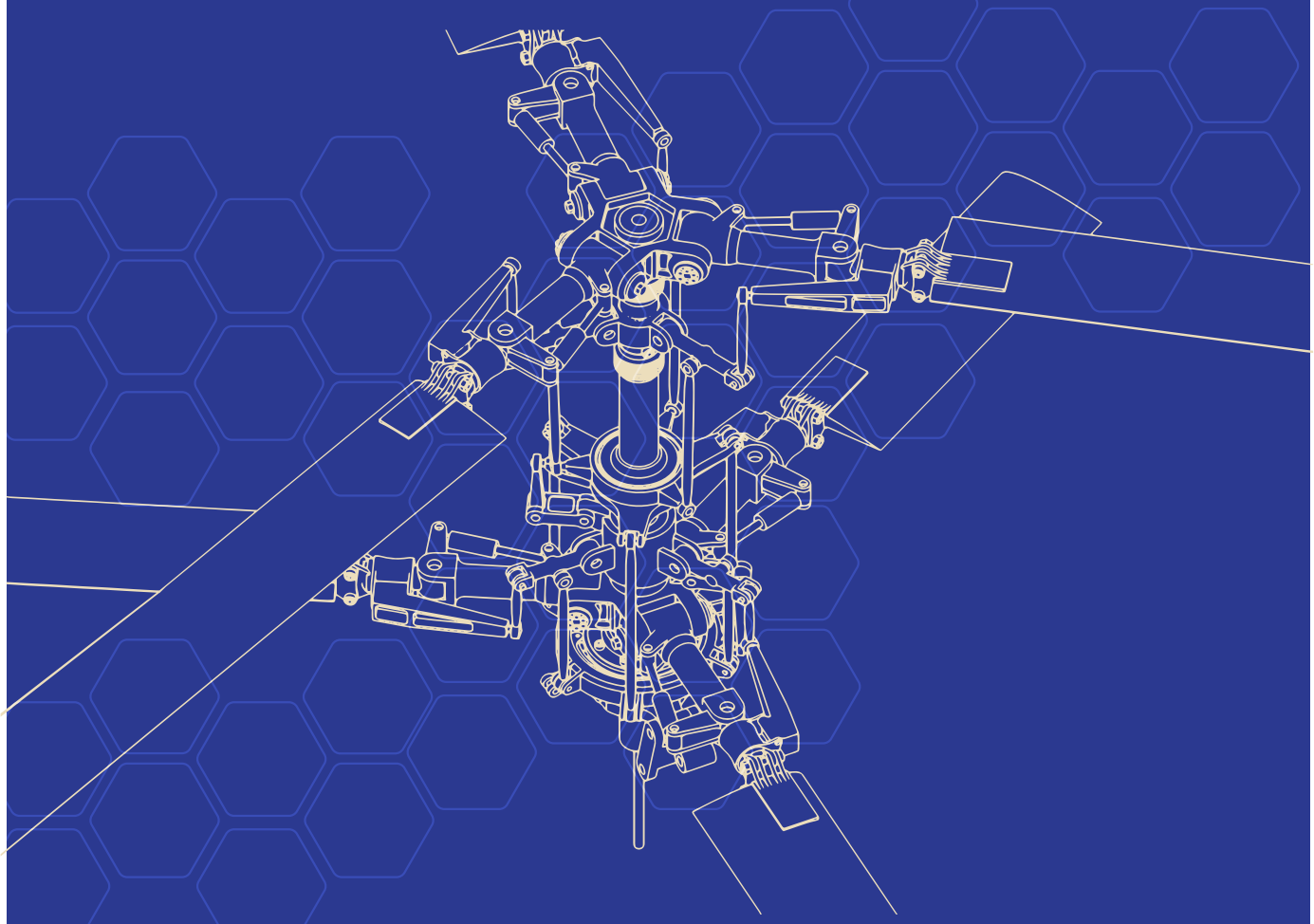
Nanomaterials enhance product performance, offering lighter, stronger, and more durable alternatives.

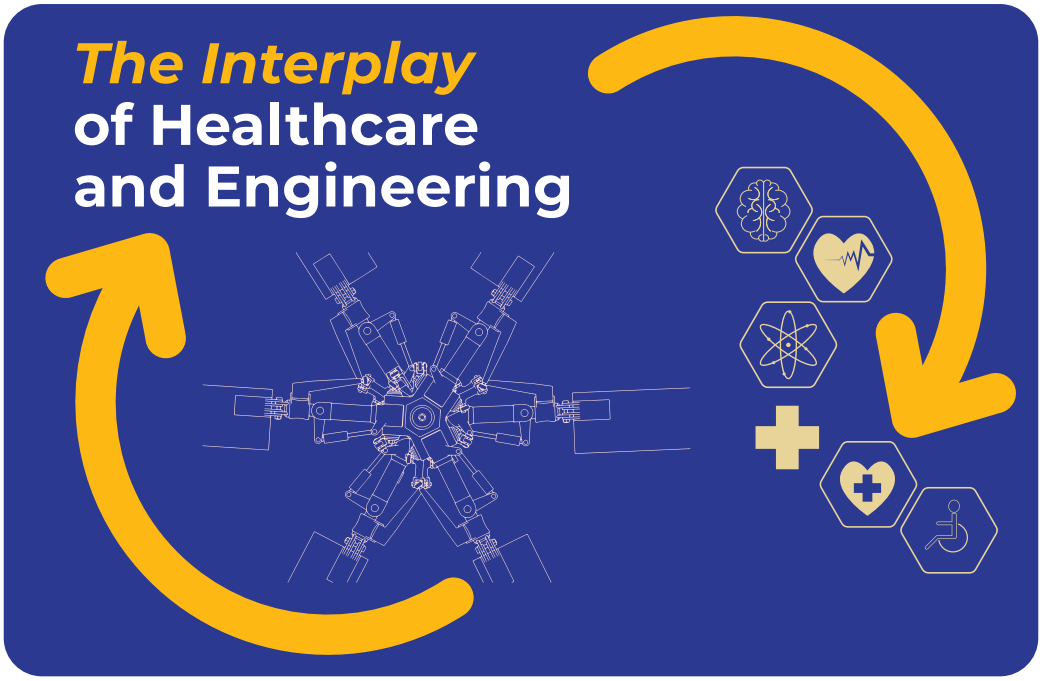
Applications include aerospace, medicine, and clean energy.

Aerospace and Beyond

NASA's X-59 supersonic aircraft represents engineering's bold leap into sustainable, quiet, faster-than-sound air travel.

Autonomous drones and space exploration are unlocking new possibilities in logistics and planetary research.





1. Bioengineering

Engineers and healthcare professionals collaborate to develop life-saving innovations like robotic prosthetics, bio-printed organs, and advanced medical devices.

2. Cybersecurity in Digital Health

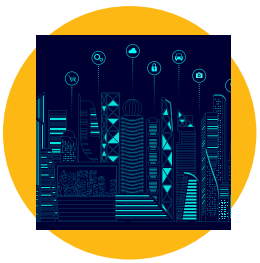
Protecting sensitive patient data requires engineers to build secure, resilient systems against cyber threats.

Examples of cyber threats include – hacking of electronic health records, ransomware attacks, phishing attacks, and data breaches to name a few.

Examples of mitigating these threats are – implementing strong access controls, use encryption, regular software and systems, security audits, train employees.

3. Environmental Health and Smart Cities

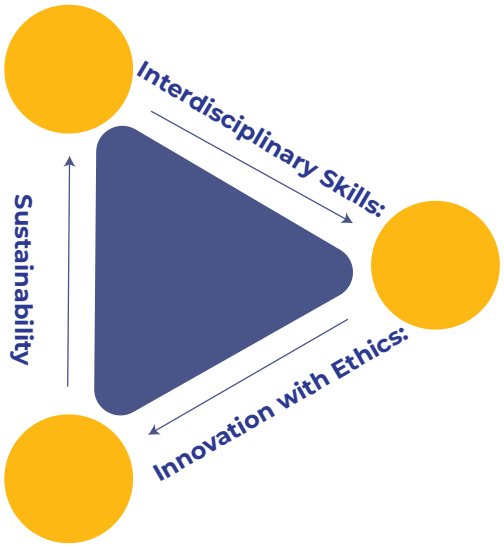
Engineers design cities that support better health outcomes by integrating pollution control and eco-friendly transportation.



Green infrastructure, clean energy initiatives, waste management, air quality monitoring systems, electric vehicles, smart traffic management systems are a few coming of the age measures around environmental health and smart cities.

Opportunities for Students

As students, you stand at the threshold of boundless opportunities in these fields. Whether designing a solar-powered smart city or developing AI for early disease detection, the possibilities are endless. Focus on:



Interdisciplinary Skills:

Combining knowledge of AI, data science, and core engineering or medical expertise-

Data Science and Engineering: Combining data science techniques with engineering principles to optimize systems and processes.

Biomedical Engineering: Merging engineering and biology to develop innovative medical devices and therapies.

Innovation with Ethics:

Combining knowledge of AI, data science, and core engineering or medical expertise-

Data Science and Engineering: Combining data science techniques with engineering principles to optimize systems and processes.

Biomedical Engineering: Merging engineering and biology to develop innovative medical devices and therapies.

Computer Science and Healthcare: Developing AI-powered healthcare solutions, such as medical image analysis and drug discovery.

Computer Science and Healthcare: Developing AI-powered healthcare solutions, such as medical image analysis and drug discovery.

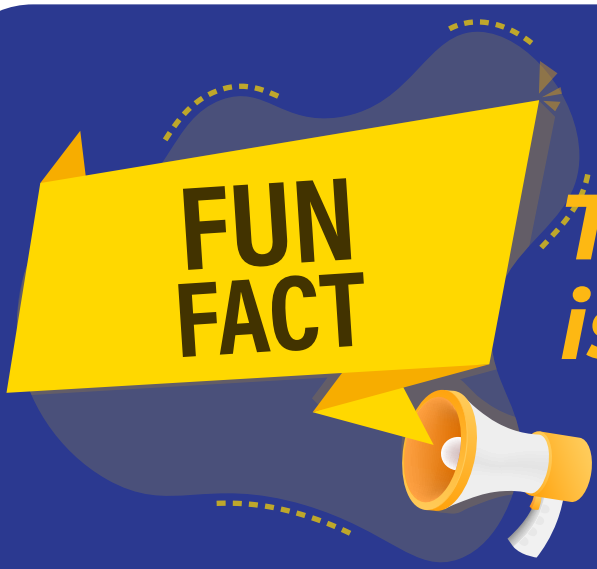
Sustainability

Contributing to solutions that balance growth with ecological well-being-

Green Technology: Developing sustainable energy solutions, such as renewable energy systems and energy-efficient technologies.

Sustainable Materials: Exploring eco-friendly materials and sustainable manufacturing processes such as biodegradable plastics, recycles materials, bamboo, cork, hemp and so on.

Circular Economy: Designing products and systems that minimize waste and maximize resource efficiency such as using additive manufacturing, solar power, water-based ink and paints, and so on.



The Future is Exciting

Self-Healing Materials:
Imagine building bridges that repair themselves after damage.

Smart Bandages:
Sensors in bandages monitor healing and accelerate recovery through electrical stimulation.

Supersonic Flight:
NASA's quieter supersonic jets could redefine global travel.

Conclusion:

The Digital Revolution Needs You

The digital revolution is not merely a technological advancement; it's a societal transformation. It's a call to action for the next generation of innovators, problem-solvers, and ethical leaders. By embracing the power of technology and applying it to real-world challenges, we can shape a future that is sustainable, equitable, and fulfilling.

As students, you have the unique opportunity to pioneer this future. By developing interdisciplinary skills, fostering innovation, and prioritizing ethical considerations, you can contribute to groundbreaking discoveries and transformative solutions. Whether it's developing AI-powered medical diagnostics, designing sustainable cities, or exploring the cosmos, the possibilities are limitless.

So, are you ready to embrace the challenges and opportunities of the digital age? Are you ready to make a difference? The future is waiting.

Training update

The Baseline Assessment of 3458 2nd year Scholars and Endline assessment of 2536 4th year scholars and Midline assessment of 2487 3rd year Scholars completed.

The Baseline Assessment for 65 2nd year Law Scholars, Endline assessment for 55 4th year scholars and Midline assessment for 35 3rd year Law Scholars completed.

In the current 3rd year cohort (2024-25) supported by Capgemini and MSDF, 790 scholars enrolled in Hi- touch English program by eAge tutors, and 1884 scholars are in the Technical Skilling program by Coursera.
Access to the English Bolo and Simply English training applications has been provided for 1,923 second-year scholars. The program includes AI and app-based learning along with teacher-led classes.

Placement update

From the 2023-24 graduating cohort with 1508 Engineering students, 1030 (87%) are placed; 1030 have secured jobs and 279 have opted for higher studies. The remaining are attending campus and off-campus recruitments.
From the 2024-25 graduating cohort with 2594 Engineering students,336 (13%) are placed; 162 have secured jobs and 174 have opted for higher studies. The remaining are attending campus and off-campus recruitments.

Other Skilling
Initiatives:

FLY

FLY – A 12-day workshop that started in 2021 with 595 Scholars having participated in the program from April 2024 so far. 2 batches were conducted in June and 3 batches in July, 5 batches in August,1 batch in September, 2 bathes in October and 1 batch in November for 2nd year Engineering scholars. The workshop is conducted by CMI - Competitive Mindset Institute Inc. and is designed to teach noncognitive skills for students' personality and character development.

BEST Training:

Two 2023 not placed B.E/B.tech graduates are doing a 6-month BAJAJ Engineering Skill Training (BEST) program on emerging areas in the manufacturing industry at Symbiosis in Pune, and another one scholar is at PES in Bangalore.

NPTEL:

157 Scholars enrolled in the month of August 2024. NPTEL is a certified online technical training program initiated by Gov of India, which ends in November..

Crio technical training:

From July 2024, 19 Scholars are participating in 6 months Software Development training.

LearnTube:

Access to LearnTube was provided in August for 400 second-year scholars. It is a platform offering professional courses to enhance technical skills.(375 scholars enrolled, 340 finished the one or more than one course)

TIE US Entrepreneurship program:

An 8-week entrepreneurship training program started in August, with 64 scholars participating and 19 scholars completed the 100% assignments.

Rishihood Global Leadership training:

35 Scholars are enrolled in the 14-week Global Leadership program, which is designed to develop future leaders through projects, case studies, and practical assignments.

Medical webinar

On the 24th Nov 2024, a webinar was conducted for all FFE medical scholars on the topic "Career in Cancer Medicine: A Path Less Traveled But Worth a Shot". The session was conducted by Dr. Somedeb Ball, MD Asst. Professor of Medicine, Hematology & Oncology, Vanderbilt University School of Medicine. There were more than 350 participants

Mental Wellness Program

From Nov 2023, FFE has effectively implemented the Wellness program for all its beneficiaries, aiming to raise awareness and knowledge of comprehensive mental health services. FFE is delighted to collaborate with Mpower Minds for this initiative, aimed at providing a positive mental health environment and eliminating the stigma associated with mental illness. This year-long program involves onboarding students in batches for weekly workshops on Mental Health. Beneficiaries will have access to a 24*7 Helpline number to seek support whenever needed. Additionally, the one-to-one counseling sessions will be conducted as required. To date, 2594 students have participated in the workshops, gaining insights into identifying mental health issues and learning strategies to take remedial action.

QMed Literature Searching program

FFE collaborated with QMed Knowledge Foundation in November 2023 to offer the Medical Literature Searching program for 169 medical scholars from year 2 and year 3 of the study, enlightening scholars on the methodologies to specialize skills in online searching and literature. This program offers skills for online searching in the medical and allied health domain. Students have been actively participating in the 3 modules of the program.

Webinar
& Other Events

Capgemini Webinar

As part of the Volunteering Impact Month, virtual sessions were conducted on October 15th and 17th. The topic for October 15th was "Resume Building," and the topic for October 17th was "Prepare to Outperform." There were 1,500 registrations, and around 650 scholars attended the sessions.

Cognizant Workshop

On November 14th, 2024, a session on "IT Industry Overview and Corporate Culture," along with a mock interview event, was held at the Cognizant office in Bangalore
A total of 48 scholars attended.

LinkedIn Workshop

On November 25th, 2024, 39 scholars attended a workshop at the LinkedIn office in Bangalore. The workshop covered "LinkedIn Profile Building," a mock interview session, and an "Overview of Product Engineering at LinkedIn and the opportunities it offers."

Virtual Session by Thomson Reuters

On November 22nd, 2024, a webinar was conducted by experts from Thomson Reuters on the topic "Introduction to GEN AI." A total of 280 scholars attended the session.