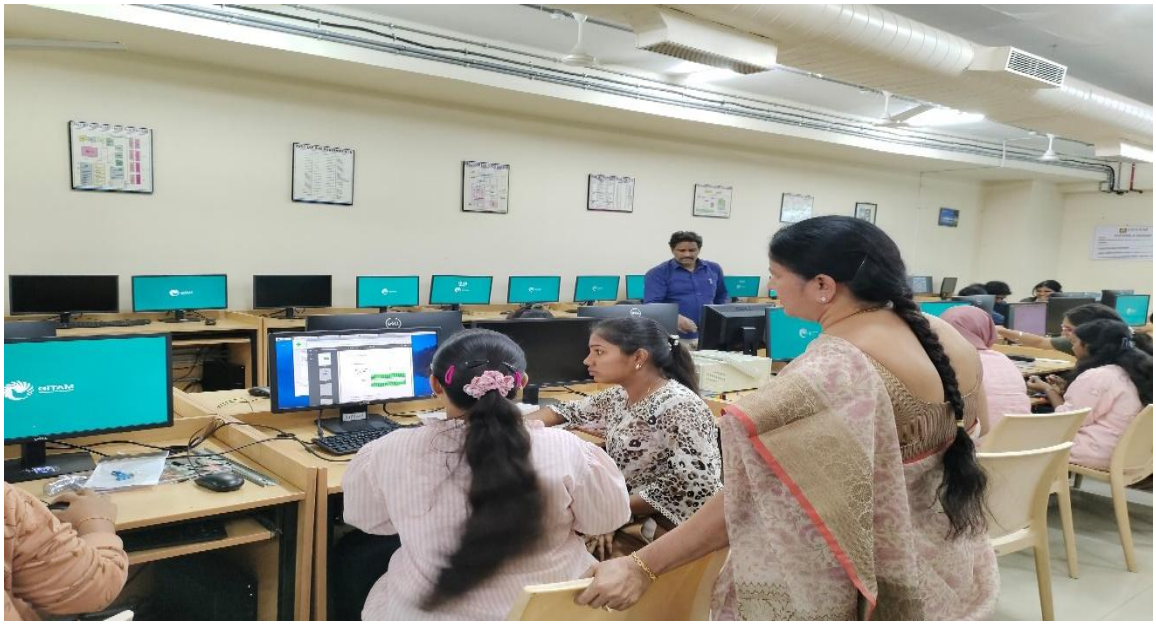
Department of Electrical, Electronics & Communication Engineering
GITAM School of Technology
GITAM Deemed to be University
Hyderabad
(Estd. u/s 3 of the UGC Act, 1956)
NAAC Accredited with `A+' Grade
Rudraram, Patancheru Mandal, Sangareddy District - 502 329, T.S., India

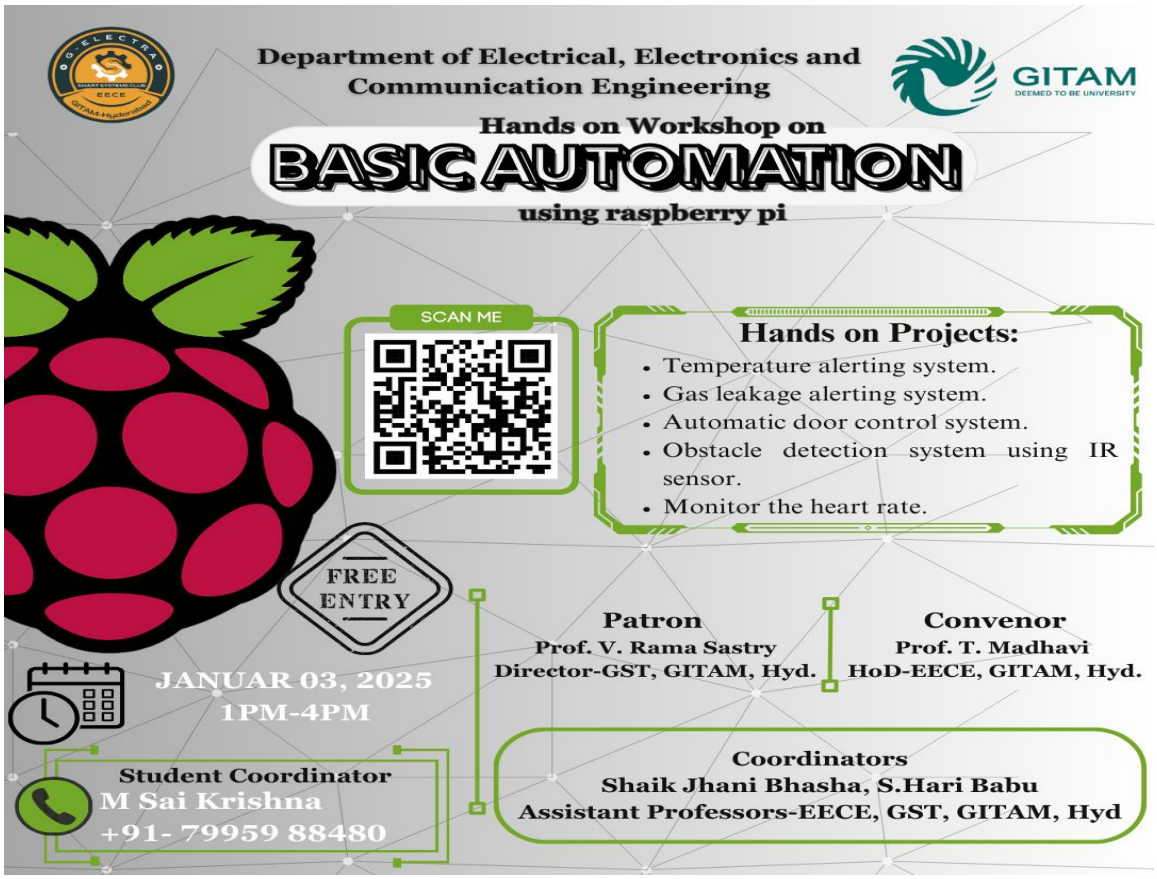
Department of Electrical, Electronics and Communication Engineering
News Letter
Jan-June 2025

1)Hands-on workshop **Basic Automation** using Raspberry Pi:

A hands-on workshop was organized by the department of EECE and G-Electra club on January 3, 2025, for the students of all the branches from the GITAM School of Technology, Hyderabad campus under the patronage of the Director, GST Hyderabad, Prof. V. Ramasasry. A brochure was released with the workshop details and registration link and circulated among all the students at GITAM School of Technology, Hyderabad asking the students to register for the workshop. There was an overwhelming response from the students. 150 students belonging to 1st, 2nd and 3rd year from all the departments registered. On the day of the workshop, 125 students turned up. For maintaining the quality of the workshop, the coordinators pursued many students and assured them that another such workshop would be conducted soon to accommodate all the interested students. Finally, the participants were restricted to 47. The workshop started with the formal inauguration by the convener for the workshop and the HOD of EECE department, Prof. T Madhavi. Then the coordinators, Mr. Sk Jhani Bhasha and Mr. S Haribabu, Assistant Professors of EECE department, explained to the participants about the Raspberry Pi SOC, its widespread applications, loading the OS into the board and demonstrated the hardware connections, and basic automation projects. Student volunteers from 3rd and 2nd year helped the participating students in doing the hands-on automation projects. All the students participated and worked on the project with enthusiasm



Hands on session in “Basic Automation using Raspberry Pi”



Basic Automation using Raspberry Pi

2)The Department of EECE has conducted FDP on "EV Technologies: Development's and challenges" (22 – 24 January 2025).:

The Department of EECE has conducted 3-day FDP on "EV Technologies3-day FDP on "EV Technologies: Development's and challenges Development's and challenges" from 22-24 January 2025. Eminent resource people from IIT (IIT Gandhinagar, IIT Hyderabad) and Industry (National Instruments, TATA Elexi, Siemen's) delivered the sessions

The First session of FDP started with the presentation of Dr. K. Ragavan from IIT Gandhinagar, the session covered topics of Introduction to EV technology and components, Motors Suitable for EV Applications, Control of BLDC and PMSM for Electric Vehicle Applications. The second session was given by a resource person from National Instruments and covered topics of Challenges in EV and possible research areas, How National Instruments can help to tackle the EV challenges.

The second day morning session started with the presentation of Dr. Venkatesham from IIT Hyderabad, and covered topics related to Types of Electric Vehicles, Electric vehicle modelling, Vehicle dynamics and power train mechanism. Some of the other topics covered in the subsequent sessions are EV Technologies: Developments and Challenges, Power quality, vehicle to grid and grid to vehicle connection, Battery management system (charging and discharging), EV Motor Control Modelling using MATLAB, Model-Based Design for Electric Vehicle, Component sizing and design control algorithm, AC and DC Electric Vehicle charging protocol, Real time implementation.

FDP on “EV Technologies: Development’s and challenges” inaugural

FDP on “EV Technologies: Development’s and challenges” training session

FDP on “EV Technologies: Development’s and challenges” hands on session

3)Havana Tech Fest ‘25

HAVANA’25: A Celebration of Innovation and Excellence

Date: 27-02- 2025 and 28-02-2025

The HAVANA ‘25 Tech Fest conducted on 27-02- 2025 and 28-02-2025. The HAVANA Tech Fest is a national-level inter-collegiate technical fest hosted by GITAM Deemed to be University, Hyderabad, in collaboration with G-Electra (Smart Systems Club), stood as a testament to the convergence of innovation, technology, and collaboration. Held under the esteemed presence of Chief Guest Dr. G. Rameshwar Rao, this two-day extravaganza unfolded with a grand inauguration ceremony, setting the stage for an immersive journey into the cutting-edge realms of technology. The festival brought together students, faculty, industry professionals, and innovators, fostering a dynamic ecosystem of learning, networking, and competition. In a world driven by innovation, HAVANA Tech Fest ‘25 emerged as a beacon, drawing together the brightest minds, industry leaders, and technology enthusiasts. The festival provided a unique platform for the exchange of ideas, knowledge, and experiences, transcending conventional boundaries and inspiring the next generation of engineers and

innovators.

HAVANA 2025 inaugural session

HAVANA ‘25 felicitation to the guest

Key Insights by Chief Guest – Dr. G. Rameshwar Rao

Emphasized the importance of adaptability in the ever-evolving technological landscape. Highlighted the significance of practical learning and hands-on applications in shaping future engineers. Stressed the role of problem-solving and innovation in addressing global technological challenges. Encouraged students to think beyond geographical boundaries, leveraging global opportunities in tech-driven industries.

The inaugural day witnessed a kaleidoscope of events, each adding a unique hue to the fest’s vibrant canvas. Competitions across robotics, programming, aerodynamics, and strategy-based games created an electrifying atmosphere, pushing participants to display technical prowess and innovation. Key events as follows.

TurboTRACK – A high-speed challenge testing the precision and design of robotic models.
GripX – A gripping contest where teams showcased robotic gripping mechanisms in real-world applications.
Striker League – A dynamic robotic soccer competition, testing control, speed, and agility.
Knockout – A battle of resilience where bots competed in an elimination-style showdown.

Track It – A line-following robot competition evaluating navigation and efficiency.
AeroMaX – A high-speed drone racing event showcasing aerodynamics and piloting skills.
Splash Rush – A water-based robotics challenge integrating engineering principles with real-world aquatic solutions.
HackEra – The ultimate 24-hour hackathon, where teams delved into an intense coding marathon, developing innovative solutions to contemporary technological challenges.

HAVANA 2025 Robo Knockout

As the sun dawned on the second day, intellectual discussions and entrepreneurial innovation took centre stage. The day featured prototype exhibitions, pitch competitions, and coding battles, enabling students to demonstrate creativity, technical acumen, and business strategies.

As part of our department's initiative to foster innovation, critical thinking, and hands-on experience among students, a series of high-impact technical events were organized that drew enthusiastic participation and showcased exceptional talent.**Protoverse** served as a dynamic platform for students to present **prototype projects**, demonstrating practical solutions to real-world problems. This event brought cutting-edge technological innovations to the forefront, highlighting creativity and engineering acumen.In the **DevBattle**, participants engaged in a **rapid-fire coding challenge** that tested their programming agility and real-time problem-solving skills. The intense and competitive environment encouraged quick thinking and optimized coding practices.**Replica** was a unique engineering challenge where students showcased their ability to **design and replicate real-world models with high precision**, reflecting a deep understanding of engineering fundamentals and design execution.**InkSpire** provided a platform for students to present their **technical papers** on emerging technologies. Participants impressed the jury with their research, insights, and presentation skills, reflecting the department's strong research culture.Lastly, **Post a Pitch** invited students to present their innovations and research through **visually impactful posters**, promoting peer learning and expert interaction.These events collectively nurtured innovation, teamwork, and technical excellence among future engineers.The grand finale of HackEra saw teams unveiling their innovative solutions, developed through sleepless nights of coding and problem-solving.

HAVANA’25 hackathon

Behind this spectacle of innovation lay months of meticulous planning and coordination. The seamless execution of the diverse events was a result of the harmonious collaboration between faculty members, student volunteers, and industry experts. The festival unfolded as a symphony of creativity and execution, where every element was meticulously orchestrated to deliver an unparalleled experience.The impact of HAVANA Tech Fest 2025 extended far beyond the two-day event. Participants were exposed to cutting-edge technologies and real-world challenges. Students refined their technical, programming, and problem-solving skills. The fest bridged academia and industry, opening doors to career opportunities and collaborations. The event inspired a community of young innovators, fostering collaboration and knowledge exchange.

4)PHYTEC Embedded workshop on emerging IOT trends and innovations

Date: 10-03-25 and 11-03-2025

The Department of Electronics and Communication Engineering organized a two-day Faculty Development Program (FDP) on **“IoT Trends and Innovations”** in association with **Phytech, Bangalore**, aimed at enhancing the technical knowledge and pedagogical skills of faculty in the rapidly evolving domain of the Internet of Things (IoT). The event was conducted from 10-03-2025 to 11-03-2025, and witnessed enthusiastic participation from faculty members across various engineering institutions.

The FDP was designed to bridge the gap between academic concepts and industrial practices in IoT, providing a comprehensive understanding of current trends, emerging innovations, and real-time applications. Experts from Phytech delivered insightful sessions on key topics including **IoT architecture, edge computing, sensor integration, IoT communication protocols, and cloud connectivity**. Hands-on sessions and case studies enabled participants to engage with real-time applications and prototype development using industry-standard tools and platforms such as **Arduino, Raspberry Pi, and NodeMCU**..

FDP on “IOT Trends and innovations” inaugural session

One of the highlights of the FDP was the session on **AI-integrated IoT systems**, which explored how machine learning algorithms are being embedded into IoT applications to enhance automation and predictive analytics. The sessions also addressed **security challenges in IoT networks**, emphasizing the importance of secure design practices in smart systems.

The program concluded with a panel discussion on future opportunities in IoT, emphasizing interdisciplinary research, start-up ecosystems, and industry-academia collaboration. Feedback from the participants reflected the program’s effectiveness in enriching their knowledge and inspiring innovative teaching methodologies.

The FDP proved to be a significant initiative in fostering a collaborative learning environment and preparing faculty members to integrate IoT-based modules into curriculum and research initiatives. The department extends its gratitude to Phytech, Bangalore, for their technical support and for empowering academic professionals to stay aligned with industrial advancements.

FDP on “IOT Trends and innovations” Dean core engineering addressing audience

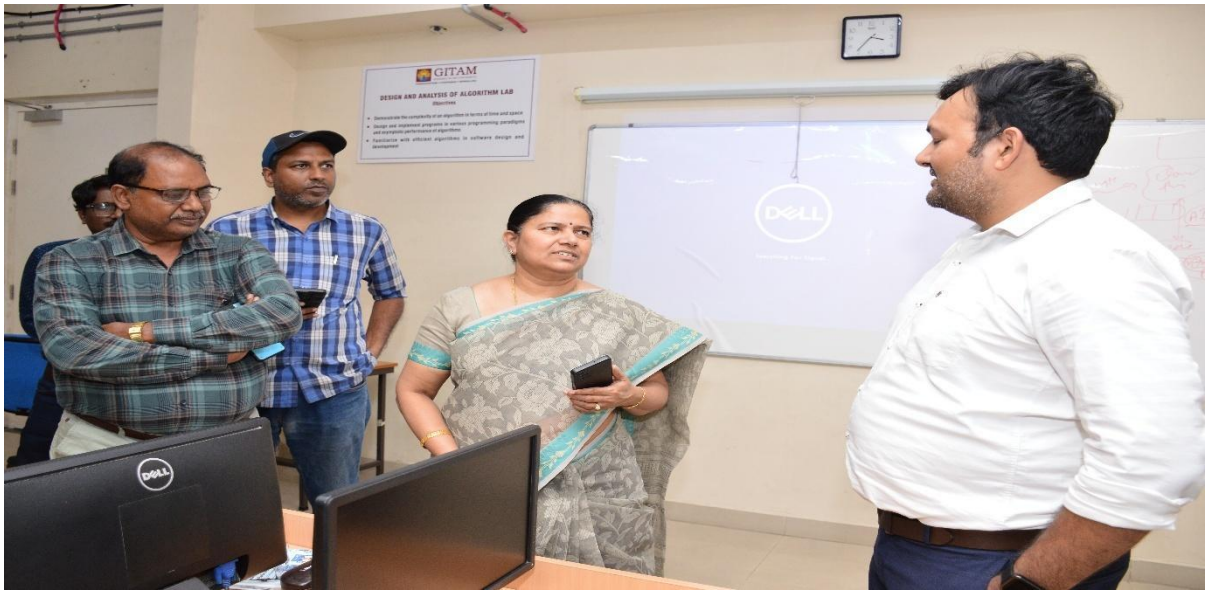
5) Title of the Workshop: Six -Day Faculty Upgradation Programme (FUP) - 30 Hours

Theme: Embedded Systems Programming on embedded Linux with Industry 4.0 Applications

Organized by: GITAM University, Hyderabad Campus

Faculty Development Programme on Embedded Linux and Industry 4.0 Applications

The Department of Electrical, Electronics and Communication Engineering successfully organized a **six-day Faculty Development Programme** on **“Embedded Linux Programming and Industry 4.0 Applications”** from 16-06-2025 to 23-06-2025. The workshop aimed to empower faculty with the knowledge and hands-on experience required to integrate modern embedded systems and IoT technologies into academic and research practices. The key objectives of the program were to familiarize participants with Linux fundamentals, embedded Linux programming, hardware interfacing, sensor integration, and advanced concepts such as **multi-protocol gateway development** and **smart energy monitoring systems** relevant to **Industry 4.0**. Each day of the workshop was meticulously structured into theory and hands-on sessions



Faculty Development Programme on “Embedded Linux and Industry 4.0 Applications”

Knowledge sharing session

First day focused on **Linux basics and programming**, introducing shell commands, file systems, and scripting techniques. Second day explored **embedded Linux porting**, including kernel configuration and cross-compilation. Third day provided insights into **hardware interfacing and sensor programming**, with real-time applications on embedded platforms. Fourth day delved into **advanced sensor interface programming**, covering multi-sensor data acquisition. Fifth day highlighted **Industry 4.0-aligned project demonstrations**, such as **multi-protocol gateway systems** and **smart energy monitoring solutions** with live dashboards. Sixth day concluded with a demonstration of consolidated **hands-on projects**, showcasing practical implementation skills gained by the participants. The workshop enabled faculty to strengthen their expertise in embedded systems development, apply **hardware-software co-design** principles, and gain actionable insights for integrating **IoT-based lab experiments** and **project ideas** into the undergraduate curriculum. The department extends its appreciation to the organizing team and all participants for making the FDP a success. The knowledge and skills gained are expected to significantly contribute to academic innovation and student mentoring in cutting-edge technologies.

Faculty Development Programme on Embedded Linux and Industry 4.0 Applications

Valedictory session

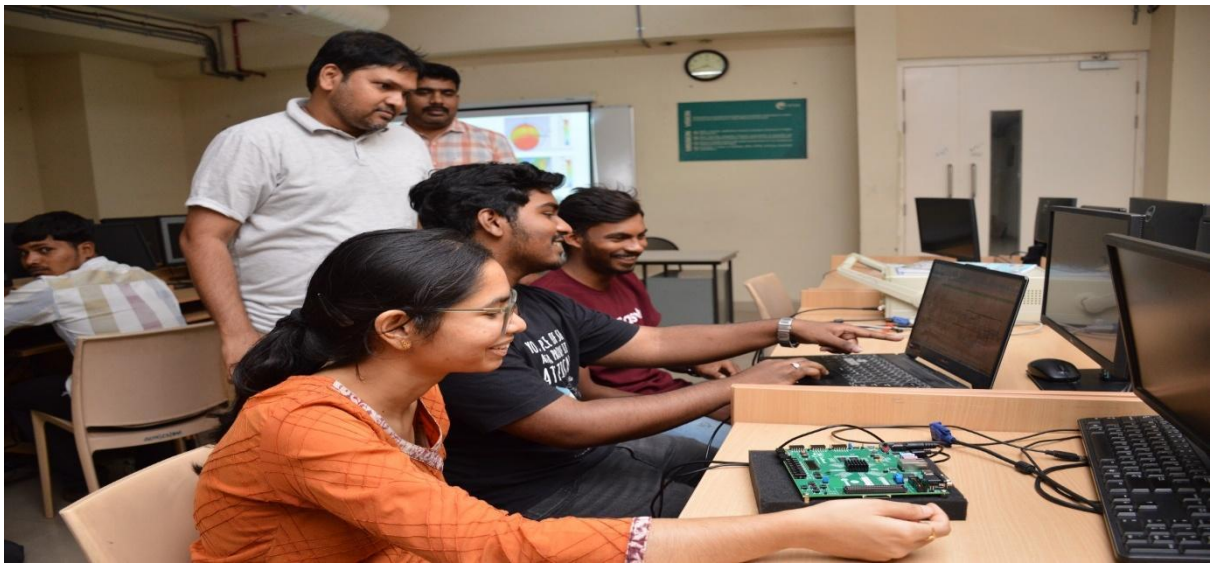
6) Five-day Intensive Course Future Tech FPGA & 5G Antennas

Organized by: School of Technology, Hyderabad
Departmemt of Electrical, Electronics and Communication Engineering

Date: 23-06-2025 to 27-06-2025

The 5-day intensive course enabled participants to develop strong foundational knowledge in FPGA design and millimeter-wave antenna engineering. Participants gained practical experience with hardware programming using Verilog and applied this knowledge to real-time FPGA applications. Through hands-on sessions using ZedBoard and Pynq boards, learners successfully implemented and optimized digital circuits for high-speed data processing. The course enhanced participants' industry readiness by exposing them to real-world FPGA project workflows. In parallel, attendees mastered the principles of millimeter-wave antenna design using Advanced Design System (ADS) software. They acquired skills in simulating and optimizing antennas for cutting-edge 5G, radar, and satellite communication systems. Learners practiced layout design and EM simulation techniques to evaluate antenna performance. The course emphasized beamforming concepts and introduced phased array systems for directional communication. High-gain antenna design and optimization strategies were explored in detail to improve system efficiency. Collaborative lab exercises helped participants understand the challenges and solutions in both hardware and antenna domains. By the end of the course,

learners demonstrated improved confidence and competence in applying theoretical knowledge to practical problems. Overall, the course successfully bridged the gap between academic learning and industry application in future communication technologies.



Five-day Intensive Course Future Tech FPGA & 5G Antennas hands on session.

7) The MoU between GITAM University, Hyderabad Campus and Phytech Embedded Pvt. Ltd.

The MoU between GITAM University, Hyderabad Campus and Phytech Embedded Pvt. Ltd.
GITAM (Deemed to be University), Hyderabad Campus, entered into a Memorandum of Understanding (MoU) with Phytec Embedded Pvt. Ltd., a leading embedded systems solutions provider, to foster industry-academia collaboration in the field of Embedded Systems, IoT, AI, and Industry 4.0 applications.

Purpose and Objectives:

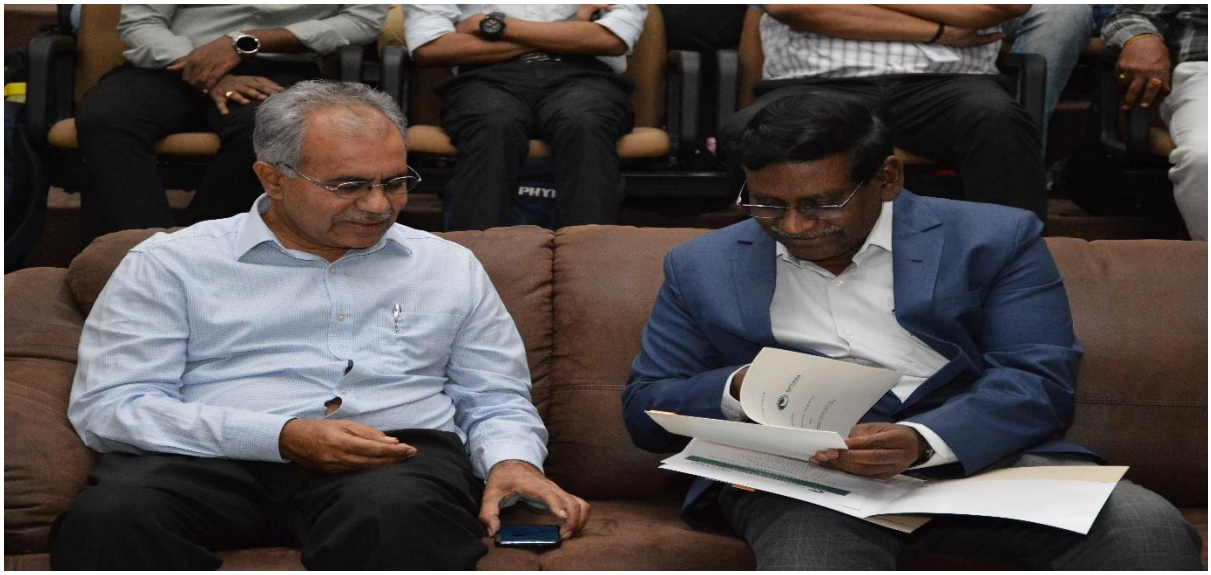
To bridge the gap between academic curriculum and industry requirements.
To promote joint research, training, and skill development initiatives in embedded systems and related technologies.
To establish centers of excellence/labs equipped with Phytec hardware for practical learning.
To facilitate internships and industrial visits for students at Phytec's facilities.
To organize workshops, guest lectures, and faculty development programs (FDPs).
To assist in curriculum design and development aligned with industry needs.

Industry Collaboration with Phytech: Fostering Innovation and Skill Development

The department has initiated a promising collaboration with Phytech, aiming to bridge the gap between academia and industry in the field of embedded systems and IoT. The partnership focuses on four key areas: training, student engagement, faculty development, and infrastructure enhancement. Under training and workshops, hands-on sessions will be organized on ARM Cortex, Linux-based embedded systems, and IoT platforms, along with participation in seminars and technical events. For student engagement, Phytech will offer internship opportunities, project guidance for final-year and capstone projects, and conduct campus recruitment drives.

To support faculty empowerment, dedicated Faculty Development Programs (FDPs) and research collaboration opportunities will be facilitated. In terms of infrastructure development, Phytech will assist in establishing advanced embedded and IoT labs, providing tools, boards,

licensed software, and training materials. This collaboration is expected to enhance student employability by offering practical exposure to real-world embedded applications. It also aims to encourage collaborative research, prototype development, and adoption of industry-aligned teaching practices. Ultimately, the partnership seeks to create a sustainable ecosystem within the department, fostering innovation, entrepreneurship, and product development aligned with current and emerging industry needs.



MOU with Phytech