S5 ECE
2023 - 2027

LBS INSTITUTE OF TECHNOLOGY FOR WOMEN,
POOJAPPURA, TRIVANDRUM

THE SIGNAL SCROLL

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

INTRODUCTION

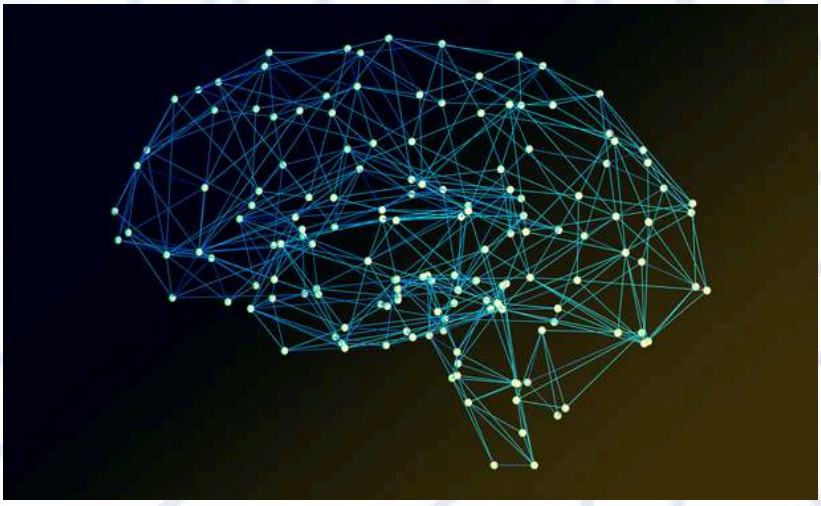
Step into the latest edition of our newsletter, bringing you the most vibrant updates and landmark moments from the Electronics and Communication Engineering Department (Batch 2023–2027) at LBS Institute of Technology for Women, Poojapura.

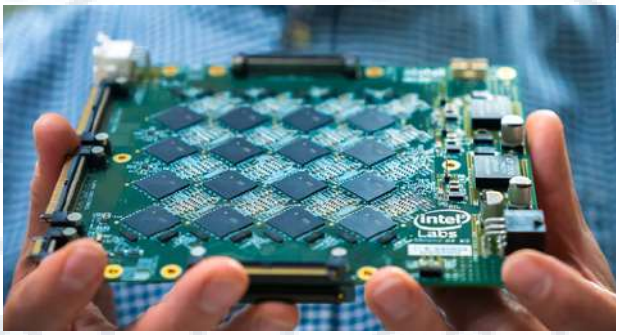
This edition captures the energy and enthusiasm of our batch in the odd semester of the academic year 2025-26 as we celebrated the Union Elections, witnessing leadership, teamwork, and student voices shaping the future. It also highlights the formation of our department association, a platform designed to foster creativity, collaboration, and collective growth.

From inspiring achievements to new beginnings, this newsletter is your gateway to the stories, events, and milestones that define our journey. Get ready to explore, engage, and be inspired. Let the innovation pulse begin!

NEUROMORPHIC HARDWARE: BRINGING BRAIN-LIKE INTELLIGENCE TO ELECTRONICS

-Neha Sara Nebu





Neuromorphic hardware is an emerging class of computing systems designed to function like the human brain. Unlike traditional CPUs and GPUs that separate memory and processing, neuromorphic chips integrate both, allowing information to travel through short electrical pulses called spikes—just like biological neurons. This architecture enables extremely fast, parallel, and energy-efficient computation.

As modern AI systems become larger and more power-intensive, neuromorphic hardware offers a promising alternative. By processing only when spikes occur, these chips consume far less energy and can run real-time intelligence on small, battery-powered devices. This makes them ideal for applications such as smart sensors, wearable devices, autonomous robots, and event-driven vision systems.

At the core of these systems are Spiking Neural Networks (SNNs), where artificial neurons communicate through spikes and synapses adapt based on activity. This brain-like model allows neuromorphic hardware to not only process information efficiently but also to learn and adapt on-device.

Where Neuromorphic hardware stands today

Neuromorphic computing has progressed significantly from theory to practice. Intel recently introduced Hala Point, the world's largest neuromorphic computing system built using the Loihi 2 chip, capable of simulating over a billion neurons while consuming just a fraction of the power of conventional hardware. Commercial chips like BrainChip's Akida are already appearing in edge-AI devices, enabling always-on sensing and low-power pattern recognition. Meanwhile, IBM's TrueNorth continues to serve as a research platform for efficient large-scale neural simulations. With its blend of electronics, biology, and AI, neuromorphic hardware is poised to play a major role in the next generation of intelligent systems—especially at the edge.

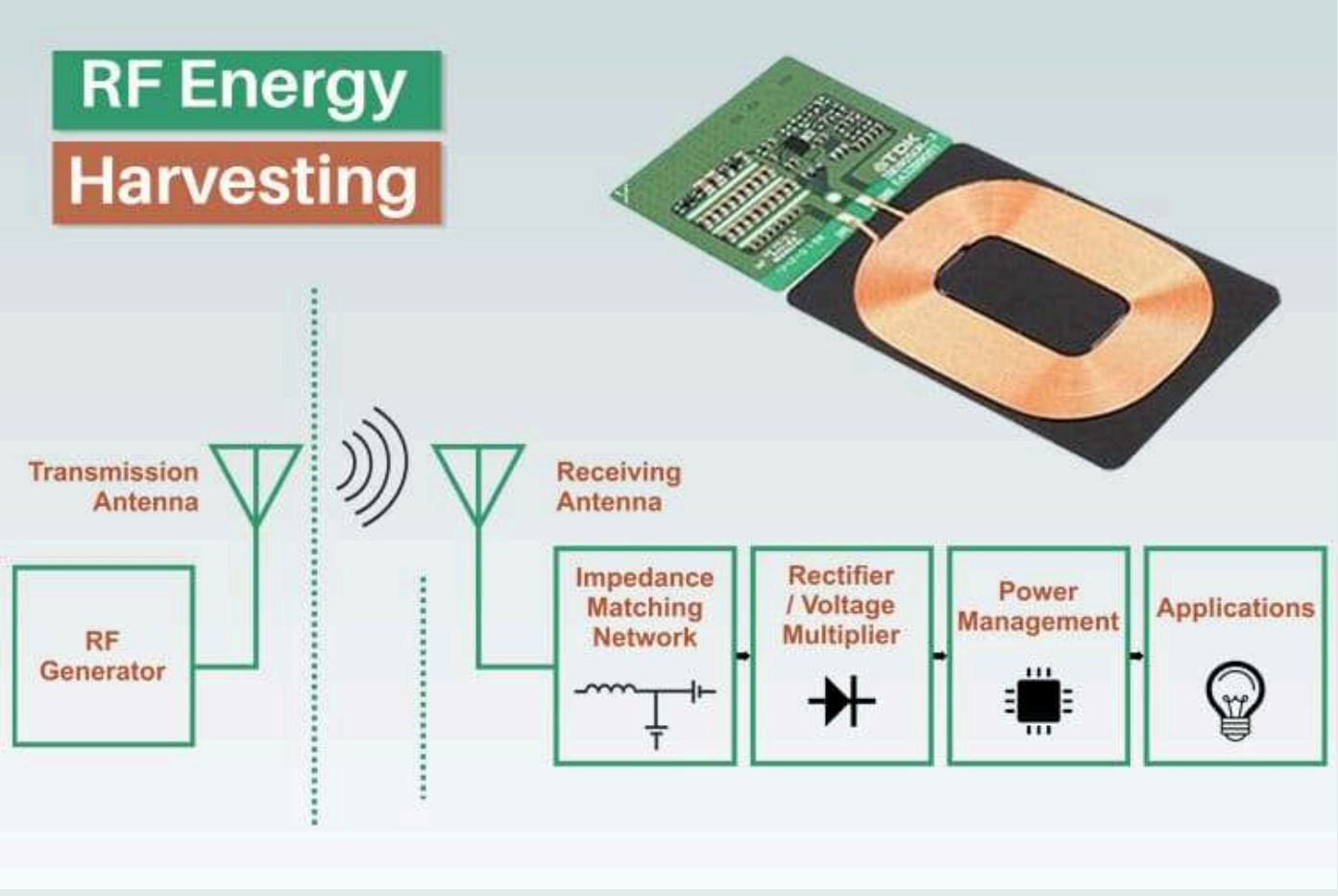
RF Energy Harvesting for Battery-Free Wearables

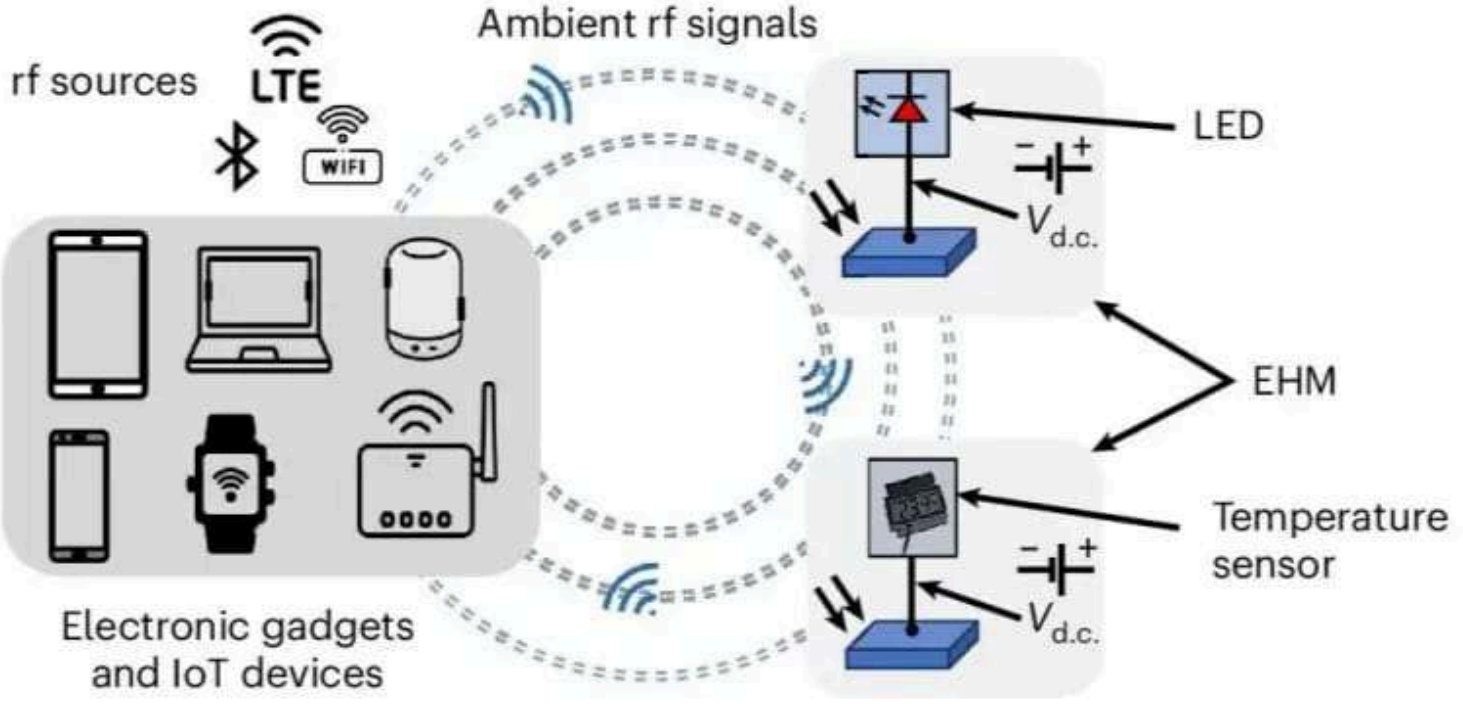
-Meenakshi P Pillai

Wearable devices are everywhere today — fitness bands, health patches, smart rings and more. But almost all of them depend on batteries, which are bulky, limited-lifetime components that constantly need recharging. Recently, researchers have been exploring a fascinating alternative: RF energy harvesting, where wearables draw power from everyday radio signals like Wi-Fi, Bluetooth, and 5G. This could eventually make certain wearables completely battery-free

How It Works

RF energy harvesting relies on a component called a rectenna—an antenna that captures RF waves and a rectifier that converts them into usable DC power. With advancements in ultra-sensitive rectifiers and multi-band antenna designs, energy can now be harvested from common sources such as Wi-Fi routers, Bluetooth devices, and 5G signals. Flexible and textile-based rectennas are also emerging, allowing energy-harvesting circuits to be embedded into clothing.




Ambient rf signals
rf sources
LTE
WIFI
LED
$V_{d.c.}$
EHM
Temperature sensor
$V_{d.c.}$
Electronic gadgets and IoT devices


IoT devices
e-healthcare
Satellite
Smart building
Cellular Tower
Smart school
IoT devices
Gateway
RSU
Smart Transportation
Cellular Tower
Cellular Tower
RSU
e-healthcare

APPLICATIONS

1.Medical patches for tracking heart rate or glucose levels
2.Smart sportswear that records movement or temperature
3.Industrial safety wearables for monitoring worker conditions
4.Small IoT tags used in tracking and authentication

BENEFITS

1.Zero charging requirements
2.Reduced e-waste
3.Smaller and lighter wearables
4.Safer for medical applications (no battery leakage risk)

Current Status & Future Scope

Recent advancements have enabled small sensors and patches to operate solely on harvested RF energy, but these systems remain mostly experimental and limited to ultra-low-power tasks. Commercial products are still in early development due to constraints in efficiency and stable power output. With improvements in multi-band rectenna design and the rollout of dense 5G/6G infrastructure, available ambient power is expected to increase. This progress could make battery-free wearables more reliable and widely usable. Ultimately, RF harvesting may evolve into a practical power solution for next-generation healthcare and IoT wearables

UNFILTERED 2025 — Creating Safe Emotional Spaces on Campus

LBS Institute of Technology for Women hosted UNFILTERED 2025, a powerful youth-led mental health awareness event by Let's Live, an NGO based in Trivandrum, in collaboration with the District Administration dedicated to creating emotionally supportive spaces for young people.

With its first part held on 28 July 2025, the session began with an inspiring inauguration by the current District Collector of Thiruvananthapuram, Anu Kumari, IAS, and the Sub-Collector & District Development Commissioner, O. V. Alfred (IAS), underlining the importance of mental health awareness at a community level.

#UNFILTERED
MENTAL HEALTH MINI SERIES

Unfiltered

Inaugural Programme

28th July 2025 | 9 30 AM

@ Seminar Hall, LBS Institute Of Technology for Women, Poojappura

Anu Kumari IAS
District Collector
Thiruvananthapuram

Alfred O V IAS
Sub Collector
Thiruvananthapuram

Dr. M Abdul Rahiman
Director, LBS Centre for Science and Technology

Subramanyam Mahadevan
CSR Representative
Speridian Technologies PVT LTD

Sherin Noordheen
Founder- Director, Let's Live

Dr. Smithamol M B
Principal, LBS Institute of Technology for Women

LET'S LIVE

The Orange Room
A LET'S LIVE INITIATIVE

തിരുവനന്തപുരം
ജില്ലാ ഭരണകൂടം

Speridian TECHNOLOGIES


LBS INSTITUTE


LBS INSTITUTE

The three-part event focused on some of the most relevant concerns faced by students today. The first segment shed light on common mental health challenges experienced by young adults, encouraging participants to identify signs, feelings, and patterns in their own lives. The second segment moved into coping mechanisms, where students explored healthy strategies to navigate stress, burnout, and emotional overwhelm. The final segment offered a safe platform for story-sharing, reflection, and stress-relieving practices that helped students reconnect with themselves and others.

Throughout the event, students engaged in meaningful discussions, listened to real-life experiences, and participated openly in activities designed to build emotional resilience.

Visteon Scholar Program Orientation

The Visteon Scholar Program Orientation was held on 18 September 2025 at the Main Seminar Hall of LBSITW. The session saw enthusiastic participation from students, all eager to explore new academic and professional avenues.

The event provided a comprehensive overview of the Visteon Scholar Program, offering valuable insights into the vast opportunities available in the corporate and automotive technology sectors. Students learned about industry expectations, emerging trends, and essential skills required to thrive in today's rapidly evolving engineering landscape.

The orientation proved to be an enriching and motivating experience, inspiring students to broaden their horizons and prepare for future roles in the corporate world. Overall, the session successfully guided participants toward understanding the many promising career pathways ahead.


Visteon
SCHOLAR
YOUR FIRST STEP IN TECH
What powers cars today?
100 Mn + lines of code
and 100+ ECUs.
You know the basics.
Now build the future.
REGISTER NOW
25 YEARS
Visteon

VLSI Architectures Unveiled: Signal Processing Innovations

The Department of Electronics and Communication Engineering, LBS Institute of Technology for Women, successfully conducted an expert talk session on “Efficient VLSI Architectures for Signal Processing Algorithms” on 15 October 2025 at the Seminar Hall.

The session was led by Dr. Shaik Rafi Ahamed, Professor, Department of Electronics and Electrical Engineering, IIT Guwahati, whose expertise and research contributions in the fields of VLSI design, signal processing systems, and advanced digital architectures enriched the event with deep technical insight.

Dr. Ahamed shared a comprehensive overview of how optimized VLSI architectures play a crucial role in enhancing the performance, speed, and efficiency of modern signal processing applications. He illustrated real-world examples, current industry challenges, and emerging research trends, offering students a clear understanding of how theory translates into practical hardware design.

The talk served as an invaluable learning experience for ECE students, bridging academic concepts with industry-level applications. The interactive Q&A session further enabled participants to clarify doubts and explore advanced ideas related to digital systems, embedded architectures, and hardware implementation strategies.

Overall, the event proved to be a highly informative and inspiring platform for students aspiring to pursue careers and research in VLSI, digital system design, and signal processing.

LBS INSTITUTE OF TECHNOLOGY FOR WOMEN

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING
PROUDLY PRESENTS AN EXPERT TALK SESSION ON

EFFICIENT VLSI ARCHITECTURES FOR SIGNAL PROCESSING ALGORITHMS

9.00AM
WEDNESDAY,
15 OCT 2025

SEMINAR HALL

SPEAKER:

Dr.Shaik Rafi Ahamed
Professor
Department of Electronics and
Electrical Engineering,
IIT Guwahati

LEEP 2025 – Fireside Chat with EY GDS

LBS Institute of Technology for Women conducted LEEP 2025 on 25 September 2025, featuring a dynamic fireside chat in collaboration with EY GDS. The session brought valuable insights from industry leaders Praveen TN (AI Architect), Dr. Santhosh V (Associate Manager), and Vinu V S (Assistant Director).

The speakers shared perspectives on leadership, innovation, and emerging trends in technology, offering students practical guidance for building strong careers. The interactive discussion helped participants understand real-world challenges and the skills needed to succeed in a rapidly evolving industry.

LEEP 2025 was a concise, engaging, and inspiring experience that encouraged students to think boldly and prepare for future opportunities.

MISSION BETTER TOMORROW

INSTITUTION'S INNOVATION COUNCIL

Ministry of Education Government of India

MoE's INNOVATION CELL (GOVERNMENT OF INDIA)

Kerala Startup Mission INNOVATION AND ENTREPRENEURSHIP DEVELOPMENT CENTRE

LEEP 2025

LEADERSHIP AND ENTREPRENEURSHIP ENRICHMENT PROGRAMME

In Collaboration with

EY GDS

Fireside Chat With Leaders

Praveen TN
AI Architect

Dr.Santhosh V
Associate Manager

Vinu V S
Assistant Director

25th September 2025
Thursday

LBS Institute Of Technology for Women
Poojappura

Empowering Learning: Inauguration of Hormis Memorial Smart Lab

The LBS Institute of Technology for Women proudly inaugurated the Hormis Memorial Smart Lab, a state-of-the-art facility at the Ladies Hostel, on 5th November 2025. This initiative, supported as part of a CSR project by Federal Bank, aims to enhance digital learning and technical skills among students.

The inauguration was graced by Shri K. N. Balagopal, Minister for Finance, Government of Kerala, whose presence highlighted the importance of technological advancement in education. The event also welcomed Dr. Sharmila Mary Joseph IAS, Principal Secretary, Department of Higher Education, Government of Kerala, as the Chief Guest.

Inauguration of **FEDERAL BANK**

HORMIS MEMORIAL SMART LAB

at Ladies Hostel

a CSR initiative

Inauguration

05th November 2025

12:00 noon

Chief Guest

Shri. K. N. BALAGOPAL
Minister for Finance
Government of Kerala

Dr. SHARMILA MARY JOSEPH IAS
Principal Secretary,
Dept. of Higher Education, Govt. of Kerala

Guest of Honour

Dr. JAYAPRAKASH P.
Director
Dept. of Technical Education

Presidential Address

Shri. SHIJU K. V.
SVP & ZONAL HEAD,
FEDERAL BANK

Dr. M. ABDUL RAHIMAN
Director,
LBS Centre

Shri. RAJ GOPAL R.
Deputy Vice President - II
Regional Head, Federal Bank

http://www.lbt.ac.in

principal@lbsitw.ac.in

POOJAPPURA, THIRUVANATHAPURAM,
KERALA, INDIA -12
8.490984598558908, 76.97247976097948

LBS INSTITUTE OF TECHNOLOGY FOR WOMEN

(A Government of Kerala Undertaking)

Approved by AICTE & Affiliated to APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Other dignitaries included Dr. Jayaprakash P., Director of the Department of Technical Education, who joined as a Guest of Honour, and Shri Shiju K. V., SVP & Zonal Head, Federal Bank, who delivered the Presidential Address. The event also saw participation from Dr. M. Abdul Rahiman, Director of the LBS Centre, and Shri Raj Gopal R., Deputy Vice President II and Regional Head, Federal Bank, adding valuable insights into the initiative's significance.

The smart lab is equipped with advanced computer systems, providing students with an enhanced learning environment for technical and digital education. This initiative is a significant step toward fostering innovation and practical skills among the students of the institution

Where Talent Meets Technology: LBS Office Technology Forum

The Higher Education Department, Government o Kerala, in association with LBS Institute of Technology for Women, successfully organized th LBS Intercollegiate Office Technology Forum 202 on 5th November 2025. The event provided a platform for students to showcase their skills in office technology and related domains, fostering academic excellence and innovation.

The program was inaugurated by Dr. R. Bindu, Minister for Higher Education, Government of Kerala, who emphasized the importance of skill development and technology-driven learning. The guest of honor for the event was Smt. V. Shivankutty, highlighting the government’s commitment to nurturing talent and academic growth. Dr. Sharmila Mary Joseph IAS, Principal Secretary, Department of Higher Education, Government of Kerala, also graced the occasion.

During the forum, awards were presented to several students in recognition of their outstanding achievements in academics, sports, co-curricular activities, and other notable accomplishments, celebrating their dedication, talent, and holistic development. The event successfully highlighted the institute’s commitment to excellence, innovation, and student empowerment, motivating students to continue striving for success in every sphere.

Advaya–Advara 2025: Bridging Innovation, Skills, and Responsibility

The Department of Electronics & Communication Engineering of LBS Institute of Technology for Women successfully hosted the Advaya–Advara Inauguration 2025 on 17 October 2025. With the theme “Empowering Responsibility for a Sustainable Future”, the inauguration set the tone for a year of innovation, skill development, and socially responsible engineering.

The event was graced by Ms. Jaya K. R, System Lead at Tata Elxsi, who served as the chief guest. In her keynote address, she inspired students to embrace sustainability-driven engineering, innovation with empathy, and the importance of leadership in a rapidly evolving technological world. Her journey and professional experience provided valuable insights and motivation for the attendees.

LBS INSTITUTE OF TECHNOLOGY FOR WOMEN
POOJAPPURA

ADVAYA-ADVARA INAUGURATION '25

"EMPOWERING RESPONSIBILITY FOR A SUSTAINABLE FUTURE"

17 | OCT 2025

SEMINAR HALL

10:30-12PM

JAYA K R
SYSTEM LEAD , TATA ELXSI

RESPONSIBLE CONSUMPTION AND PRODUCTION

Kerala Startup Mission
INNOVATION AND ENTREPRENEURSHIP DEVELOPMENT CENTRE
LBS Institute of Technology

INSTITUTION'S INNOVATION COUNCIL

MoE's INNOVATION CELL (GOVERNMENT OF INDIA)

AICTE

As part of the ceremony, academic toppers from the department were felicitated for their exceptional academic performance, applauding their dedication, discipline, and excellence. The recognition encouraged students to strive further in both academic and professional pursuits.

The inauguration marked a promising beginning for the academic year, energizing students to take part in various technical, creative, and community-oriented activities under Advaya and Advara

The Strength Behind Advaya’25

The Department of ECE announced the new Executive Committee of Advaya’25, selected through an enthusiastic and fair process with participation from all departments. The team brings together committed, creative, and capable students ready to lead this year’s initiatives.
With a focus on innovation and collaboration, the committee aims to make Advaya’25 a brighter and more impactful edition.
The team stands strong with leadership rooted in vision, teamwork driven by passion, and dedication shaped by excellence.

TANTRA – The Language of Circuits & Technology

The Department of Electronics & Communication Engineering, under Advaya, conducted TANTRA, an event celebrating the foundations of circuits, electronics, and emerging technologies. Organized by the ECE 2022–26 batch, the program highlighted core engineering concepts through demonstrations, discussions, and technical displays.

Students actively engaged with circuit-based applications and real-world implementations, making the event a valuable hands-on learning experience for juniors and peers.

VISION AND MISSION OF THE INSTITUTION

Embarking Excellence

VISION

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

MISSION

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

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

VISION

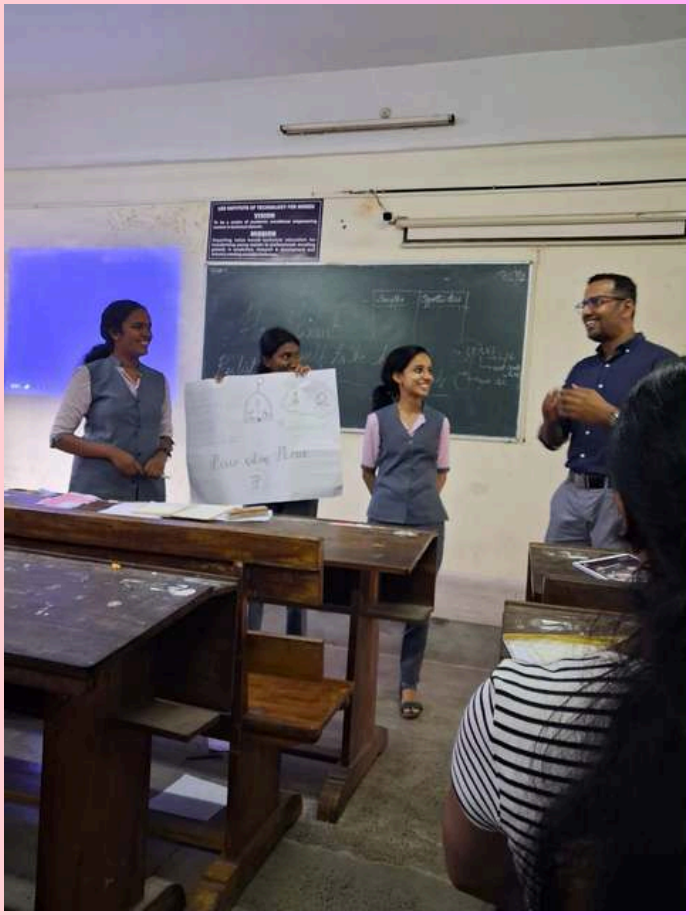
To become a centre of excellence in Electronics, Communication, Instrumentation, and Computer Engineering, empowering women through professional education and research, while upholding high standards of ethical and value-based systems

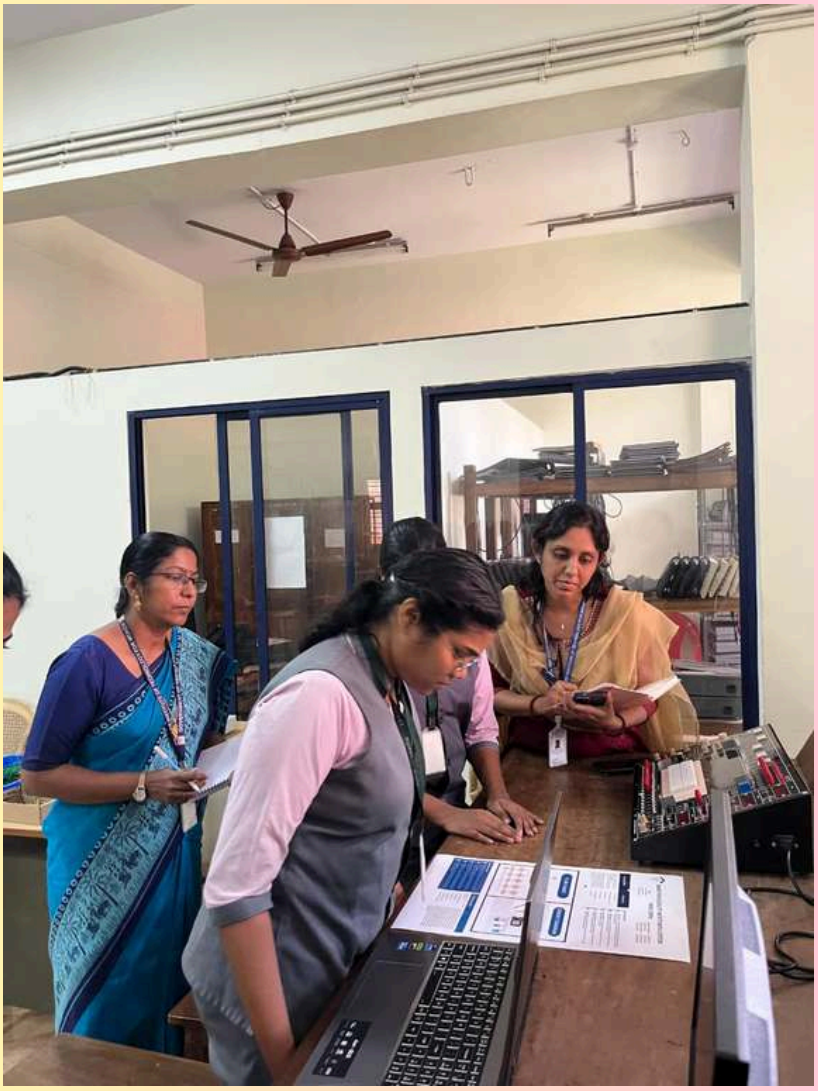
MISSION

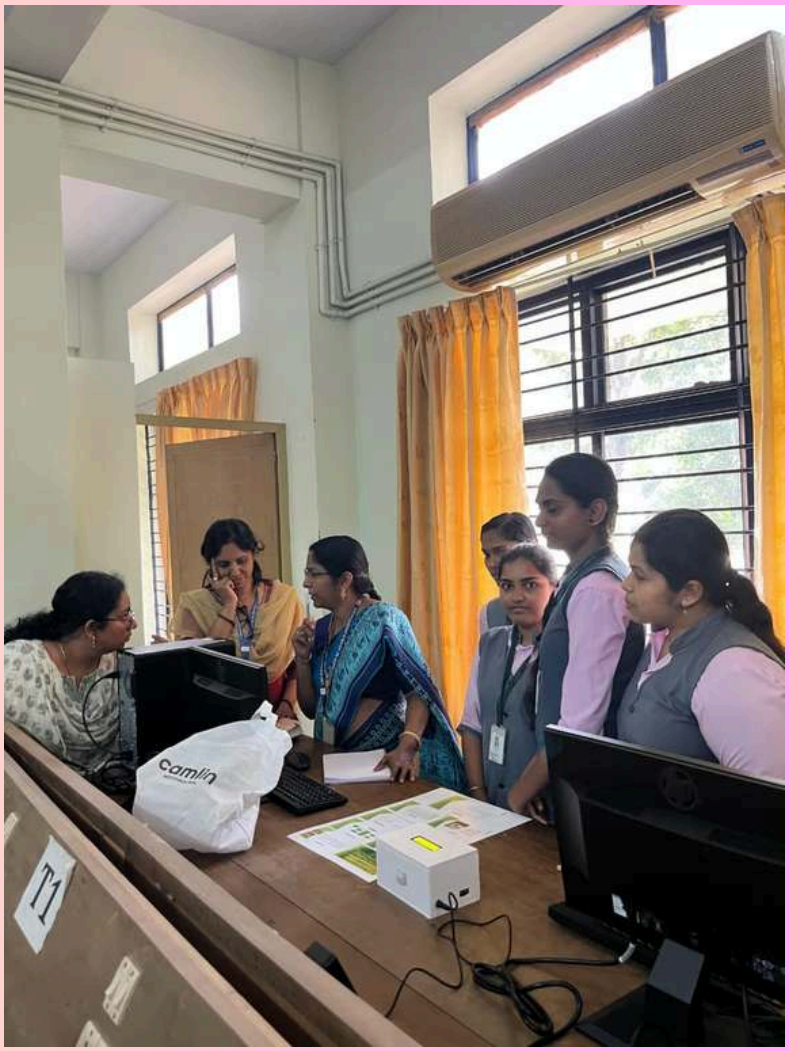
To transform young women into high-quality engineers, entrepreneurs, and researchers with ethical values, capable of providing creative engineering solutions and intellectual services to industry and society by applying the latest advancements in Electronics, Communication, Instrumentation, and Computer Engineering

Photo Gallery...


LBS INSTITUTE OF TECHNOLOGY FOR WOMEN
VISION
MISSION



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LBS Institute Of Technology for Women
Poojappura

ADVAYA EXECOM' 25

ANUGRAHA ELSA JIMMY

KEERTHANA D S

DEVANANDANA S R

NISHITHA B ARAVIND


LBS INSTITUTE

Prepared by

Bhadra D. Nair

With gratitude to everyone who contributed their ideas, energy, and enthusiasm to make this edition possible. Your support keeps the spirit of innovation alive!