



JULY-DEC. 2025

GEMS POLYTECHNIC COLLEGE

Department of Computer Science &
Engineering

Presents

MILESTONE

VOLUME 8 - ISSUE 1

EMPOWERING TO EXCEL

When humans and Machine collaborate.

NEWSLETTER

2025

Milestone represents key moments in our Computer Science journey

MILESTONE

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

TABLE OF CONTENTS

- Vision, mission, PEO's & PSO's of CSE
- Orientation Program
- Tech Seminar
- Short Term PYTHON Course
- Technical Workshop
- Workshop Series at IIT Patna.
- Faculty Achievement
- Alumini talk
- Minor project
- Student Achievement



A Message From HOD Desk



Mrs. Swapna Mothukuri
HOD of Computer Science &
Engineering

Dear Students, Faculty, and Alumni,

Greetings from the Department of Computer Science & Engineering. As we conclude the **Odd Semester of the Academic Year 2025–2026**, I am proud of the department's achievements. The semester featured enriching activities including workshops, add-on courses, a Tech Workshop Series at IIT Patna, an OBE orientation, and an alumni seminar.

In collaboration with Sparkle , IIC and SDC, the department emphasized hands-on learning and practical applications, enabling students to bridge the gap between classroom knowledge and industry requirements

I sincerely appreciate the dedication and commitment of our faculty members and students and encourage them to continue their pursuit of learning, innovation, and excellence.

VISION OF THE DEPARTMENT

To produce quality diploma Computer Science Engineers to serve Ethically and Technically for the Advancement of the society.

MISSION OF THE DEPARTMENT

M1: To strengthen the technical knowledge in computer science through analytical learning.

M 2: To inculcate moral and ethical values and interpersonal skills among the students.

M 3: To impart quality education with social awareness and train them in the development of community.

PROGRAM EDUCATIONAL OBJECTIVE (PEOs)

PEO 1: To provide diploma students with core competencies by strengthening their mathematical, scientific and basic engineering fundamentals.

PEO 2: To train diploma students in order to analyse, design and implement computer programming skills & concepts.

PEO 3: Students will be capable of adapting to new technologies and constantly upgrade their skills with an ethical attitude towards lifelong learning.

PROGRAM SPECIFIC OUTCOMES (PSO)

PSO1: Ability to develop computer programs in areas related to Algorithms, DBMS, Software Design, Programming Languages and Networking.

PSO2: To enable diploma, to acquire programming and development competence, to sustain in academia as well as in industry.

EDITORIAL TEAM- MILESTONE

VOLUME 8 | ISSUE 1 JUL - DEC | 2025 COMPUTER SCIENCE & ENGINEERING DEPARTMENT NEWSLETTER



SWAPNA MOTHUKURI, HOD, CSE

I am pleased to support this edition of the CSE Department newsletter, which showcases the academic progress, achievements, and initiatives of the department. This publication reflects our commitment to quality education and continuous improvement.

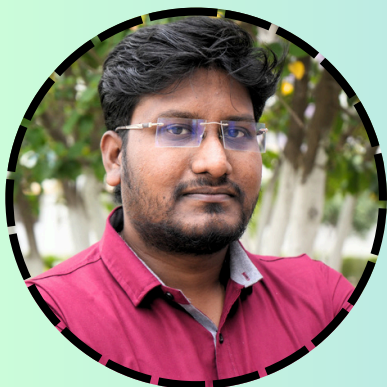
—PATRON



RUBY, LECTURER, CSE

I am proud to present this edition of the department newsletter, bringing together key events, student achievements, and faculty accomplishments. I hope this publication inspires learners to explore, innovate, and grow with confidence.

—CHIEF EDITOR

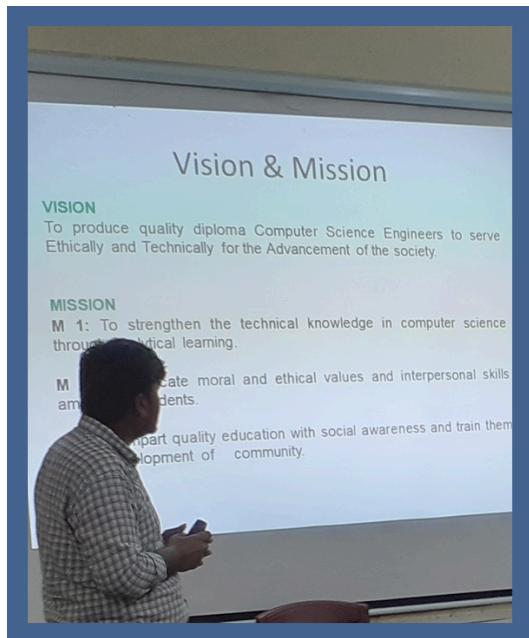


RAGLAND ROYAL, LECTURER, CSE

I am glad to contribute to this edition of the newsletter, highlighting the collective efforts of students and faculty through various academic and technical activities. This magazine brings together student voices, technical explorations, and creative thinking

—ASSOCIATE EDITOR

ORIENTATION PROGRAMME FOR CSE STUDENTS



The Department of Computer Science & Engineering conducted an **Orientation Programme** for newly admitted CSE students on 16th September 2025, at the Programming Lab, GEMS Polytechnic College. The programme was organized to familiarize students with the academic environment, departmental structure, and learning opportunities available during their diploma programme. The session began with an address by **Mrs. Swapna**, Head of the Department – CSE, who briefed students on the course structure, academic regulations, attendance requirements, and examination pattern. She also emphasized discipline, regular study habits, and effective use of departmental and institutional facilities.

Mr. Ragland Royal, Faculty – CSE, encouraged students to focus on developing programming skills and actively participate in workshops, seminars, and internships. The programme concluded with an interactive session, where students clarified their doubts and felt motivated and confident to begin their academic journey in the Computer Science & Engineering department.



TECH SEMINAR BY ALUMNI – MR. ANUJ BHARTI (NEXT GEN SOFTWARE HUB PVT. LTD.)

A **Tech Seminar** was conducted on 16th September 2025 at the Auditorium by Mr. Anuj Bharti, Founder & Director of **Next Gen Software Hub Pvt. Ltd.** and a proud alumnus of GEMS Polytechnic College (CSE Batch 2021–2024). The session focused on connecting classroom learning with real-world industry practices. Mr. Anuj introduced students to the basics of **Web Development (HTML & CSS)** and explained the importance of **GitHub** for beginners in managing projects and building professional portfolios. He also provided valuable **career guidance**, sharing a simple roadmap to start in the IT field and highlighting internship opportunities.

The seminar was interactive and motivating, encouraging students to begin early, build projects, and develop confidence in their technical and career journey and align their skills with current industry expectations.

DATE - 16TH SEPTEMBER 2025

TIME: 10:00 AM – 1:00 PM

VENUE: PROGRAMMING LAB

ADDRESSED BY:

MRS. SWAPNA, HOD – CSE



Pirtampur, Bihar, India 🇮🇳
R835+qhr, Pirtampur, Bihar 824102, India



Pirtampur, Bihar, India 🇮🇳
R835+qhr, Pirtampur, Bihar 824102, India
Lat 24.804948° Long 84.308928°
16/09/2025 02:43 PM GMT +05:30

PYTHON PROGRAMMING ADD- ON - COURSE

A **Python Programming ADD-ON-COURSE** was conducted on **16th September 2025** from 10:00 AM to 1:00 PM at the **Programming Lab** for CSE students. The session was handled by **Mr. Himanshu Kumar** and focused on building a strong foundation in programming.

The course covered **Python basics** such as syntax, variables, data types, control statements, and simple problem-solving techniques. Students were also introduced to real-life applications of Python in areas like automation, data handling, and software development.

The session was interactive and practice-oriented, allowing students to write and execute basic programs during the class. It helped students improve logical thinking, boosted their confidence in coding, and motivated them to continue learning Python for academic projects and future career opportunities.



MR. HIMANSHU KUMAR

**QUALITY TESTER –
“BEZALEL SKILLENGE”**



TECHNICAL WORKSHOP ON TROUBLESHOOTING (ISTE EVENT)

The Department of Computer Science & Engineering organized a **three-day Technical Workshop on Troubleshooting** from **11th to 13th September 2025** in the Programming Lab for 2nd and 3rd year CSE students. The workshop aimed to strengthen students' practical skills in identifying and resolving common hardware, software, and networking issues.

The workshop sessions were conducted by **Mr. James T, Mr. Kumar S, Mr. James Marandi and Mr. Ragland Royal**. Students received hands-on training in **Windows operating system installation, hardware and software fault diagnosis, and basic networking troubleshooting**. The sessions combined theory with practical demonstrations, enabling students to work directly on computer systems.

The workshop concluded with an **assessment exam** to evaluate students' understanding. Certificates were awarded to the best-performing students, while all participants received participation certificates. The workshop enhanced students' confidence, technical competence, and readiness to handle real-world system maintenance tasks.



TECH WORKSHOP SERIES 2025 AT IIT PATNA



Students of the Department of Computer Science & Engineering participated in the **Tech Workshop Series 2025**, organized by **Techobytes & Celesta'25, IIT Patna**, held on **30th and 31st August 2025** at the IIT Patna campus. The workshop provided students with valuable exposure to advanced technologies and an industry-oriented learning environment.

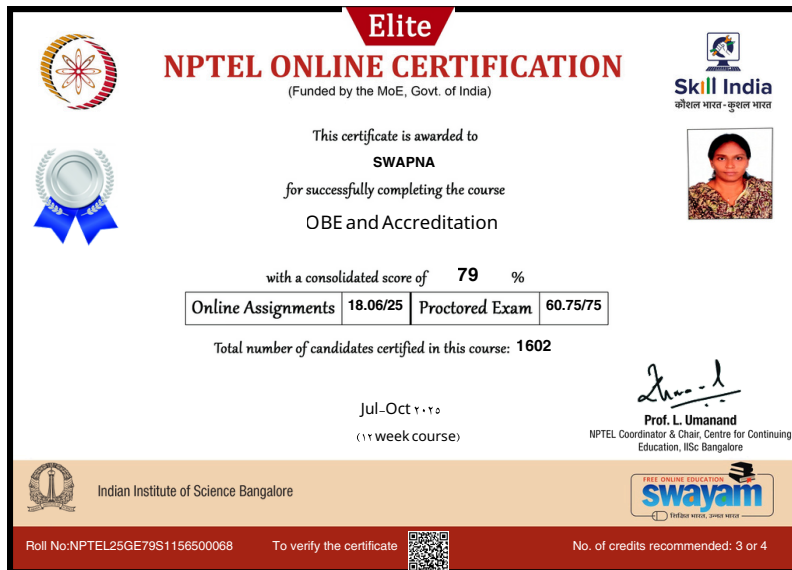
Participants were given the opportunity to choose one specialization from emerging domains such as **IoT with Humanoid Robotics, Android App Development, Drone Technology, Generative AI, AI in Film Making, and Cyber Security with Ethical Hacking**. The sessions were conducted by industry experts and IIT professionals, combining theoretical knowledge with hands-on activities.

Students were accompanied by **Ms. Meena, Mr. Kumar S,** and **Mr. Ragland Royal**, and faculty members also actively participated in the workshop. The event enhanced students' technical skills, encouraged innovation, and boosted their confidence through interaction with experts and exposure to the IIT campus culture.



FACULTY ACHIEVEMENTS

NPTEL Certification in Outcome-Based Education & Accreditation



Elite
NPTEL ONLINE CERTIFICATION
(Funded by the MoE, Govt. of India)

This certificate is awarded to
SWAPNA
for successfully completing the course
OBE and Accreditation

with a consolidated score of **79** %

Online Assignments	18.06/25	Proctored Exam	60.75/75
--------------------	----------	----------------	----------

Total number of candidates certified in this course: 1602

Jul-Oct 2025
(12 week course)

Prof. L. Umanand
NPTEL Coordinator & Chair, Centre for Continuing Education, IISc Bangalore

Indian Institute of Science Bangalore

Roll No: NPTEL25GE79S1156500068 To verify the certificate No. of credits recommended: 3 or 4

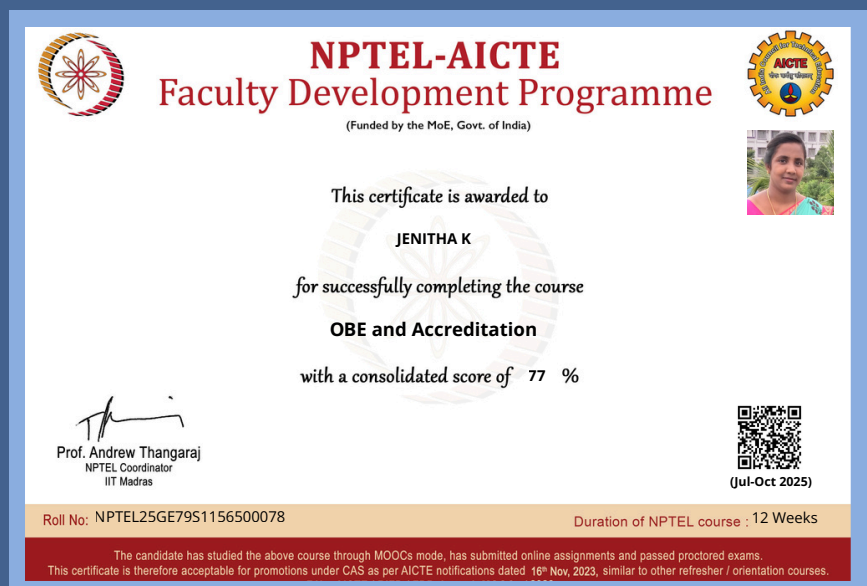
Mrs. Swapna, Head of the Department, of CSE, successfully completed a **12-week NPTEL online certification course on "Outcome-Based Education (OBE) and Accreditation"** during **July–October 2025**.

This focus on understanding OBE principles, accreditation processes, assessment strategies, and quality assurance in technical education. This enhances the department's academic planning and aligns teaching–learning practices with NBA contributing to continuous improvement in educational quality.

NPTEL Certification in Outcome-Based Education & Accreditation

Mrs. Jenitha K, Faculty member of the Department of Computer Science & Engineering, successfully completed a 12-week NPTEL certification course on "Outcome-Based Education (OBE) and Accreditation" during July–October 2025.

The course provided comprehensive insights into OBE principles, accreditation frameworks, assessment methodologies, and quality assurance practices in technical education. This achievement contributes to strengthening outcome-oriented teaching practices and supports the department's continuous improvement initiatives in alignment with NBA and accreditation requirements.



NPTEL-AICTE
Faculty Development Programme
(Funded by the MoE, Govt. of India)

This certificate is awarded to
JENITHA K
for successfully completing the course
OBE and Accreditation
with a consolidated score of **77** %

Prof. Andrew Thangaraj
NPTEL Coordinator
IIT Madras


Roll No: NPTEL25GE79S1156500078 Duration of NPTEL course : 12 Weeks

The candidate has studied the above course through MOOCs mode, has submitted online assignments and passed proctored exams. This certificate is therefore acceptable for promotions under CAS as per AICTE notifications dated 16th Nov, 2023, similar to other refresher / orientation courses.

FACULTY ACHIEVEMENTS

Academic & Professional Excellence

Mrs. Priyanka Kumari, Faculty member of the Department of Computer Science & Engineering, has actively engaged in continuous professional development by successfully completing **two reputed certification programmes** during the academic year 2025.



Elite

NPTEL ONLINE CERTIFICATION


(Funded by the MoE, Govt. of India)

This certificate is awarded to
PRIYANKA KUMARI
for successfully completing the course
Data Structures and Algorithms Design

with a consolidated score of **64** %


Online Assignments	22.35/25	Proctored Exam	42/75
--------------------	----------	----------------	-------

Total number of candidates certified in this course: **4313**




Prof. B. V. Ratish Kumar
Chairman, Centre for Continuing Education
IIT Kanpur


Jul-Oct 2025
(12 week course)



Prof. Satyaki Roy
NPTEL Coordinator
IIT Kanpur




Indian Institute of Technology Kanpur



FREE ONLINE EDUCATION
swayam
शिक्षण सेवा - ज्ञान सेवा

Roll No: NPTEL25CS81S456500210

To verify the certificate 

No. of credits recommended: 3 or 4

She successfully completed a 12-week NPTEL certification course on “Data Structures and Algorithms Design” conducted during July–October 2025. The course provided in-depth knowledge of algorithm design techniques, data structures, which directly contribute to enhanced teaching–learning practices in programming-related subjects. This will further benefit students through improved teaching and academic mentoring.

In addition, she also successfully participated in an AICTE Training and Learning (ATAL) Academy Faculty Development Program on “Advances in Electric Vehicles and Sustainable Energy Systems: Strategies, AI Applications, and Future Directions”, conducted at Amrita Vishwa Vidyapeetham, Bengaluru Campus, from 15th to 20th September 2025. This program provided interdisciplinary exposure to emerging technologies, sustainability concepts, and AI-driven applications.






ATAL/11012/11061520AT

ALL INDIA COUNCIL FOR TECHNICAL EDUCATION

Nelson Mandela Marg, Vasant Kunj, New Delhi - 110011

AICTE Training and Learning (ATAL) Academy

Certificate

It is certified that Mrs. Priyanka Kumari, of has successfully participated & completed AICTE Training And Learning (ATAL) Academy Faculty Development Program on Advances in Electric Vehicles and Sustainable Energy Systems - Strategies, AI Applications, and Future Directions at AMRITA VISHWA VIDYAPEETHAM BENGALURU CAMPUS from 15/09/2025 to 20/09/2025.



Manitha PV
Assistant Professor Level (AICTE Institute), Coordinator
AMRITA VISHWA VIDYAPEETHAM
BENGALURU CAMPUS



Dr. Sunil Luthra
Director & Bureau Head
Training and Learning Bureau, AICTE

FACULTY ACHIEVEMENTS

भारतीय गैर न्यायिक
एक सौ रुपये Rs. 100 ONE HUNDRED RUPEES
रु. 100 INDIA NON JUDICIAL

தமிழ்நாடு தமில்நாடு TAMILNADU
Date: 14/11/2024
Lex Adept IP Associates
Chennai
Form 26
THE PATENTS ACT, 1970
39 of 1970
&
The Patent Rules, 2003

FORM FOR AUTHORIZATION OF A PATENT AGENT IN A
MATTER OF PROCEEDING UNDER THE ACT
(Sections 127 and 132; and Rule 135)

We,
Mr. Kheshore JR , 20/21, Ganesh Nagar, Veerimpalayam Road,
Kalapatti Post, Coimbatore - 641048, Tamil Nadu, India,

Dr. J. Grace Jency Gnanammal, No:32 Annamara's Residence,
Paari Nagar, Sungam by pass, Coimbatore - 641045, Tamil Nadu,
India,



I, Ragland Royal, along with the first author, Mr. Kheshore JR and others, have executed this document as a Patent Authorization (Form 26) under the Indian Patents Act,

1970 and the Patent Rules, 2003. This document formally authorizes registered Indian Patent Agents to represent us before the Controller of Patents, Government of India, in all matters related to our patent application.

This project presents a Smart Electrolyte Level Monitoring System for Uninterrupted Power Supply (UPS) batteries.

Dr. Y. R Annie Beasant , 3/175.P.B RAJA BHAVAN, MATHAR, VEEYANOOR POST- 629177, KANYAKUMARI DISTRICT , Tamil Nadu, INDIA,

Mr. Ragland Royal, Metro Taylor chowk, opposite Parvati apartment, aludhbari, parsudih, Jamshepur, JH- 831002, INDIA,

Dr. D Gracia , C1,202,Green park provident apartments, Selvapuram, Ukkadam Perur Bypass road, Coimbatore-641026, Tamil Nadu, INDIA,

Ms. K. Ranjani, C2 Aditya Enclave, Keeranatham, Saravanampatti post, Coimbatore 641035, Tamil Nadu, INDIA,

Mr. Ramchandar RS, 13/1, Mahalakshmi Garden, Villankurichi Road, Villankurichi Post, Coimbatore - 35, Tamil Nadu, INDIA,

Ms. Dakshita L, No 6, Maruthappa Nagar, Kurumbapalayam, Vedapatti Post, Coimbatore 641 007, Tamil Nadu, INDIA,

Mr. Ranjan Kumar, Vill Pewandi, Po+ps Sasaram, Dis Rohtas, 821104 Bihar, INDIA, and

Ms. Yalini S, Plot no, 231, Saikrish Home, ARUN HI TECH CITY, SURYA NAGAR, MADURAI-625007, Tamil Nadu, INDIA,

hereby authorize:

Mr. Jebakumar Samuel (IN/PA-3120) and Mr. Karthikeyan (IN/PA-3131), Registered Indian Patent Agents, of LexAdept IP Associates, 82 F2, Shrudi Sai Nagar, Madambakkam, Chennai - 600 126, Tamil Nadu, INDIA. Mobile: +91 83000 99983, e-mail: jjsamuel@lexadept.com to act jointly and severally as my agent for all matters connected with PATENTS ACT 1970, on my behalf in

The main objective of the system is to continuously monitor the electrolyte level in UPS batteries and alert users in real time when the level drops below a safe threshold. The system works by using a float-based sensing mechanism installed in the existing electrolyte gauge of the battery. When the electrolyte level decreases, the float descends and completes an electrical contact using aluminium foil contact plates. This triggers an ESP32 microcontroller, which sends an instant alert to the user's mobile device through a software application using Wi-Fi (or optionally Bluetooth).

Details in Next Page.

DETAILED DESCRIPTION OF THE INVENTION

The serviceability of uninterrupted power supply (UPS) systems is in high demand due to global warming and greenhouse gas emissions, leading to an increased use of renewable resources. Photovoltaic power has been widely adopted for utilizing solar energy within UPS systems. The global energy demand is growing at an annual rate of 1.4%, necessitating the integration of storage devices or multiple renewable sources to ensure power quality and dependability. Backup systems are essential in preventing undesirable effects caused by power interruptions, particularly in critical areas such as hospitals. The primary reasons for installing backup systems ensures safety, surveillance, financial considerations, and data protection.

Various strategies have been proposed to measure the electrolyte solution levels in batteries. A method using infrared sensors combined with treated float foam is used for sensitive measurement of water surface levels. However, these sensors can be damaged due to acidification during the chemical process, leading to short circuits.

Traditional float-based gauge indicator systems as shown in the Figure 1 employs a needle that moves according to the electrolyte level in the battery. Yet, these systems conjointly suffer from acidification during chemical processes, leading to battery damage and short circuits. The proposed prototype overcomes these issues by utilizing appropriate materials to prevent battery acidification.

The suggested layout features a pair of leads (103,104) connected to the top of the existing gauge (108, 205), with the float stem (101,102) covered in aluminium foil (Figure 2). When the float stem (101,102) reaches a certain level (112,114), the circuit closes (110,204,207), triggering the ESP32 board (105,106,207) (Figure 3), which sends an alert to a mobile device (201) via through the software application over Wi-Fi (201). A typical UPS battery (203) has 6 to 8 electrolyte refill ports. Aluminium foil is chosen for its lower weight compared to copper, despite copper's higher conductivity.

The suggested design uses two leads connected to the top of the current gauge (103,104), with aluminium foil covering the float stem's head (101). When the float stem reaches the posterior level, the circuit closes ((110, 204, 207), and triggering the ESP32 board (204,207), which then uses WiFi to inform a mobile device (201) via through a software application.

The system initializes serial communication portal by setting the baud rate and uses the switch pin for setup. The Blynk connection is authenticated with a token, and the main loop runs continuously to check conditions and send notifications. When the switch pin is activated, the serial monitor receives a message, and a notification is sent to the user's mobile device via Wi-Fi, prompting the user to manually refill the electrolyte.

FROM OUR ALUMINI

ALUMINI JOURNEY

My name is Navneet Mishra, and I have completed my three-year Diploma in Computer Science Engineering from Gems Polytechnic College. This journey has been a significant and memorable part of my life, shaping both my academic and personal growth.

In the first year, I faced challenges, especially due to the English language, which affected my academic performance. However, with God's blessings, continuous effort, and strong support from my teachers, I gradually improved my language skills and confidence. My teachers, HOD, and department faculty guided and motivated me at every step.

Through hard work and dedication, I secured third position in the second year, second position in the fourth semester, and first position in the fifth semester. I successfully completed my diploma with an overall 8.9 CGPA. During this period, I also achieved second position in a speech competition and second position in a paper presentation, which enhanced my communication and leadership skills.

My diploma life was also filled with beautiful friendships and unforgettable memories—studying together, sharing meals, and supporting each other through every phase. I am deeply thankful to God, my teachers, and Gems Polytechnic College for shaping my future.

Currently, I am pursuing B.Tech from Bakhtiyarpur College of Engineering and working as an apprentice at DXC Technology under the National Apprenticeship Programme, gaining valuable industry experience.

I would like to conclude by saying that my diploma journey at GEMS Polytechnic College shaped both my career and character, and I am deeply grateful to my teachers and the institution for their constant guidance and support.



NAVNEET MISHRA
BATCH: 2022-2025

MINOR PROJECTS

VOICE CONTROLLED ROBOT WITH SMART ASSISTANT

A student project titled “**Voice Controlled Robot with Smart Assistant Features**” was developed using **Arduino Uno R3, HC-05 Bluetooth module**, and a **Bluetooth kit audio player**, programmed in **C++** with supporting libraries. The robot responds to voice commands through Bluetooth communication.

The project was successfully carried out by **Roushan Kr Raj, Nitish, Sourabh, Vivek, Rishi, and Ritesh**, giving them hands-on experience in robotics, microcontroller programming, and smart automation.

HUMAN PRESENCE LIGHT CONTROLLER

The Human Presence Light Controller project was developed using **Arduino**, two **IR sensors**, and a **relay module** to automatically control room lighting. The system counts the number of people entering and exiting a **single-door room** and turns the light **ON or**

OFF accordingly, helping to **save electricity**.

The project was developed by **Kiran, Madhur, Pinki, Sharda, Sejal, and Khushi**, and programmed using the **C language**, giving students hands-on experience in sensor-based automation and energy-efficient system design. They actively participated in the workshop. The event enhanced students' technical skills, encouraged innovation, and boosted their confidence through interaction with experts and exposure to the IIT campus culture.

STUDENT ACHIEVEMENT

ACADEMIC ACHIEVEMENT - INSTITUTION LEVEL

Rani Kumari (Registration No: 1991824049), a student of the **Computer Science & Engineering Department**, secured the **3rd Rank at the College Level** in the **I / II Semester Examination** with an outstanding score of **825 marks**.

Her consistent academic performance, discipline, and dedication to studies reflect her strong commitment to excellence. This achievement brings pride to the CSE Department and serves as a motivation for fellow students to strive for academic success. The department congratulates Rani Kumari and wishes her continued success in her future academic and professional endeavors.



CLOSING NOTE

The Department of Computer Science & Engineering remains committed to fostering academic excellence, technical competence, and industry-oriented learning. Through orientation programmes, alumni interactions, technical workshops, seminars, and student projects, the department continues to provide a holistic learning environment for students.

We sincerely thank the management, faculty members, students, and all contributors for their active participation and continuous support in making these initiatives successful. We look forward to achieving many more milestones and nurturing future-ready professionals.

— DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
GEMS POLYTECHNIC COLLEGE