SEMESTER 1

B TECH PROGRAMME IN
ELECTRONICS AND COMPUTER ENGINEERING

BATCH 2022-26

empowerEd...

Beyond the Clock Pulse and the Code Loop, We Engineer Every Possibility. The Power of Two Streams, One Vision.

Serves as a dynamic platform to share knowledge, innovations, and updates in the rapidly evolving tech world. Its primary motive is to foster a culture of learning, collaboration, and creativity among students by showcasing projects, technical articles, and industry trends.This initiative helps bridge the gap between academic learning and real-world applications, inspiring peers to stay informed and engaged in their field.

CONTEXT

NEWS LETTER OF ERE'26
EDITION 1
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LBS Institute Of Technology For Women, Poojappura

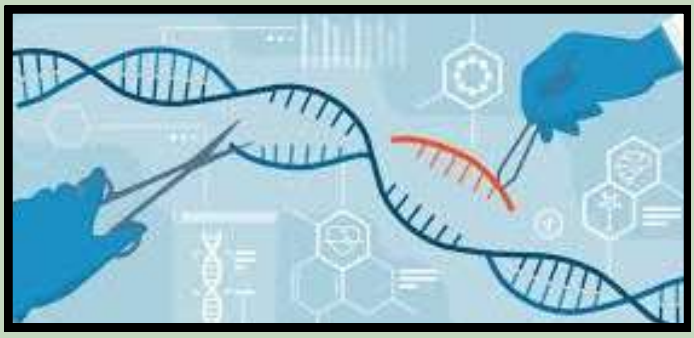
THE BREAKTHROUGHS

OpenAI Launches ChatGPT, Redefining Conversational AI

OpenAI released ChatGPT in November, introducing a conversational AI model capable of generating human-like text responses. The chatbot quickly gained widespread attention for its ability to engage in coherent and contextually relevant dialogues.

DO YOU KNOW ?

Animals can experience time differently from humans. To smaller animals, the world around them moves more slowly compared to humans. This is because the perception of time depends on how quickly the brain can process incoming information.



Teen with Aggressive Leukemia Cured Using Pioneering Base-Editing Therapy

In December, a groundbreaking application of CRISPR-based gene-editing technology led to the successful treatment of a teenager's aggressive leukemia. Alyssa was diagnosed with T-cell acute lymphoblastic leukemia (T-ALL). In a pioneering clinical trial at Great Ormond Street Hospital for Children (GOSH), researchers employed a novel gene-editing technique called base editing to engineer donor T-cells. These modified cells were designed to target and eliminate cancerous T-cells without attacking each other. Following the infusion of these base-edited CAR T-cells in May 2022, Alyssa's leukemia went into remission within a month. Six months post-treatment, she remained cancer-free, marking a significant milestone in gene therapy and offering hope for treating other resistant cancers.

THE BREAKTHROUGHS

James Webb Space Telescope: Unveiling the Universe's Deepest Secrets

The James Webb Space Telescope (JWST) is the largest and most powerful space telescope ever launched. It was launched on December 25, 2021, aboard an Ariane 5 rocket from Europe's Spaceport in Kourou, French Guiana. This mission is a collaborative effort among NASA, the European Space Agency (ESA), and the Canadian Space Agency (CSA). After its launch, JWST traveled to its operational position at the second Lagrange point (L2), approximately 1.5 million kilometers from Earth.

JWST is designed to explore every phase of cosmic history, from the first luminous glows after the Big Bang to the formation of galaxies, stars, and planets. Its advanced infrared capabilities allow it to peer through cosmic dust and observe objects that are too faint or distant for other telescopes. Webb uses a modified version of JavaScript, called Nombas ScriptEase 5.00e, for its operations; it follows the ECMAScript standard. Furthermore, The script interpreter is run by the flight software, which is written in C++. The flight software operates the spacecraft and the science instruments.

The JWST completed its commissioning and began full scientific operations on 11 July 2022. The first full-color images and spectroscopic data were released on 12 July 2022. JWST's powerful capabilities have detected molecules such as carbon dioxide and methane in the atmosphere of K2-18b, a planet that might host life in a different form .

DO YOU KNOW ?

Walking more than 3,967 steps each day is shown to reduce the risk of dying prematurely of any cause, based on a study of 226,000 people around the world.

BYTES

Sustainable Tech: The Future is Green

What is Sustainable Technology?

It's about developing and using technology in a way that is environmentally responsible, socially equitable, and economically viable. The goal is to meet the needs of the present without compromising the ability of future generations to meet their own needs. This encompasses a technology's entire lifecycle, from design and manufacturing to its use and eventual disposal.

The Future of Sustainable Technology:

- Smart Cities: Using a network of sensors and data analytics to manage resources like electricity, water, and waste more efficiently.
- AI for Sustainability: AI was poised to play a crucial role in optimizing everything from smart grids for energy distribution to predicting environmental changes.
- Material Science: Continued research into bioplastics and other eco-friendly materials to replace traditional plastics and other harmful substances.
- Carbon Capture and Storage: Developing technologies to actively remove carbon dioxide from the atmosphere and store it safely, a crucial step for meeting climate goals.

The Necessity:

Global discussions were dominated by the intensifying effects of climate change, including extreme weather events and rising global temperatures. There was a growing consensus among scientists, governments, and the public that drastic measures were needed to reduce carbon emissions and mitigate further damage. People were becoming more aware of their carbon footprint, and there was a rising demand for eco-friendly products and services. Companies were under pressure from consumers and investors to demonstrate a commitment to sustainability, often outlined in their Environmental, Social, and Governance (ESG) statements. Concerns about the depletion of finite resources, such as fossil fuels and rare earth minerals, were driving the search for more efficient and circular economic models.

BYTES

Sustainable Tech: The Future is Green

The "digital myth":

For years, we've been told that going "digital" is green because it saves paper. However, the energy consumption of data centers, cloud storage, and even a single web page load contributes to a carbon footprint. The circular economy extends this thinking to the digital realm, looking for ways to make our technology infrastructure more energy-efficient and sustainable.

Incorporation in Various Fields:

- Manufacturing: 3D printing and additive manufacturing were being explored to reduce material waste by building objects layer by layer. The concept of a circular economy—designing products for reuse, repair, and recycling—was also a key focus.
- Information Technology: The digital world itself has a significant carbon footprint. Green data centers were a response, using advanced cooling systems and renewable energy to reduce their immense power consumption. Cloud computing was also being promoted as a more sustainable alternative to on-premise servers.

Incorporation in Various Fields:

- Energy: The most visible application is in renewable energy, such as more efficient solar panels and advanced wind turbines. Innovations in energy storage, like high-capacity batteries, were making these intermittent sources more reliable.
- Transportation: The rise of electric vehicles (EVs) was a significant trend, driven by advancements in battery technology and the expansion of charging infrastructure.
- Agriculture: Precision agriculture uses IoT sensors, drones, and AI to optimize farming, reducing water usage and the need for pesticides. Vertical farming was also gaining traction, allowing for food production in urban environments with less land and water.

START OF ERE

The LBS Institute of Technology for Women, Thiruvananthapuram, introduced a new B. Tech program in Electronics & Computer Engineering (ERE) in the academic year 2022. This pioneering course combines the fundamentals of electronics with the growing domains of computer engineering, equipping students with interdisciplinary skills that are increasingly in demand across industries such as IoT, embedded systems, artificial intelligence (AI), and VLSI design.

The significance of the ERE program lies in its holistic approach. Students gain expertise in both hardware and software, enabling them to become versatile engineers capable of designing smart devices, intelligent systems, and next-generation technology solutions. By offering this branch, KTU and its affiliated colleges are empowering students, particularly women engineers, to take leadership roles in cutting-edge technological fields, fostering innovation, and enhancing employability in a rapidly evolving industry.

The introduction of this program at LBSITW marks a significant step in expanding opportunities for women engineers, aligning with the rapid convergence of hardware and software technologies.

Other KTU-affiliated colleges offering this program include St. Joseph's College of Engineering & Technology, Palai, Mohandas College of Engineering & Technology (MCET), Nedumangad (2023), Saintgits College of Engineering, Kottayam, Marian Engineering College, Thiruvananthapuram, and the College of Engineering Perumon & Thalassery (CAPE), further demonstrating the growing popularity and relevance of this innovative discipline.

ABOUT US

We are the first batch of the newly introduced Electronics and Computer Engineering course at LBSITW, launched in the year 2022, with Electronics and communation Engineering as our parent department. Our class comprises 46 students.

Class Representatives	: Drishya N, Nivedya G S
Staff Advisors	: Dr. Reena M Roy, Dr. Deepambika

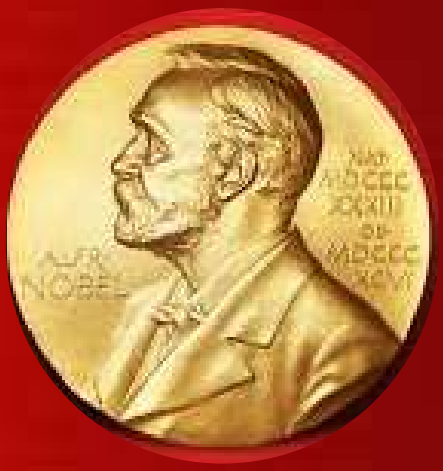
BEYOND TEN BLUE LINKS

HOW AI JUST UPENDED THE INTERNET'S FRONT PAGE

~ GOPIKA M SHARMA

For two decades, Google's "ten blue links" have been the internet's unchallenged front door, a rule so dominant it became a verb. But in February 2023, Microsoft took a calculated shot at the king, launching an AI-powered Bing that declared the start of the AI Search Wars and forever changed the web. In a move that sent shockwaves through Silicon Valley, Microsoft unveiled a revamped search engine powered by the same advanced AI behind the viral sensation ChatGPT. This wasn't a minor update; it was a fundamental shift in how we find information. The Shift from "Search Engine" to "Answer Engine" The monumental change is from a passive directory to an active assistant. The old way was a directory: you searched keywords ("best camera for low light") and received a list of links, leaving you to do the research. The new way is an assistant: you ask a complex question ("What's the best mirrorless camera under $1500 for nighttime photography, and can you summarize the pros and cons?"), and the AI synthesizes information from top sources to give you a direct, conversational answer with citations. This leap from directory to synthesizer is the first fundamental change to search in a generation. A "Code Red" for an Empire Microsoft's gambit was a direct assault on Google's core business. For the first time, a competitor had a revolutionary feature Google didn't, reportedly triggering a "code red" inside the company and a rush to announce its own competitor, Bard. The stakes are astronomical: a battle for the internet's most valuable real estate—the starting point of every user's journey. New Paradigm, New Problems This new technology is not without immense challenges. If the search engine gives the answer directly, what is the incentive to click through to the original websites, posing a threat to the creators who make the web valuable? How do we ensure accuracy from AI models known to "hallucinate" and state falsehoods with confidence? And who governs the potential biases in a single, authoritative "voice of the internet"? Regardless of who wins, one thing is clear: the quiet, predictable era of the ten blue links is over. The internet's front page is now the most contested and innovative place in technology, and we are all witnessing the revolution in real-time

NOBLE PRIZE 2022



Physics

Chemistry

Economics

Medicine

Peace

Literature

The 2022 Nobel Prizes celebrated transformative achievements across science, literature, peace, and economics. In Physics, Alain Aspect, John F. Clauser, and Anton Zeilinger were honored for their groundbreaking experiments with entangled photons, confirming the violation of Bell inequalities and pioneering quantum information science, thus advancing the field of quantum technology. The Chemistry award recognized Carolyn R. Bertozzi, Morten Meldal, and K. Barry Sharpless for developing click chemistry and bioorthogonal chemistry, facilitating efficient molecular assembly and enabling targeted drug development. Svante Pääbo received the Physiology or Medicine prize for sequencing the genomes of extinct hominins, including Neanderthals and Denisovans, providing profound insights into human evolution. French author Annie Ernaux was awarded the Literature prize for her courageous and precise exploration of personal memory, shedding light on the collective constraints shaping individual experiences. The Peace Prize honored Belarusian activist Ales Bialiatski, the Russian organization Memorial, and Ukraine's Center for Civil Liberties for their steadfast advocacy of human rights and democracy amidst oppression. In Economic Sciences, Ben S. Bernanke, Douglas W. Diamond, and Philip H. Dybvig were recognized for their research elucidating the role of banks in financial crises, informing policies to enhance economic stability.

VISION & MISSION

- **VISION OF THE INSTITUTION**

To be a centre of academic excellence empowering women in technical domain.

- **MISSION OF THE INSTITUTION**

Imparting value based technical education for transforming young women to professionals excelling globally in academics, research & development and industry meeting societal challenges.

- **VISION OF THE DEPARTMENT**

To become a centre of excellence in Electronics, Communication, Instrumentation and Computer Engineering to facilitate professional education and research keeping higher level of value systems.

- **MISSION OF THE DEPARTMENT**

M1: To transform young women into high-quality engineers, entrepreneurs, and researchers with ethical values.

M2: To contribute creative engineering solutions to the industry by keeping pace with the latest technological advancements.

M3: To provide intellectual services to society by the application of Electronics, Communication, and Computer Engineering.