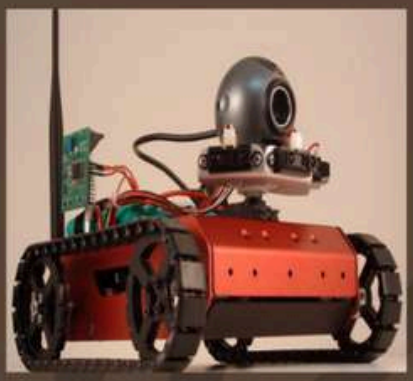
TECHNOVA

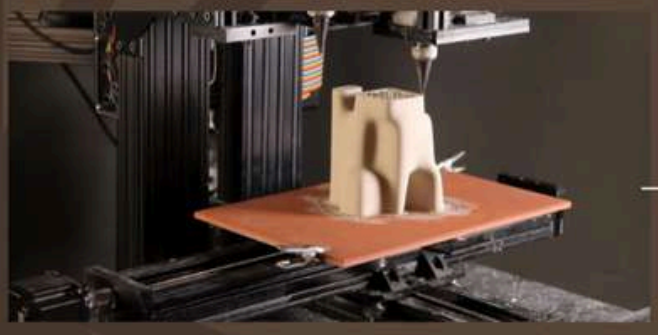
"Where Ideas Spark the Future."

LBS Institute of Technology for Women

Department of Electronics & Communication

S4 ECE (2023-2027)





Introduction

Welcome to a brand-new edition of our newsletter–your window into the most exciting moments, bold ideas, and dynamic initiatives shaping the Electronics and Communication Engineering Department (Batch 2023–2027) at LBS Institute of Technology for Women, Poojapura.

This edition brings together the spirit of innovation and the drive of our vibrant community. From power-packed events and hands-on technical experiences to student-led initiatives and creative breakthroughs, every highlight reflects the curiosity, passion, and teamwork that define
our department.

Whether it's inspiring achievements, breakthrough projects, or the milestones that mark our collective progress, this newsletter captures the pulse of our journey. Dive in, discover what's new, and feel the energy that keeps us moving forward.

Let's spark ideas. Let's shape the future.
Let the innovation wave roll on!

IoT-Enabled Embedded Systems

By Devika P.V

Introduction

IoT-enabled embedded systems are compact, intelligent electronic platforms that sense their surroundings, process information, and communicate data through the internet or wireless networks. These devices combine sensors, actuators, microcontrollers, and communication modules into efficient, low-power units that operate autonomously at the “edge” of modern digital ecosystems.

Architecture

1. Perception Layer: Sensors for measuring physical parameters
2. Control Layer: Microcontrollers/processors for data processing
3. Communication Layer: Wi-Fi, BLE, LoRa, ZigBee, or cellular IoT for connectivity
4. Application Layer: Cloud dashboards, analytics platforms, and user interfaces

This layered structure ensures scalability, reliability, and streamlined data flow across diverse applicat
ions.

Key Features

1. Low power consumption for long-term deployment

2. Compact and robust hardware design.

3. Secure communication with encryption, authentication, and secure boot.

4. Real-time responsiveness for mission-critical tasks.

Emerging Trends

1. Edge AI

Microcontrollers are now capable of running machine learning models, enabling faster decision-making with reduced cloud dependency—vital for medical devices, industrial robots, and smart surveillance.

2. 5G Connectivity

Ultra-low latency and massive device support make 5G ideal for future smart cities, autonomous vehicles, and real-time industrial automation.

6G Wireless Technology: The Future Beyond 5G

By Harinanda.B

As 5G reaches its limits, the world is gearing up for 6G, expected by 2030. With speeds and intelligence far beyond 5G, 6G will transform how humans and machines connect and interact.

What is 6G?

Ultra-high data rates: 1 Tbps+
Ultra-low latency: <1 millisecond
Massive connectivity: powering intelligent systems.

Key features

1.Terahertz (THz) Communication: Lightning-fast data for holograms, VR, and simulations.

2.AI Integration: Self-optimizing networks, smart spectrum use, predictive maintenance, low-power IoT support

3.Intelligent Reflecting Surfaces (IRS): Overcome THz signal loss for better coverage.

4.Holographic Communication: 3D virtual presence for meetings, education, and entertainment.

5.Communication + Sensing: Gesture detection, object tracking, human monitoring, smart homes.

Applications of 6G

*Smart Healthcare
*Remote robotic surgeries
*Real-time health monitoring
*High-speed transfer of medical imaging

Placement Preparation

The Placement Preparation Session organized by **FOSS Club, LBSITW**, in collaboration with the **CGPU**, **LBSITW** on **14 February 2025** , proved to be an enriching and highly informative experience for the participants. The session equipped students with valuable insights into effective career planning and preparation.

The program covered essential components of the placement process, including resume building, interview readiness, and group discussion skills. Interactive activities and practical demonstrations helped students enhance their confidence, communication abilities, and overall professional outlook.

A special note of appreciation to **Ms. Sree Lekshmi S. A**. for delivering an engaging and insightful session, and to **Ms. Aksa Susan Abraham** for ensuring seamless coordination of the event.

Industry 4.0: IIoT Advancements & Career Opportunities

On **March 4, 2025** , the Department of Electronics and Communication Engineering organized an exclusive technical session for S4 ECE students titled **"Industry 4.0: IIoT Advancements & Career Opportunities."** The session offered an insightful glimpse into the future of smart industries, unpacking the latest developments in the **Industrial Internet of Things (IIoT)** and the growing adoption of smart factory ecosystems.

Industry experts from **SMEC** –Global Certified Partners of NSDC dedicated to youth skill development–led the session. They provided students with a comprehensive understanding of the rapidly transforming Industry 4.0 landscape and shared strategic guidance on the certifications, technical competencies, and emerging career pathways essential for aspiring engineers.

The seminar effectively bridged the gap between classroom learning and real-world industrial expectations. It highlighted the technological disruptions reshaping modern manufacturing, including automation, real-time data analytics, and connected systems.

Highly interactive and future-focused, the session empowered students to recognize how IIoT-driven connectivity and intelligent data are redefining engineering roles and paving the way for next-generation opportunities in the smart industry domain.

Rise and Thrive: Women in Leadership, creating impact

"The future of technology is not just written in code, but in the visionary skills and resilient impact of women who lead the way."

In the spirit of this insight and as part of the International Women's Day celebrations, the Career Guidance and Placement Unit (CGPU) of LBS Institute of Technology for Women , in collaboration with Allianz Services India , successfully organized the inspirational panel discussion titled "Rise and Thrive: Women in Leadership, creating impact" on **March 5, 2025**.

The session featured distinguished women leaders who provided deep-seated perspectives on strategic innovation, overcoming professional challenges, and fostering resilience while charting impactful career trajectories in the corporate world.

The panel included the college's esteemed principal, **Smithamol M B** , along with **Kirthi Ganapathy** (Head of Business Analytics), **Raluca Stanca** (Head of Finance Business Services), **Shilpa Aliyas** (Service Delivery Lead for HRS, CDS & CSS), and **Dr. Smitha Nair** (Global Head of Health & Pet Insurance Operations)]

The engaging discussion, which strongly reinforced how women are constantly redefining leadership, was skillfully moderated by Keerthana Manoj , a 3rd Year Student from LBSITW.

The session provided students with practical steps for career development and clearly highlighted the crucial impact of women leaders across various professional fields.

VLSI and Embedded Systems

The Electronics and Communication Engineering department successfully conducted an exclusive knowledge-sharing session focused on VLSI and Embedded Systems on **28th March 2025**. The session was facilitated by **Arya I S**, a Techno-Commercial Electronics Engineer from Networkz Systems, who brought her industry expertise to the classroom.

During the session, the facilitator guided the S4 ECE students through the fundamentals of chip design and embedded technologies. Key highlights included a breakdown of modern industry advancements, career pathways in the electronics sector, and a look at the commercial aspects of engineering. The event concluded with an interactive Q&A, offering students a clear perspective on the skills required for the future.

Circuit Crafters 2025: Sparking Innovation at LBSITW

The **Robotics Club of LBSITW** successfully hosted **Circuit Crafters** on **1st February 2025**, a hands-on workshop that introduced students to the essentials of robotics and circuit building. The club room buzzed with enthusiasm as participants explored sensors, wiring, and microcontroller basics while assembling their very first working robotics project.

Guided by club mentors, teams collaborated, experimented, and transformed simple components into functional creations—gaining both practical skills and a new sense of confidence.

Yavanika

The intra-college arts festival of LBS Institute of Technology for Women, **Yavanika 2025**,was held on **21, 22, and 23 March**, transforming the campus into a vibrant stage of creativity and cultural expression. Students from all departments participated in an array of events—including music, dance, theatre, literature, and fine arts—each demonstrating impressive preparation and artistic depth.

The festival highlighted collaboration, healthy competition, and the collective enthusiasm of the student community. Seamless coordination and spirited participation added to the event's charm and success.

It reaffirmed the institution's commitment to holistic development, offering a distinguished platform for students to refine their artistic abilities and celebrate cultural excellence—further enriching the creative legacy of LBSITW.

Vision & Mission of the Institution

Embarking Excellence

VISION

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

MISSION

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

Department of Electronics and Communication

VISION

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

MISSION

To transform young women to high quality engineers and entrepreneurs with ethical values for providing creative engineering solutions and intellectual services for the society and industry by application of Electronics,Communication and Instrumentation Engineering.

Designed by -

Radhika Suresh

Sreelakshmi S