# TECHSCAPE


**Empowering Minds, Igniting Innovations:**
The Essence of Technology in Every Page

CHANDIGARH ENGINEERING COLLEGE
Building Careers. Transforming Lives.
Jhanjeri, Mohali

# From Chairman's Desk

## Mr. Rashpal Singh Dhaliwal

**Dear Students, Faculty and Esteemed Readers,**

As we unveil the latest issue of our magazine, I extend my heartfelt greetings to all readers. The development of our strategic plan has underscored the vital role of effective internal communication in fostering growth and unity. Through these pages, we aim to celebrate the remarkable achievements of our students and showcase the vibrant energy that defines campus life.

We take immense pride in being a dedicated catalyst for our students' professional development and in our efforts to strengthen communities and families. May this newsletter serve as a proud reflection of CEC's accomplishments, teamwork, and unwavering commitment to excellence.

# From Managing Director's Desk

## Mr. Arshdeep Dhaliwal

**Dear Students, Faculty and Esteemed Readers,**

As we launch this edition of our magazine, I am both proud and excited to showcase the culmination of years of dedicated effort to enhance internal communication. This publication reflects our collective commitment, highlighted through stories of collaboration, diversity, and meaningful contributions to the Indian educational landscape.

Our greatest strength lies in the exceptional efforts of our professors and students, whose accomplishments I am eager to celebrate in this issue. Here's to a year ahead filled with continued growth, innovation, and excellence. Cheers to new opportunities and shared success!

# From Executive Director's Desk

## Dr. Vinay Goyal

**Dear Students, Faculty and Esteemed Readers,**

It is a true privilege for me to serve as the Executive Director of Chandigarh Group of Colleges, Jhanjeri — an institution committed to academic excellence and transformative education. We firmly believe that education has the power to shape society, extending beyond individual growth to foster positive societal change.

At CEC Jhanjeri, our mission is to cultivate well-rounded graduates who are not only equipped for the workforce but also prepared to lead and inspire.We are dedicated to providing high-quality, affordable education, and since our founding, we have made remarkable strides in achieving this goal. Today, we stand among the top colleges in the region, and our pursuit of excellence continues unabated.

# From Director Engineering's Desk

## Dr. Anish Gupta

**Dear Students, Faculty and Esteemed Readers,**

I am committed to guiding our team in delivering innovative and meaningful solutions. With a strong foundation to build upon, I have had the privilege of leading initiatives that push the boundaries of technology. We are dedicated to fostering a collaborative environment where both staff and students can thrive in their pursuits.

By supporting cutting-edge research, forging strategic industry partnerships, and cultivating a culture of excellence, we are shaping the future of computer science and engineering and making a positive impact on society. Together, we are driving progress and inspiring innovation for a better tomorrow.

# From HOD CSE's Desk

## Dr. Rini Saxena

**Dear Students, Faculty and Esteemed Readers,**

It's a true honour to speak as the Head of the Department of Computer Science and Engineering. Together, we'll embark on a journey of innovation and growth. This department is about more than grades—it's about curiosity, resilience, and lifelong learning.

Seize every opportunity, challenge assumptions, and aim for excellence. You have limitless potential, and I look forward to seeing you achieve your goals and make an impact in the field of CSE. Let's shape the future together. Remember, your dedication and passion can truly change the world.

Wishing you success and fulfilment in all your endeavours.

# Index

| Sr. No. | Topic | Pg No. |
|---|---|---|
| 08 | **Student's Articles** | 64 |
| 09 | **Success Chronicles** | 68 |
| | ├ Alumnus Talks | |
| | └ Success Summits | |
| 10 | **Creative Desk** | 73 |
| | └ Editorial Committee | |

# Department of Computer Science & Engineering

## Vision

To provide imperative skills to students for meeting industry needs, and to become responsible engineers, entrepreneurs and citizens.

## Mission

- To educate the students in the field of Computer-Science with ever-changing technologies and skills.
- To enable the students in solving real-time problems and make use of new technologies.
- To have industry collaboration and interaction with professional societies for continuous development.
- To help students in becoming successful entrepreneurs.

# Program Educational Objectives (PEO)

## PEO1:

To develop ethical computer engineers, administrators, and business leaders, graduates in computer engineering must cultivate a range of skills and leaders.

## PEO2:

To prepare professionals who assess software requirements and deliver solutions through impactful product designs, innovative thinking, analysis, and decision-making.

## PEO3:

To empower graduates with lifelong skills in data analysis, design, and synthesis, enabling them to continuously develop innovative products and solutions that meet evolving industrial demands.

## PEO4:

To foster a mindset for cultivating a professional and ethical demeanor, and adeptly engaging with global challenges, thereby effecting positive impacts on the environment and society.

# PROGRAM SPECIFIC OUTCOMES

## PSO1:

To use principles of Computer Science & Engineering (such as software engineering, computer networks, data structures &computer programming high level languages) for developing software solutions.

## PSO2:

To clearly understand the concept of programming languages, computer architecture and their applications in different field of technologies to develop cost-effective solutions in the area of computer science by the use of various methodological algorithms and different tools.

# Programme Outcomes (PO)

## PO1:

**Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

## PO2:

**Problem analysis:** Identify, formulate, research literature, and analyze complex engineering problems, reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

## PO3:

**Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for public health and safety, and the cultural, societal, and environmental considerations.

## PO4:

**Conduct investigations of complex problems:** Use research-based knowledge and research methods, including the design of experiments,analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

## PO5:

**Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations.

## PO6:

**The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal, and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

## PO7:

**Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

## PO8:

**Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

## PO9:

**Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

## PO10:

**Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

## PO11:

**Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

## PO12:

**Life-Long Learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

# Introduction

Welcome to the Latest Edition of CSE: Annual Magazine!
As we stand at the forefront of an extraordinary technological revolution, this magazine serves as your gateway to the ever-evolving world of Computer Science and Technology. With innovation accelerating at an unprecedented pace, we bring you a curated exploration of groundbreaking advancements, emerging trends, and transformative discoveries that are reshaping our digital future.
Each year, technology pushes boundaries, redefining the way we live, work, and connect. From artificial intelligence and machine learning to cybersecurity, blockchain, and quantum computing, this edition delves into the latest research and innovations driving the next wave of progress. Whether you're an aspiring technologist, a seasoned professional, or simply curious about the future, this magazine is your guide to navigating the dynamic landscape of modern technology.

The technological landscape is undergoing a profound transformation, reshaping industries, revolutionising daily life, and expanding the horizons of possibility. As innovation accelerates, several key advancements are driving this evolution:

- Decentralisation Dynamics: Emerging technologies like blockchain are shifting away from centralised control, empowering individuals and promoting transparency through decentralised networks.

- Quantum Computing Revolution: The advent of quantum computing promises extraordinary computational power, unlocking breakthroughs across various fields—from cryptography to drug discovery.

- The IoT Ecosystem: The Internet of Things (IoT) is forging a hyper-connected environment where devices and systems communicate seamlessly, leading to smarter cities and more personalised experiences

**AI's Ubiquitous Influence**

Artificial Intelligence (AI) continues to permeate various sectors, enhancing human capabilities and fueling innovation. However, this rapid integration also raises important ethical questions related to privacy, bias, and responsible use.

**Sustainable and Ethical Imperatives:**

There is an increasing focus on aligning technological progress with sustainability goals and ethical principles, promoting a more inclusive and responsible tech ecosystem. In essence, the current technological landscape is marked by swift advancements and transformative changes, offering vast opportunities while also presenting new challenges as we navigate this dynamic era.

# Faculty Research Outcome

## Dr. Rini Saxena

*Head Of Department*

- Agriculture Internet of Things(AIoT) for Intelligent farming, Dynamic Disaster Management with Real- Time IoT Data Analysis and Response.
- Innovative Urban Solutions with IoT-Driven Traffic and Pollution Control.
- An AI-Based Brain Stimulus Using Binaural Beats.
- Access Control Model for Data Analytics for Securing Data in Cloud Computing Environment.
- CNN Used for Image Classification to Diagnose Patients with Gastrointestinal Bleeding Using Deep Learning.
- An Algorithm to Train ANN for Security Breaches in Blockchain.
- Privacy preserved data sharing using blockchain and support vector machine for industrial IOT applications.
- Dynamic Disaster Management with Real-Time IoT Data Analysis and Response.
- Brain Tumor Segmentation and Detection using EfficientNetB3 Model for MRI Medical Images.
- Enhancing result using feature engineering to reduce risk of Diabetic using Machine Learning.

## Dr. Rubaljeet Kaur

*Associate Professor*

- Brain tumor segmentation using neuro-technology enabled intelligence-cascaded U-Net model

## Dr. Ravneet Kaur

*Associate Professor*

- The Role of HR Analytics in Strategic Decision Making: Leveraging Data for Talent Management.

## Dr. Puneet

*Associate Professor*

- Alzheimer's Disease Prediction using Machine Learning Model.
- Redefining Security: Unveiling the Vulnerabilities of Captcha Mechanisms Using Deep Learning.

## Dr. Kunal Gagneja

*Assistant Professor*

- Artificial Intelligence and Big Data Based Algorithm to Track Child Abduction and Child Trafficking Patterns Using Sensors

## Ms Deeksha Verma

*Assistant Professor*

- Access Control Model for data analytics for securing data in cloud computing environment.
- An algorithm to train ANN for security breaches in blockchain.
- A survey of big data problems and opportunities for large enterprises : Edge computing VS Cloud computing.
- Effective management for resource utilization in cloud environments.

## Ms. Kawalpreet

*Assistant Professor*

- Design an Implementation of Routing Algorithm Using PSO.
- Encoding Time Reduction Method For The Wavelet Based Fractal Image Compression.

## Ms. Amandeep Kaur

*Assistant Professor*

- Review of Cloud Computer Technologies: Trends, Challenges and Future Directions .
- A Survey of Big Data Problems and Opportunities for Large Enterprises: Edge Computing vs Cloud Computing .

## Ms. Sumanpreet Kaur

*Assistant Professor*

- A thorough analysis of search engine optimization methods.
- Pragmatic applications of digital image processing in real-time.
- A Unique Perspective on the applications of mathematics in medicine.

## Ms. Neha Dhiman

*Assistant Professor*

- Comparative Analysis of Machine Learning Models for Prediction of Heart Attacks

## Ms. Jaspreet Kaur

*Assistant Professor*

- Unlocking human potential : the role of Development artificial intelligence (DevAI) in Personalized Learning and Skill Acquisition.
- Optimization analysis of recycle and reuse of waste materials using machine learning.
- Analysis of different regression techniques for crop yield prediction.
- Machine Learning crop yield prediction in Indian agriculture

## Ms. Kiran Bala

*Assistant Professor*

- CNN Used for Image Classification to Diagnose Patients with Gastrointestinal Bleeding Using Deep Learning

# CSE's Professional Societies/Chapters


Association for Computing Machinery

The Association for Computing Machinery (ACM) is a global professional organization dedicated to promoting computing as both a science and a profession. Founded in 1947, ACM is the world's largest educational and scientific computing society. It serves over a million computing professionals and students worldwide. ACM fosters an environment that encourages knowledge exchange, collaboration, and professional growth through its conferences, publications, and special interest groups. It promotes innovation by hosting coding contests, hackathons, and workshops to enhance members' skills and create networking opportunities. Additionally, ACM publishes leading research journals and technical magazines, significantly contributing to the advancement of computer science and engineering.

# Geeks for Geeks

Geeks for Geeks is a comprehensive platform dedicated to empowering users in the fields of computer science and programming. The site offers a vast collection of educational resources, including tutorials, coding challenges, and interview preparation materials. Geeks for Geeks aims to build a robust knowledge base for students and professionals, enabling self-learners to acquire technical expertise through a structured and accessible approach. It focuses on developing problem-solving skills and a deeper understanding of core computer science concepts through interactive courses, articles, and community-driven content. Furthermore, the platform promotes hands-on learning by providing a wide variety of coding problems and opportunities for competitive programming, helping users sharpen their technical acumen and practical skills.

# CSE's Student clubs

# itechnocrat Club

The itechnocrat Club is a dynamic community that nurtures technological talent and fosters innovation among its members. Its primary objectives are to equip students and tech enthusiasts with the skills, knowledge, and experiences needed to succeed in the ever-evolving world of technology. The club aims to bridge the gap between theoretical education and practical application through workshops, hackathons, seminars, and collaborative projects. itechnocrat Club strives to inspire creativity among its members while promoting problem-solving and leadership skills development through hands-on learning and experimentation. Additionally, the club actively promotes interdisciplinary collaborations to address global challenges with innovative solutions.

## List of Activities Under Itechnocart Club In 2023-24

| Sr. No. | Name of the Activity | Date of Activity | No. of Participants |
|---|---|---|---|
| 1 | Agile project management | Oct 3, 2023 | 131 |
| 2 | Edge AI emerging | Aug 23, 2023 | 150 |
| 3 | Flutter mastery Workshop for industry, Crafting seamless UIs, Navigation, API Integrated and real data structures | Feb 6, 2024 | 36 |
| 4 | Revolutionizing Industries: The Imperative of automation in todays business landscape. | Feb 8, 2024 | 100 |

# itechnocrat Club

## List of Activities Under Itechnocart Club In 2023-24

| Sr. No. | Name of the Activity | Date of Activity | No. of Participants |
|---|---|---|---|
| 5 | Internship drive with my Virtual Teams Pvt. Ltd | Feb 27, 2024 | 58 |
| 6 | Virtual Session on Infosys Springboard Roadshow | Aug 24, 2023 | 60 |
| 7 | Workshop on RHA : AD141 Programming in Python Course 9.0 by Mr.Tausif Shaikh | Oct 10, 2023 | 96 |
| 8 | Workshop on Web 3.0 by Mr. Vikash Kumar | Oct 17, 2023 | 84 |
| 9 | Expert Talk On Campus Connect in Collaboration with Infosys Springboard | Oct 27, 2023 | 65 |
| 10 | Web Dev Summit 2023 | Nov 3, 2023 | 117 |
| 11 | Expert Talk on Revolutionizing Real-Time Challenges: The Power of Innovation in Digital Transformation by Mr.Raman Taneja: Start up Manager Infosys | Dec 19, 2023 | 85 |

# D4 Community

D4 Communities is a collaborative platform dedicated to fostering growth, learning, and innovation among its members, with a primary focus on design, development, data, and digital transformation. The community's objectives revolve around empowering individuals to excel in these areas by providing resources, mentorship, and opportunities for hands-on practice. D4 Communities creates an environment where members can acquire technical skills, enhance their creativity, and solve real-world problems through workshops, webinars, collaborative projects, and hackathons. By promoting interdisciplinary collaboration, the community bridges the gap between technical expertise and creative thinking, fostering holistic development for all members.

## List of Activities Under D4 Community In 2023-24

| Sr. No. | Name of the Activity | Date of Activity | Speaker | No. of Participants |
|---|---|---|---|---|
| 1 | Hack n Win Hackathon | 2-3 March 2024 | - | 441 |
| 2 | Web Dev summit 2023 | Nov 3, 2023 | Ms. Pooja Kumar Mr. Palvinder Singh | 386 |
| 3 | Gripper bot and line follower | Sep 25, 2023 | Mr. Shubham gupta | 130 |
| 4 | Web 3.0 | Oct 17, 2023 | Mr. Vikash Kumar | 42 |
| 5 | 1 Code Katana | 1-12 March 2024 | - | 180 |

# Events

# Three90
# Innovative Coding Marathon



## GEEKS FOR GEEKS "THREE90 INNOVATIVE CODING MARATHON FOR MAKING STUDENTS INDUSTRY READY"

Department of Computer Science & Engineering organised a Three90 Innovative Coding Marathon for Making Students industry-ready on 30-01-2024 in association with GeeksforGeeks Student Chapter, CEC Jhanjeri. Students of CEC-J participated in taking an oath to do 90 days of continuous coding. Under this event, various activities like Quiz Contest, Technical Rapid Fire were organised. Goodies and gifts were distributed to the winners.

# Outcomes of the event

- To enhance knowledge of coding.
- Consistency in coding.
- Think out of Box.
- Nourishing brain using Quiz and Technical Rapid Fire.
- Networking with eminent coders through GFG networking.
- Taking Geeks For Geeks oath to code for 90 days continuously.

# Web-Dev Summit


## Web-Dev Summit 2023

Web-Dev Summit 2023 aimed to foster creativity and innovation in the field of web development. The event served as an excellent platform for participants to showcase their web development skills, exchange ideas, and collaborate on innovative projects.

The summit began with a brief opening ceremony, where the organizers from the Department of Computer Science and Engineering (CSE) warmly welcomed all participants. During this session, an overview of the competition rules, event timelines, and objectives was provided to ensure everyone was aligned and ready to engage.

Teams were allocated a specific amount of time to complete each challenge and had to present their solutions to a panel of expert judges. The challenges encompassed a wide range of web development topics, including responsive design, user experience optimization, database integration, and more. Participants were tasked with developing web applications, websites, and interactive features, all with a strong focus on user-centric design and robust functionality.

The competition was highly intense, with each team demonstrating their unique approaches to problem-solving and their ability to adapt quickly to evolving requirements. The judges, composed of industry experts and seasoned developers, evaluated the submissions based on criteria such as functionality, user experience, design quality, and innovation.


Code Katana 2.0 – A Battle of Logic & Precision!

# Outcomes of the summit

- Participants had the opportunity to develop unique and creative web solutions, enhancing their problem-solving skills and innovative thinking.
- The event helped participants improve their technical expertise in areas such as responsive design, database integration, and user experience optimization.
- Teams experienced the pressures and challenges of real-world web development, including adapting to changing requirements and meeting strict deadlines.
- The competition fostered teamwork and allowed participants to interact with industry experts, judges, and fellow developers, expanding their professional connections.
- Outstanding teams were acknowledged for their efforts, boosting their confidence and encouraging them to further pursue excellence in web development.

# Faculty Development Program

**One Week Faculty Development Program On AI/ML & Data Science for Industry 4.0:**


The Department of Computer Science and Engineering, along with IIC CEC Jhanjeri, organizedae week

FDP in association with NITTTR Chandigarh. Faculty Development Program was held virtually on “AI/ML & Data Science for Industry 4.0” by different eminent personality from 29-01-2024 to 02-02-2024 for all faculty. Resource person explored lot many ideas of Data Science and its real time applications that is important to the today’s world. FDP was informative so faculty enjoyed the practical session.

## Outcomes of the program

- Essentials of Statistics for AI/ML and Data Science
- Data Science in Scaling Business and Industry 4.0
- Natural Language Processing (NLP) for Industrial Text
- Data Real-Time AI Case Study for Industry 4.0

# Workshop on Revolutionizing Industries


**Revolutionizing Industries: The Imperative of Automation in Today's Business Landscape**

The Department of Computer Science and Engineering, in collaboration with IIC CEC Jhanjeri, organized a workshop titled **"Revolutionizing Industries: The Imperative of Automation in Today's Business Landscape"** on February 8, 2024.

This workshop emphasized that automation technologies are not just tools but strategic enablers that drive businesses forward, helping them attain new levels of efficiency, productivity, and competitiveness in the modern era. The session covered various aspects of automation's role in transforming industries and highlighted how integrating automation solutions can lead to sustainable growth and innovation.

From streamlining processes to enhancing productivity, this workshop will explore the myriad ways automation is revolutionizing traditional industries, fostering innovation, and future-proofing organizations.

Designed to equip participants with essential knowledge and practical tools, the session aims to help navigate the ever-changing business environment effectively. Whether you are a business leader, entrepreneur, or technology enthusiast, this workshop promises valuable insights into leveraging automation for gaining a strategic advantage in today's competitive landscape.

# Outcomes of the workshop

- Gained a clear understanding of what automation is and its significance across various industries.
- Explored real-world examples of automation, highlighting its impact on efficiency, productivity, and innovation.
- Participated in hands-on projects to apply automation concepts and develop practical skills.
- Engaged in group activities and collaborative exercises to strengthen teamwork and communication skills.

# Ideathon


## Ideathon

The Department of Computer Science and Engineering, CEC Jhanjeri, in collaboration with the **i-Technocrats Club** and the **D4 Community**, organized an **Ideathon** exclusively for CSE students.

The primary goal of this event was to motivate students and provide them with a platform to showcase their innovative ideas based on emerging technologies such as Artificial Intelligence, Machine Learning, and more. The Ideathon encouraged creative thinking and problem-solving among participants.

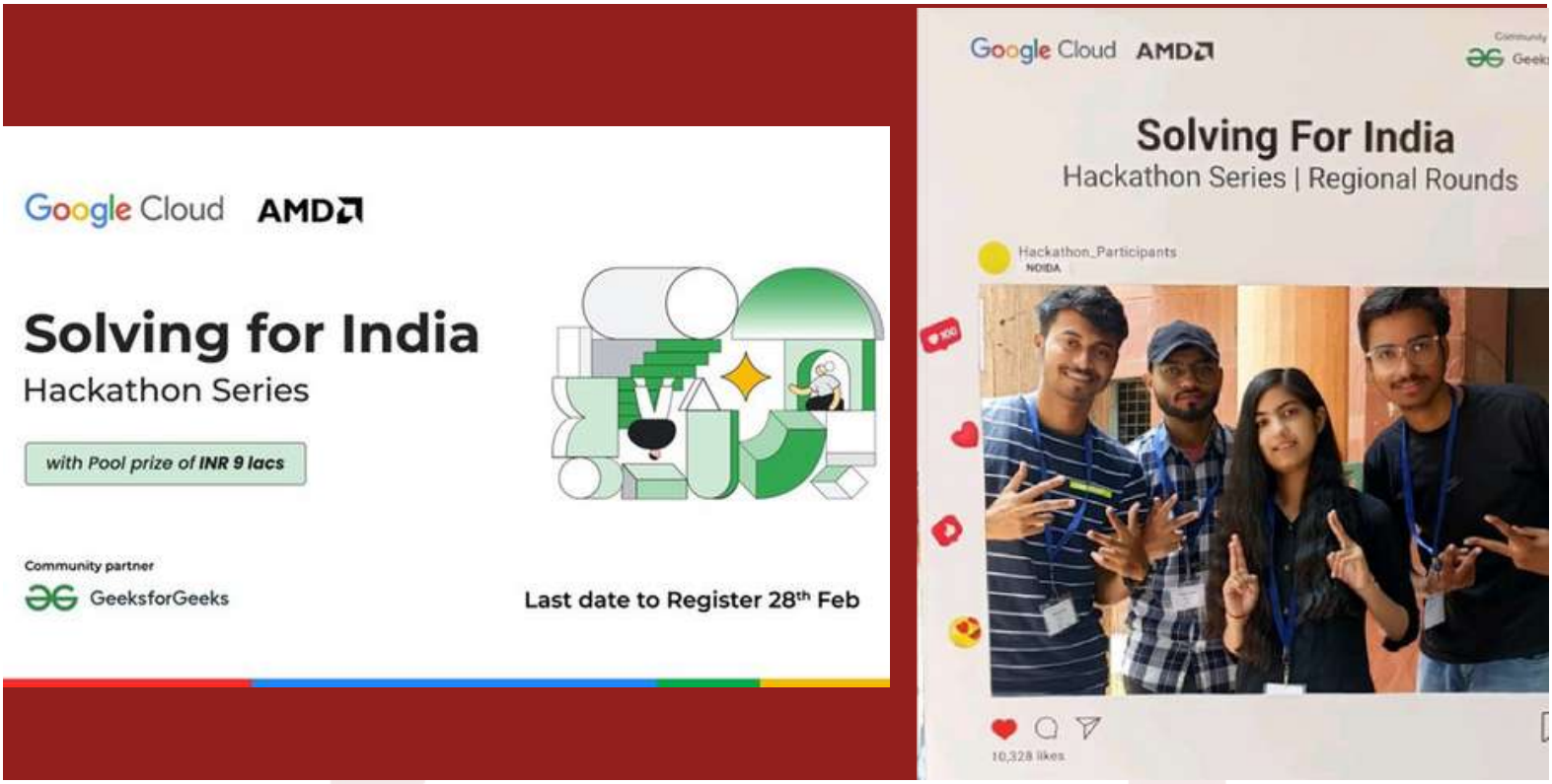
# Outcomes of the event

- The event inspired students to explore and present creative ideas based on emerging technologies like AI and machine learning.

- Participants gained valuable experience in articulating their ideas effectively, improving both their technical knowledge and communication abilities.

- The event fostered an environment of collaborative learning and teamwork, enabling students to exchange insights, refine their concepts, and receive constructive feedback from peers and experts.

# Solving for India




## Solving for India

The Department of Computer Science and Engineering at Chandigarh Engineering College actively participated in the Solving for India Hackathon, organized by GeeksforGeeks in collaboration with AMD and Google Cloud. This institute-level hackathon, conducted on an online cloud platform, provided students with an opportunity to work on real-world challenges presented by Google Cloud.

Spanning approximately one and a half months, the event allowed participants to:

- Enhance their problem-solving skills.
- Gain hands-on experience with cloud technologies.
- Engage with industry-driven problem statements, fostering innovation and technical expertise.

# Outcomes of the event

- Participants gained practical knowledge by working on real-world problems using Google Cloud, enhancing their cloud computing skills.

- Students tackled problem statements provided by Google Cloud, giving them insights into solving complex industry-related challenges.

- The extended duration of the hackathon (1.5 months) allowed students to deeply explore concepts, refine their solutions, and improve their technical expertise.

- Participation in an event organized by GeeksforGeeks, AMD, and Google Cloud provided students with visibility, networking opportunities, and potential career advancements

# Expert talk on Data Science Unveiled


**Data science unveiled -An introduction and Industrial Project Case study:**

The Department of Computer Science and Engineering, in association with IIC CEC Jhanjeri, conducted an expert talk titled “Data Science Unveiled – An Introduction and Industrial Project Case Study” on February 2, 2024.

# Key Highlights:

- The session provided an insightful introduction to data science, a multidisciplinary field that leverages scientific methods, processes, algorithms, and systems to extract meaningful insights from structured and unstructured data.

- The expert speaker discussed real-world industrial case studies, demonstrating practical applications of data science in solving complex business challenges.

- Participants gained a deeper understanding of data science methodologies, enhancing their knowledge of industry trends and best practices.

- The event fostered engagement and learning, equipping students with valuable insights into the evolving landscape of data-driven technologies.

# Outcomes

Understanding Data Science: Participants gained insights into the fundamentals of data science, its role in decision-making, and its applications across various industries.

Data Exploration & Preprocessing: Students learned techniques for handling missing values, outliers, and data cleaning to ensure data quality.

Statistical Analysis: The session covered basic statistical concepts, enabling participants to analyze data distributions, correlations, and patterns effectively.

Real-World Case Studies: Attendees worked on practical scenarios, applying data science concepts to industry-driven problems.

# Workshop on Flutter Mastery for Industry


## Flutter Mastery Workshop for Industry: Crafting Seamless UIs, Navigation, API Integration, and Real Data Structures:

The Department of Computer Science and Engineering, in association with IIC CEC Jhanjeri, conducted the Flutter Mastery Workshop for Industry: Crafting Seamless UIs, Navigation, API Integration, and Real Data Structures on February 6, 2024. The workshop provided students with an opportunity to gain hands-on experience in Flutter development, equipping them with industry-relevant skills. Participants explored key concepts such as UI design, navigation, API integration, and handling real data structures, enabling them to build responsive and visually appealing cross-platform applications.

# Objectives of the Workshop:

- Provide participants with hands-on experience in building mobile applications using Flutter.
- Enable attendees to create responsive and visually appealing cross-platform apps.
- Cover essential concepts such as UI design, navigation, API integration, and handling real data structures.
- Equip students with industry-relevant skills to develop scalable and efficient mobile applications.

# Outcomes of the Workshop

Fundamental Understanding of Flutter: Students gained insights into what Flutter is and how it differs from other frameworks.

Setup & Installation: Participants learned how to install and configure Flutter development environments on different platforms (Windows, macOS, Linux).

Proficiency in Dart: Attendees developed basic proficiency in Dart, the programming language used for Flutter development.

Hands-on UI Development: Students gained practical experience in designing and building user interfaces using Flutter widgets and layouts.

# Scope in Emerging Areas Artificial Intelligence (AI), Machine Learning (ML) & Data Science

## 1. Artificial Intelligence (AI)

AI involves creating systems capable of performing tasks that typically require human intelligence, such as problem-solving, decision-making, and language understanding. The scope of AI is vast, with applications in:

- Healthcare: AI is revolutionising diagnostics, personalised treatment plans, and predictive analytics.
- Finance: Enhancing fraud detection, risk management, and automated trading.
- Retail: Improving customer experiences through personalized recommendations and efficient inventory management.

# 2. Machine Learning (ML)

ML, a subset of AI, focuses on developing algorithms that allow computers to learn from and make predictions based on data. The scope of ML includes:

- **Automation:** Streamlining repetitive tasks and improving efficiency in manufacturing and logistics.
- **Data Analysis:** Extracting valuable insights from large datasets to inform business decisions.
- **Innovation:** Driving advancements in autonomous vehicles, natural language processing, and more.

## 3. Data Science (DS)

Data Science combines statistical methods, data analysis, and machine learning to understand and interpret complex data. The scope of Data Science spans:

- **Big Data Management:** Handling and analyzing vast amounts of data generated daily.
- **Business Intelligence:** Providing actionable insights to drive strategic decisions.
- **Research and Development:** Advancing scientific research through data-driven discoveries.

# Career Opportunities

Computer Science Engineering (CSE) offers a vast and dynamic array of career opportunities that span multiple industries and cutting-edge technologies. Graduates in this field are in high demand across sectors such as software development, data science, cybersecurity, cloud computing, artificial intelligence (AI), and more. The rapid advancement of technology and digital transformation initiatives worldwide have created a thriving job market for roles including Software Engineer, Data Scientist, AI Engineer, Cybersecurity Analyst, DevOps Engineer, and Cloud Architect, among others.

These roles not only provide competitive salaries but also offer significant opportunities for creativity and innovation. For example, software developers design and build applications that impact daily life, while data scientists analyze vast datasets to extract valuable business insights. AI engineers work on developing intelligent systems that automate complex tasks, and cybersecurity analysts protect sensitive information from evolving cyber threats. The emergence of specialized domains like machine learning, natural language processing, and blockchain further broadens the scope of career options.

To succeed and excel in this ever-evolving field, continuous learning and practical experience are essential. Keeping pace with the latest programming languages, tools, and frameworks, along with participating in internships, projects, and industry collaborations, can significantly enhance employability. Additionally, certifications and advanced studies in niche areas can boost career growth.

# Student Achievements

# Achievements inside the state

**Karanjot Singh Malhotra**

InnoSprint D4 Hackathon
CEC Jhanjeri
**1st Position**

**Lakshya Tyagi**

InnoSprint D4 Hackathon
CEC Jhanjeri
**2nd Position**

**Neeraj Sharma**

InnoSprint D4 Hackathon
CEC Jhanjeri
**3rd Position**

## Prateek

Coding Crushers 2023
CEC Jhanjeri
**1st Position**

## Soumya

Coding Crushers 2023
CEC Jhanjeri
**2nd Position**

## Rishikesh Raj

Coding Crushers 2023
CEC Jhanjeri
**3rd Position**

## Rajat

Web Dev Summit 2023
CEC Jhanjeri
1st Position

## Prince

Web Dev Summit 2023
CEC Jhanjeri
2nd Position

## Kapil

Web Dev Summit 2023
CEC Jhanjeri
3rd Position

# Achievements outside the state

**Divya**

Decode Apocalypse
Manav Rachna University
1st Position

**Priya**

Decode Apocalypse
Manav Rachna University
2nd Position

**A S Rajan Spolia**

Hackathon AP 2024
VIT AP University
1st Position

**Alok**

Hackathon AP 2024
VIT AP University
2nd Position

**Aman Jadon**

Hackathon AP 2024
VIT AP University
3rd Position

**Anikesh Singh**

Hackathon AP 2024
VIT AP University
4th Position

**Paojangam Kipgen**

Xplorica 2.0
ITM RAIPUR
1st Position

**Peace Daniel Jele Ozi**

Xplorica 2.0
ITM RAIPUR
2nd Position

**Rajan Kumar**

Xplorica 2.0
ITM RAIPUR
3rd Position

# Student's Technical Corner

Pragyanshu Rathore (2027214)
Nitesh Kumar Gupta(2027212)
Vaibhav Verma(2027235)

**PROJECT TITLE:- AGE AND GENDER DETECTION**

When a person is uniquely identified then it is because of the face, which is the crucial part. With the help of a face, different people are classified, and also, a large number of applications can be implemented, like for security purposes at banks, for this project, an age and gender detection method from face images using a Deep-convolution neural network(CNN). In this study, face images of persons are trained using a CNN. Training of deep models shows exceptional performance with large datasets, but they are not suitable for learning from a few samples. The input faces are compared with the images in the dataset and will be recognized.

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Sehbir Singh (2027219)
Shadab Murtza (2027020)
Sumit Singh Rawat (2027026)

**PROJECT TITLE:-CHATTING APPLICATION**

This project aims to revolutionize digital communication by developing a cutting-edge chatting application that prioritizes user experience, security, and versatility. Our app combines intuitive design with advanced features to create a seamless. and an enjoyable chatting experience for users across the globe. Key features include real-time messaging, multimedia sharing, and customizable chat settings.

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Akwinder Kaur(2026022)
Anchal Saini (2026925)

**PROJECT TITLE:-CAR WEBSITE**

This project aims to revolutionize the automotive service landscape by developing an innovative online platform that places a premium on user experience, transparency, and comprehensive service offer

By our website seamlessly integrates intuitive design with advanced functionalities to create a user-centric experience, redefining how vehicle owners engage with and manage their automotive maintenance needs.Our car service website boasts a suite of innovative features designed to elevate user experience and prioritize security. Users can seamlessly receive real-time updates on their vehicle services, engaging in live chat support for quick assistance and one-on-one consultations with automotive experts. The platform supports multimedia sharing, allowing users to convey issues through images and videos.

# Student's Technical Corner

Kushal Phoughat (2027206)

## PROJECT TITLE:- MUSIC PLAYER

The "Music Player" project is a feature-rich Android application designed to offer users a seamless and enjoyable music listening experience. In a digital era where music is a ubiquitous form Of entertainment this project addresses the need for a user-friendly, customizable, and technologically advanced music player. Developed using XML for the front-end and Java for the back-end, the app boasts an intuitive and visually appealing UI. The user-centric design enhances the overall navigation and interaction experience.

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Vicky Gupta (2027031)
Vaibhav Seth (2027030)
Vishnu Nath (2027034)

## PROJECT TITLE:-MOVIE RECOMMENDATION SYSTEM

This abstract presents a comprehensive overview of developing a Movie recommendation application. The key steps involved in developing This fusion aims to an Movie recommendation application include defining the project scope, The MRS employs a hybrid recommendation approach, integrating collaborative filtering and content-based filtering models.

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Mukul Sharma (2026990)
Mukul Thakur (2026991)
Navanjot Singh (2026992)

## PROJECT TITLE:-DROWSINESS DETECTION SYSTEM

Many of the accidents occur due to drowsiness of drivers. It is one of the critical causes of roadways accidents now-a-days. Latest statistics say that many of the accidents were caused by of drowsiness of drivers Vehicle accidents due to drowsiness in drivers are causing deaths to thousands of lives. More than 30% accidents occur due to drowsiness. For the prevention of this, a system is required which detects the drowsiness and alerts the driver, which saves lives In this project, we present a scheme for driver drowsiness detection. In this, the driver is continuously monitored through a webcam. This model uses image processing techniques which mainly focuses.

# Student's Technical Corner

Inderjeet Verma (2026969)
Sagar Rawat (2027016)
Saransh Taneja (2027018)

## PROJECT TITLE:- FAKE NEWS DETECTION

We consume news through several media throughout the day in our daily routine, but sometimes it becomes difficult to decide which one is fake and which one is authentic. DO you trust all the news you consume from online media?

Every news is not real, right? How will you detect fake news? The answer is python. By practicing this advanced python project of detecting fake news, you will easily make a difference between real and fake news. The idea of fake news is not a novel concept.

Karan Kumar Chandel (2027205)

## PROJECT TITLE:-STUDENT INFORMATION CHATBOT

The student information chatbot will be designed to answer frequently asked questions related to academic programs, admissions, financial aid, campus life, and student services.

The chatbot will use machine learning algorithms to learn from student interactions and improve its responses over time. The results of this project will provide valuable insights into the design and implementation of student information chatbots.

Akash Singh (2027183)
Shubham Bhowmik (2129918)
Danish Kangwal (2027199)

## PROJECT TITLE:-WEB VULNERABILITY SCANNER

In today's digitally driven world, where websites and web applications play a pivotal role in our daily lives, the security of these online assets is of paramount importance.

can have severe consequences, ranging from data breaches and financial losses to damage to an organization's reputation. To combat this ever-growing threat landscape, there is a pressing need for efficient and reliable tools that can identify and mitigate web vulnerabilities effectively. This project report introduces "Syfa Scan," a powerful web vulnerability scanner designed to address this crucial cybersecurity challenge. Syfa Scan is an innovative and robust

**AI-Powered Education**

The Future Is Here Artificial Intelligence (AI) is no longer science fiction—it's now sitting beside us in classrooms and study halls. From chatbots like Chat GPT to virtual tutors, AI is transforming the way students learn by offering personalized, round-the-clock support.

Gone are the days of one-size-fits-all education. With adaptive learning platforms like Khan Academy and Duolingo, lessons now adjust in real time based on how each student learns. These systems track performance and offer custom content, making learning more effective and engaging.

AI also plays a major role in automated grading and instant feedback. Tools like Grade Scope and Grammarly help both students and teachers by saving time, providing accurate corrections, and pinpointing areas for improvement.

However, it's important to use AI responsibly. While it's a powerful tool, it should support learning, not replace human thinking or the role of teachers.

As we move forward, AI will continue to play a bigger role in education. It's not just changing how we learn, but also who has access to learning. With AI, quality education can become more inclusive, accessible, and personal.

The future of education is smart, adaptive, and AI-powered—and we, the students, are at the center of it

Nishta (2230818)-CSE

**Blockchain Beyond Bitcoin: Smarter Records, Safer Futures**

When we hear "blockchain," we usually think of Bitcoin or cryptocurrency. But there's much more to it—especially in healthcare and education.

At its core, blockchain is a secure, decentralized digital ledger. That means no one person or company controls the data. Instead, it's shared across a network, making it nearly impossible to tamper with.

In education, blockchain can store academic credentials like degrees and transcripts. No more fake certificates or lost marksheets! Students can share verified records through NFT-based certificates, which are unique and secure. Employers can check qualifications instantly without contacting universities.

In healthcare, patient records stored on a blockchain are both secure and accessible. Doctors can access your medical history in seconds—especially useful in emergencies—while keeping your private data safe from leaks or hacks.

And then there are smart contracts: self-executing programs stored on the blockchain. They can automate tasks like releasing scholarships only when a student meets certain grades, or updating records without paperwork.

Blockchain is no longer just a buzzword. It's quietly powering a future where data is safer, faster, and fairer for students, patients, and professionals alike.

BY Amit Badoni(2330063) -CSE

# Student's Articles

**Cybersecurity in the Age of AI: Smarter Threats, Smarter Defenses**

As Artificial Intelligence (AI) continues to evolve, it's not just transforming how we live and learn — it's also reshaping the world of cybersecurity. Today, AI is being used on both sides of the battle: by hackers to create smarter attacks, and by defenders to build stronger protections.

Cybercriminals now use AI to launch phishing attacks that look incredibly real, even generating fake emails and websites that mimic legitimate ones. Some malware programs even learn from user behavior, making them harder to detect.

But the good news? AI is also our strongest shield.

Modern cybersecurity systems use AI-driven phishing detection to scan emails for suspicious patterns. Tools based on anomaly detection can monitor systems and flag unusual activity in real time, spotting threats before they cause damage.

One of the biggest advancements is the Zero-Trust Architecture. This approach assumes no user or device can be trusted by default, even inside the network. AI constantly verifies identity and behavior to ensure secure access.

As we move deeper into the digital age, staying ahead in cybersecurity means understanding AI's role, both as a threat and as our greatest defense.

Written by Nikhil (2230814)-CSE

**Brain-Computer Interfaces: Typing with Thoughts**

Imagine typing an essay, controlling a game, or moving a robotic arm — just by thinking. Sounds like science fiction? Not anymore. Welcome to the world of Brain-Computer Interfaces (BCIs), where your brain connects directly with machines.

Companies like Neuralink, led by Elon Musk, are developing ultra-thin brain implants that could help people with paralysis communicate, move, and live more independently. Meanwhile, Open BCI is creating open-source headsets that let developers experiment with brainwave control, from gaming to wellness apps.

BCIs are already transforming lives. Prosthetic limbs can now respond to brain signals, giving people control over movement they once lost. Gamers can play using just their focus, and students with disabilities can write, draw, or code — without touching a keyboard.

But with great power comes serious questions. Who owns your brain data? What if your thoughts could be hacked? The ethics of mind-controlled tech are complex — and essential to consider as we move forward.

BCIs are not just about machines. They're about unlocking human potential, especially for those the world often overlooks.

The future isn't just hands-free — it's mind-first. And that future might be closer than you think.

By Vartika Singh(2330223)-CSE

# Alumnus Talk

## Kritika

ZS Associates Private Limited

When I first started at CEC, I was concerned about my future. However, over the course of four years, we had numerous opportunities for personal and academic growth, which helped me gain confidence. The institution played a crucial role in enhancing our knowledge, talents, and abilities. Thanks to my faculty members, these years at CEC have been the best in terms of learning, experience, and exposure to career-related subjects.

Finally, I would like to express my gratitude to the college's Training & Placement Department for their continuous efforts in securing placements with reputable IT companies. Our collective endeavors will undoubtedly propel our college to unprecedented heights.

## Ankur Dhawan

*MakeMyTrip.com*

*"CEC is much more than just an 'Institution'—it represents a 'Culture' of excellence, empowerment, and enrichment. I feel fortunate to have been a part of CEC, as it has significantly shaped my personality and clarified my future goals.

I am deeply appreciative of the Institute for providing me with direction and inspiration, helping me reach my objectives and preparing me for the challenges ahead.

# Success Summits

**OM KUMAR**

B. Tech CSE
Placed at Service Now

**44 LPA**

**ADITYA JAISWAL**

B. Tech CSE
Placed at Autodesk

**40 LPA**

**SIMAR**

B. Tech CSE
Placed at Autodesk

**40 LPA**

**SANSKRITI VERMA**

B. Tech CSE
Placed at Autodesk

**32 LPA**

**RAHUL KURMI**

B. Tech CSE
Placed at Mu Sigma

**30 LPA**

**SUMANT RANJAN**

B. Tech ECE
Placed at Mu Sigma

**30 LPA**

**SHREYA RAJ**

B. Tech CSE (AIML)
Placed at Mu Sigma

**30 LPA**

**DHEERAJ SAINI**

B. Tech CSE
Placed at Mu Sigma

**30 LPA**

**SUNPREET KAUR**

B. Tech CSE
Placed at Xperi

**28 LPA**

**GAURAV KUMAR**

B. Tech CSE
Placed at SAP LABS

**8 LPA**

# Our Top Recruiters

# Creative Desk

## Faculty Advisor

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*Assistant Professor CSE*

**Ms. Amrita Singh**
*Assistant Professor CSE*

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