CHANDIGARH ENGINEERING COLLEGE
CGC, LANDRAN, MOHALI
Building Careers. Transforming Lives.

25 YEARS of TRUST AND ACADEMIC EXCELLENCE

AICTE-IDEA LAB

(Idea Development, Evaluation & Application Lab)

presents

SRIJAN

(Bi-Monthly Bulletin)

NEWSLETTER

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THE MINDS BEHIND AICTE - IDEA LAB

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Campus Director
CGC, Landran, Mohali
Chief Mentor, AICTE-IDEA Lab

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Director-Principal
CEC-CGC , Landran, Mohali

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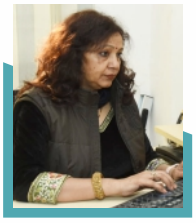

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Words of Wisdom

Dr. Rajdeep Singh
Campus Director
CGC, Landran, Mohali
Chief Mentor, AICTE-IDEA Lab

Message by Campus Director

It is my immense pleasure to extend my warm congratulations to the AICTE-IDEA Lab team and Chandigarh Engineering College – CGC, Landran, Mohali on the publication of this edition of the AICTE-IDEA Lab Newsletter. This newsletter beautifully reflects the culture of innovation, creativity, and problem-solving that continues to shape the academic environment at CGC, Landran, Mohali. Chandigarh Engineering College-CGC, Landran, Mohali has consistently emerged as a centre of academic excellence, nurturing skilled engineers, innovators, and future leaders who make meaningful contributions across diverse industries. Through its industry-focused learning environment, the institution empowers students with sound technical knowledge, critical thinking, practical skills, and professional competencies essential for success in today's rapidly changing world.

Innovation is the driving force behind progress, and the AICTE-IDEA Lab serves as an important platform for nurturing creativity, collaboration, and an entrepreneurial spirit. Through ideation sessions, research initiatives, prototype development, hackathons, innovation challenges, and industry engagement, students are encouraged to transform their ideas into practical solutions for real-world challenges.

As we move ahead, our commitment remains focused on promoting innovation, strengthening research, fostering entrepreneurship, and preparing students to become future-ready professionals and responsible leaders. With a strong foundation of academic excellence, values, and experiential learning, we continue to create opportunities that inspire creativity, growth, and achievement. I encourage all students to embrace the values of integrity, perseverance, professionalism, and lifelong learning while pursuing their aspirations. Let us continue to work together with dedication and enthusiasm to achieve new milestones and accomplish greater success.

Wishing the AICTE-IDEA Lab team and all students continued success, innovation, and a bright future ahead.

With warm regards,

Prof. (Dr.) Rajdeep Singh
Campus Director
CGC, Landran, Mohali

Words of Wisdom

Dr. Sukhpreet Kaur
Director Principal
Chandigarh Engineering College-CGC,
Landran, Mohali

Message by Director-Principal

It is a great pleasure to present this edition of the AICTE-IDEA Lab Newsletter, which reflects the spirit of innovation, excellence, and lifelong learning that forms an integral part of our institution. This publication highlights the achievements, initiatives, and aspirations of our students, faculty, and staff, showcasing the vibrant academic and co-curricular environment at CEC-CGC, Landran, Mohali.

Our students continue to demonstrate excellence in academics, research, innovation, entrepreneurship, sports, and cultural activities. Their achievements at national and international platforms reflect their dedication, perseverance, creativity, and pursuit of excellence. In today's era of rapid technological advancement, nurturing innovation, adaptability, and lifelong learning has become increasingly important. We remain committed to promoting interdisciplinary learning, strengthening research and innovation, and providing an inclusive environment where every student is encouraged to explore their abilities and achieve their full potential.

I sincerely appreciate the valuable contributions of everyone involved in bringing this newsletter to fruition. Their dedicated efforts in documenting and presenting the milestones and achievements of our institution are truly commendable. My best wishes to all our students, faculty members, and stakeholders for continued growth, success, and a bright future.

With warm regards,

Dr. Sukhpreet Kaur
Director Principal
Chandigarh Engineering College -CGC,
Landran, Mohali

Voices of IDEA Lab

Dr. Rachin Goyal
HOD-Applied Sciences, CEC-CGC, Landran, Mohali
Coordinator, AICTE-IDEA Lab

The AICTE-IDEA Lab is more than a conventional laboratory—it is a vibrant platform where ideas evolve and innovation flourishes. By fostering creativity, collaboration, and experiential learning, we empower students to explore possibilities, strengthen practical skills, and transform their ideas into meaningful solutions that make a lasting impact.

Dr. Vinay Bhatia
HOD-ECE, CEC-CGC, Landran, Mohali
Co-Coordinator, AICTE-IDEA Lab

Every innovation begins with curiosity and evolves through creativity, exploration, and experimentation. The AICTE-IDEA Lab encourages students to transform innovative ideas into practical, real-world solutions through hands-on learning, collaboration, and experiential learning. We motivate every learner to develop an innovative mind set, enhance their skills, strive for excellence, and make meaningful contributions towards a future driven by technology.

Closing Message

"Together, with curiosity and collaboration, we can create innovations that shape a brighter future. The AICTE-IDEA Lab is our shared platform to imagine, experiment, innovate, and achieve."

Editorial Note

Innovation thrives through creativity, commitment, and accomplishment, and this edition captures the remarkable achievements of the AICTE-IDEA Lab community. It celebrates the combined efforts of enthusiastic innovators and demonstrates how collaboration, curiosity, and visionary ideas are contributing towards a brighter, more progressive, and promising future.

Ms. Namita Sharma
(Editor)

This edition highlights ideas that inspire, innovations that create meaningful change, and achievements that make a lasting difference. It showcases the passion, vision, and collaborative spirit of the AICTE-IDEA Lab community. Through impactful initiatives and inspiring success stories, we strengthen our commitment to nurturing creativity, promoting innovation, and developing solutions that contribute positively to society.

Ms. Nitika Bansal
(Editor)

Closing Message

Together, through innovation, perseverance, and shared knowledge, we can transform ideas into meaningful solutions that create a lasting impact. The AICTE-IDEA Lab continues to be a space where creativity is encouraged, opportunities are explored, and future innovators are inspired to think boldly, experiment confidently, and pursue excellence.

VISION

The AICTE-IDEA Lab strives to be a transformative space where creativity thrives, and culture of innovation and collaboration develops and inspire as well as empower individuals to ideate, prototype as well as implement solutions to pressing global challenges.

MISSION

The mission of the AICTE-IDEA (Idea Development, Evaluation and Application) Lab is to foster innovation, creativity, and entrepreneurial thinking among students, faculty, and stakeholders. The lab aims to provide state-of-the-art facilities, mentorship, and hands-on learning opportunities that encourage critical thinking, problem-solving, design, prototyping, and product development.

WHERE IDEAS TURN INTO REALITY: AICTE-IDEA LAB

Chandigarh Engineering College – CGC, Landran, Mohali, proudly announces the establishment of the AICTE–IDEA Lab, reinforcing its continued commitment to innovation and skill-oriented technical education. The AICTE–IDEA Lab is an initiative of AICTE designed to foster innovation, creativity, and experiential learning in technical education.

The lab offers an open and collaborative environment where students can conceptualize, design, develop, and create innovative solutions. It promotes the practical application of Science, Technology, Engineering, and Mathematics (STEM) principles through hands-on activities and project-based learning.

The AICTE–IDEA Lab promotes the philosophy of "Learning by Doing" and emphasizes outcome-based education.

The lab aims to develop essential 21st-century skills, including critical thinking, problem-solving, design thinking, and teamwork, by engaging students in real-world engineering challenges through interdisciplinary projects. The facility facilitates innovation, research, product development, entrepreneurship, rapid prototyping, product visualization, and technology integration.

The institute also provides facilities such as:

- **ACIC Supported by NITI Aayog:** Supports innovative startup ideas and entrepreneurial ventures through its incubation centre.
- **Boudhik Sampada (IPR) Cell:** Assists faculty, staff, and students in protecting their intellectual property rights by providing appropriate guidance and facilitation services.

FACILITY USAGE GUIDE

Requisition forms for availing facilities available at the AICTE-IDEA Lab, Chandigarh Engineering College – CGC, Landran, Mohali can be obtained by writing to the Coordinator/In-charge, AICTE-IDEA Lab, or by visiting the official IDEA Lab webpage: https://www.cecmohali.org/aicte-idea-lab/

The AICTE-IDEA Lab shall remain accessible on a 24 × 7 basis to support innovation, research, prototyping, and project development.

AICTE-IDEA Lab has been established as an innovation platform and we are happy to extend its facilities to students, faculty members, alumni, nearby educational institutions, industries, startups and research organizations for academic, technical, research and innovation-driven activities.

Usage charges wherever applicable, will be levied to recover the cost of consumable and operational expenses.

Details regarding equipment usage, prototyping requirements, and experimental conditions should be clearly mentioned in the request form. The forms must be duly signed by the Head of Department/Institution/Industry with official seal.

The completed forms should be submitted in person at the AICTE-IDEA Lab office or mailed to the below-mentioned email IDs for further processing. In activities where the user's presence is required, prior appointment for experimentation, testing, or fabrication should be sought.

Contact Person

Mr. Satwinder Singh, Tech Guru AICTE-IDEA Lab

Email ID: idealab.ceclandran@cgc.edu.in, satwinder.rise@cgc.edu.in

Contact No.: 9814934815

MOU WITH NASSCOM

Strategic Partnership with Nasscom

The MoU between Nasscom and the AICTE - IDEA Lab marks a significant step toward fostering innovation, entrepreneurship, and technological excellence. Through this collaboration, students gain access to industry insights, expert mentorship, and opportunities that bridge the gap between classroom learning and real-world applications.

MoU Signed

with

NASSCOM

For AICTE - IDEA Lab

Faculty Bootcamp on Advanced Manufacturing, Electronics Design & Prototyping

AICTE-IDEA Lab, Chandigarh Engineering College-CGC, Landran, Mohali organized a Faculty Bootcamp on Advanced Manufacturing, Electronics Design & Prototyping from 14th to 25th September 2026 at the AICTE-IDEA Lab.

The primary objective of the bootcamp was to enhance the technical knowledge, practical skills, and hands-on capabilities of faculty members in emerging areas of advanced manufacturing, electronics design, fabrication, and rapid prototyping. The programme provided an opportunity for faculty participants to familiarize themselves with modern laboratory facilities and understand their applications in teaching, research, innovation, and student project development.

During the bootcamp, participants were exposed to hands-on fabrication and prototyping technologies, including digital manufacturing, electronics design, and additive/subtractive manufacturing processes. Practical demonstrations and laboratory-based activities helped participants understand the complete journey from idea generation and design to fabrication and prototype development.

Objectives of the Programme

The programme aimed to:

- Introduce participants to Additive Manufacturing and Digital Manufacturing technologies.
- Develop proficiency in 3D modelling.
- Train participants in slicing software and printer parameter optimization.
- Provide hands-on experience in operating FDM 3D printers.
- Promote innovation, rapid prototyping and product development.
- Encourage creativity and entrepreneurial thinking using digital fabrication technologies.
- Operation of Laser Cutting and Engraving, CNC Router machines

Hands-On Learning and Skill Enhancement During the Faculty Bootcamp.

Advancing Faculty Skills in Manufacturing, Electronics, and Prototype Development.

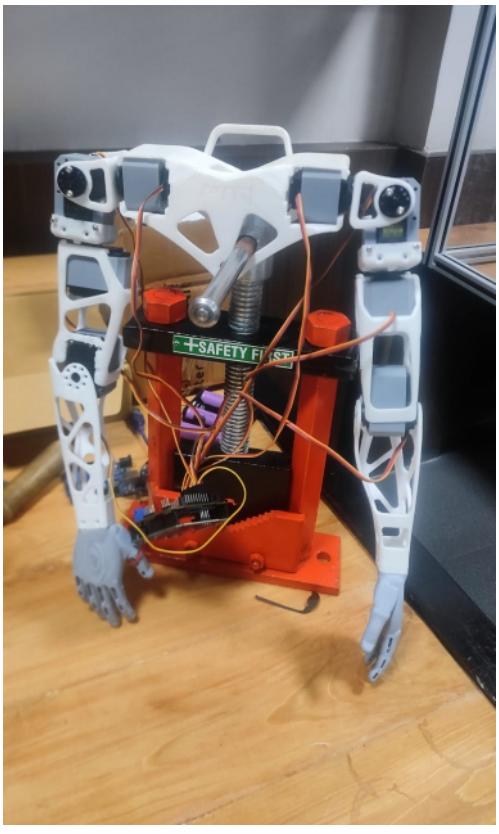
3D-Printed Humanoid Robot with Voice Command and Display System

Students are actively utilizing the AICTE-IDEA Lab, Chandigarh Engineering College-CGC, Landran, Mohali for the development and prototyping of their innovative project titled "3D-Printed Humanoid Robot with Voice Command and Display System."

The project focuses on designing and developing a 3D-printed humanoid robot integrated with voice-command functionality and a display system. Students are gaining valuable hands-on experience in 3D modelling, additive manufacturing, electronics integration, programming, assembly, and prototype testing.

During their work at the IDEA Lab, the students are involved in designing the robot components, 3D printing the required parts, assembling the mechanical structure, and integrating electronic and control systems.

3D Printed Parts



3D- Printed Humanoid Robot with Voice Command and Display System.

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BLOCKCHAIN TECHNOLOGY: REVOLUTIONIZING THE DIGITAL WORLD

INTRODUCTION

In the modern digital age, the need for secure, transparent, and efficient systems for storing and sharing information has increased significantly. Traditional centralized systems often face challenges such as data tampering, cyberattacks, fraud, and lack of transparency. To overcome these limitations, Blockchain Technology has emerged as one of the most innovative and transformative technologies of the 21st century. Blockchain is a decentralized digital ledger technology that records transactions securely across multiple computers. It ensures transparency, immutability, and trust without requiring a central authority. Initially developed as the underlying technology for cryptocurrencies like Bitcoin, blockchain has now expanded into various industries including healthcare, finance, supply chain management, education, and government services. Blockchain technology is considered a revolutionary innovation because it enables secure peer-to-peer transactions, reduces operational costs, and improves efficiency in digital systems. Meaning of Blockchain A blockchain is a distributed database or ledger that stores data in the form of blocks connected in a chronological chain. Each block contains transaction data, a timestamp, and a cryptographic hash of the previous block. Once information is added to the blockchain, it becomes extremely difficult to alter or delete.

The term "blockchain" comes from the combination of two words:

- Block: A unit that stores transaction data.
- Chain: A sequence of connected blocks.

Blockchain operates on decentralized networks where all participants maintain a copy of the ledger, ensuring transparency and security.

Features of Blockchain Technology

Blockchain technology possesses several unique features that make it reliable and efficient.

1. Decentralization

Unlike traditional systems controlled by a central authority, blockchain distributes data across multiple nodes in a network.

2. Transparency

All participants in the network can view and verify transactions, promoting trust and accountability.

3. Immutability

Once data is recorded on the blockchain, it cannot be modified or deleted easily.

4. Security

Blockchain uses cryptographic algorithms and consensus mechanisms to secure data from unauthorized access.

Noor Bano
CEC CSE
Sem 6th

CLOUD COMPUTING AS A SERVICE PARADIGM FOR THE DIGITAL ERA

In the modern digital era, technology has become the backbone of businesses, education, health care, entertainment, and government services. Organizations continuously seek innovative ways to store data, run applications, and provide seamless digital services to users across the globe. One of the most transformative technologies enabling this shift is Cloud Computing. Cloud computing has emerged as a service paradigm that delivers computing resources such as servers, storage, databases, networking, software, and analytics over the internet. Instead of relying on traditional on premise infrastructure, users can access services anytime and anywhere through the cloud.

Cloud computing has revolutionized the way organizations operate by offering scalability, flexibility, cost efficiency, and reliability. It supports digital transformation and enables businesses to respond quickly to changing market demands. With the rapid growth of technologies like Artificial Intelligence (AI), Big Data, the Internet of Things (IoT), and mobile computing, cloud computing has become an essential component of the digital economy.

Meaning of Cloud Computing

Cloud computing refers to the delivery of computing services over the internet on a pay-as-you-use basis. Users do not need to own physical hardware or software infrastructure because cloud service providers manage the resources remotely. The cloud provides shared resources and services that can be accessed using web browsers or APIs. According to the National Institute of Standards and Technology (NIST), cloud computing is a model that enables convenient, on-demand network access to a shared pool of configurable computing resources that can be rapidly provisioned and released with minimal management effort.

Characteristics of Cloud Computing

Cloud computing possesses several important characteristics that make it suitable for the digital era:

1. On-Demand Self-Service

Users can access computing resources such as storage or processing power automatically without requiring human interaction with service providers.

2. Broad Network Access

Cloud services are available over the internet and can be accessed using laptops, smartphones, tablets, and other devices.

3. Resource Pooling

Cloud providers use shared resources to serve multiple customers through virtualization and multi-tenancy models.

4. Rapid Elasticity

Resources can be scaled up or down quickly depending on user demand and workload requirements.

5. Measured Service

Cloud systems automatically monitor and control resource usage, allowing customers to pay only for the services they use.

Dr. Natasha Singh
Assistant Professor, Computer Science and Engineering,
CEC-CGC, Landran Mohali

THE DIGITAL FOOTPRINT

What Does the Internet Know About You?

By Riya Pathania | Department of Information Technology

Every Click Leaves a Trace

In an increasingly connected world, our lives are closely intertwined with the digital environment. We search for information, communicate through social media, shop online, use digital payment platforms, stream entertainment and rely on applications for everyday tasks. While these activities may seem ordinary, each interaction leaves behind a trail of information. This trail is known as our digital footprint.

A digital footprint is the collection of data created through our activities on the internet. It can include search history, social media posts, online purchases, browsing behaviour, location information, device details and even the websites we visit. Some parts of this footprint are created intentionally, such as a photograph posted on social media, while others are collected in the background through cookies, applications and online services. The important question is not whether we have a digital footprint—we all do—but how much control we have over it.

The Convenience Behind the Data

Modern digital services depend heavily on data. When an online platform remembers our preferences, recommends a video or suggests a product that matches our interests, data is working behind the scenes.

This can make technology faster and more convenient. Personalised recommendations save time, digital maps help us navigate unfamiliar places, and online platforms can use information to improve their services. However, convenience often comes with a less visible exchange: our information becomes part of the digital ecosystem. The concern is not that every piece of collected data is harmful. The concern arises when users do not

know what is being collected, why it is being collected, how long it is stored or who may have access to it. In an age where data has become one of the most valuable resources, understanding its value is becoming increasingly important.

Privacy Is More Than a Password

Cybersecurity is often associated with strong passwords and antivirus software, but protecting digital identity requires a much broader approach. A strong password is useful, but so are two-factor authentication, careful privacy settings and awareness while interacting with unfamiliar websites, links and applications. Oversharing personal information on social media can also create risks. Details that appear harmless individually can sometimes be combined to reveal much more about a person.

Another important aspect is the permanence of online information. A post may be deleted from a profile, but copies, screenshots or archived versions may continue to exist elsewhere. This makes responsible digital behaviour particularly important for students and young users who are building their personal and professional identities online.Before posting something publicly, it is worth asking a simple question: Would I be comfortable with this information being seen years from now?

The Role of Information Technology

For Information Technology professionals, digital footprints are not merely a privacy issue—they are also a technical and ethical responsibility. The same technologies that collect, store and analyse data can also be used to protect it. Encryption can help secure information, authentication can control access, cybersecurity systems can identify suspicious activity, and responsible data management can reduce unnecessary exposure.

Artificial Intelligence and Big Data have further increased the ability to analyse large amounts of information. This creates enormous possibilities in areas such as healthcare, education, finance and public services. At the same time, it makes responsible use of data even more important. Future IT professionals will therefore need to understand not only how to build powerful systems, but also how to build systems that are secure, transparent and respectful of user privacy.

Becoming Responsible Digital Citizens

The solution is not to avoid technology. Digital tools have become too deeply integrated into education, communication, business and everyday life. Instead, the goal should be to use them with greater awareness. Every person can take simple steps: review app permissions, use strong and unique passwords, enable two-factor authentication, avoid suspicious links, limit unnecessary personal information online and regularly checks privacy settings. Ultimately, a digital footprint is a reflection of our online behaviour. Technology may remember more than we realise, but awareness gives us greater control over what we leave behind.

"Every click tells a story. The real question is: who is reading it, and what are they learning about you?"

FROM IDEA TO INNOVATION

How Technology Turns Problems into Possibilities

By Riya Pathania | Department of Information Technology

Where Innovation Begins

Innovation rarely begins with a finished product. More often, it starts with an observation—a problem that keeps occurring, a process that could be simpler, or a need that has not yet been properly addressed. In today's digital world, Information Technology provides the tools to transform these observations into practical solutions.

A mobile application, an intelligent system, an IoT device or a data-driven platform may look very different on the surface, but each can begin with the same question: How can this problem be solved better?

Technology becomes meaningful when it moves beyond novelty and creates measurable value for people, organisations or society.

From Problem to Possibility

Turning an idea into an innovation requires more than technical knowledge. The first step is understanding the problem itself. Who is affected? What causes the problem? What limitations exist in current solutions? Answering these questions helps ensure that technology is being developed for a genuine need rather than simply because a particular technology is popular. Consider a situation where farmers find it difficult to monitor crop conditions. An initial observation can evolve into a technology-based solution using sensors, Internet of Things connectivity, cloud platforms and Artificial Intelligence. Sensors can collect information, cloud systems can store it, and intelligent models can

analyse the data to provide useful insights.

The innovation is therefore not the technology alone. It is the way different technologies are combined to solve a real problem.

The Role of IT in Innovation

Information Technology has become one of the strongest enablers of innovation because it connects ideas with scalable tools. Artificial Intelligence can analyse patterns and support decision-making. Cloud computing can make applications and services accessible without requiring large physical infrastructure. IoT can connect physical objects to digital systems, while data analytics can turn large amounts of information into meaningful insights. For students, this creates an important opportunity. Programming, databases, networking, cybersecurity and software engineering are not isolated academic subjects. Together, they form a toolkit for building solutions. A student who understands these foundations can move from simply learning technology to applying it creatively.

Innovation Requires More Than Code

A common misconception is that a technically complex solution is automatically an innovative one. In reality, a solution can use advanced technology and still fail if it does not address the user's actual needs. Successful innovation requires testing, feedback and improvement. The first version of an idea may not work as expected. Users may identify problems that developers did not anticipate. Data may be incomplete, costs may be too high, or a simpler approach may prove more effective. This is why communication, teamwork, creativity and critical thinking are just as important as programming skills. Innovation is rarely the result of one person working alone; it often emerges when different perspectives come together.

The Innovators of Tomorrow

For IT students, innovation should not be viewed only as the creation of a startup or a ground-breaking invention. It can begin with improving a small process, designing a useful application, automating repetitive work or finding a smarter way to solve an existing challenge. The next important technological solution may not begin in a large laboratory. It may begin in a classroom, a college project or a simple observation made by a student. The difference between an idea and an innovation is action. Ideas become valuable when they are tested, refined and transformed into solutions that create real impact.

"Innovation starts with an idea—but it grows when someone decides to build it."

From imagination to innovation, the journey continues.

CHANDIGARH ENGINEERING COLLEGE
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NAAC GRADE A+

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