



I' Storm

K.L.N. College of Engineering, Pottapalayam -630612

Department of Information Technology

July 2025



K.L.N. College of Engineering

i'Storm

Department of Information Technology



PRINCIPAL MESSAGE



It is a matter of great pride and satisfaction for K.L.N. COLLEGE OF ENGINEERING to bring out the News Letter 'I'STORM' Released from the Department of Information Technology. The College has made tremendous progress in all areas—academic, non-academics, capacity building relevant to staff and students. The College has achieved another milestone in getting NBA (National Board of Accreditation). I am confident that this issue of Department News Letter will send a positive signal to the staff, students and the person who are interested in the Technical education and Technology based activities. A News Letter is like a mirror which reflects the clear picture of all sorts of activities undertaken by a Department and develops writing skills among students in particular and teaching faculty in general. I congratulate the Editorial Board of this News Letter who have played wonderful role in accomplishing the task in Record time. I express my deep sense of gratitude to Dr. P.Ganesh Kumar, HOD/IT under whose guidance this Technical work has been undertaken and completed within the stipulated time. Also my heartfelt Congratulations to staff members and Students for their fruitful effort. With Best wishes.

PRINCIPAL

Dr. A.V. RAMPRASAD

THE EDITOR'S DESK



It gives me immense pleasure to note that response to this newsletter of our department i'STORM has been overwhelming. The wide-spectrum of articles in different sections gives me a sense of pride that our students and professors possess creative potential and original thinking in ample measures. Each article is entertaining, interesting and absorbing. I applaud the contributors for their stimulated thoughts and varied hues in articles contributed by them. Commendable job has also been done by the Editorial Board in planning for and producing the Newsletter. My congratulations to the team who took the responsibility for the arduous task most effectively. I am hopeful that this small piece of technical work shall not only develop the taste for reading among students but also develop a sense belonging to the institution as well.

H.O.D(IT)

Dr. P. GANESH KUMAR

NEWS LETTER EDITORIAL BOARD EDITOR-IN-CHIEF:

Dr. P. Ganesh kumar (HOD/IT)

STAFF INCHARGE:

Mrs I.Muthu Meenatchi (AP2)

STUDENT EDITORS:

Rupasri G.K(4th Year)

Swetha M.S.R(4th Year)

OUR COLLEGE:

Vision

To become a Centre of Excellence in Technical Education and Research in producing Competent and Ethical professionals to the society.

Mission

To impart Value and Need based curriculum to the students with enriched skill development in the field of Engineering, Technology, Management and Entrepreneurship and to nurture their character with social concern and to pursue their career in the areas of Research and Industry.

OUR DEPARTMENT:

Vision

To emerge as a center of excellence through innovative technical education and research in Information Technology.

Mission

To produce competent Information Technology professionals to face the industrial and societal challenges by imparting quality education with ethical values.

K.L.N.COLLEGE OF ENGINEERING

POTTAPALAYAM, SIVAGANGA DISTRICT, TAMILNADU

AN AUTONOMOUS INSTITUTION | ACCREDITED BY NAAC

(APPROVED BY AICTE, NEW DELHI & AFFILIATED TO ANNA UNIVERSITY, CHENNAI)

DEPARTMENT OF INFORMATION TECHNOLOGY

PROGRAM OUTCOMES (POs)

Engineering Graduates will be able to:

1. *Engineering knowledge*: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. *Problem analysis*: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions with consideration for sustainable development.
3. *Design/development of solutions*: Design creative solutions for complex engineering problems and design/develop systems/components/processes to meet identified needs with consideration for the public health and safety, whole-life cost, net zero carbon, culture, society and environment as required.
4. *Conduct investigations of complex problems*: Conduct investigations of complex engineering problems using research-based knowledge including design of experiments, modeling, analysis & interpretation of data to provide valid conclusions.
5. *Engineering tool usage*: Create, select and apply appropriate techniques, resources and modern engineering & IT tools, including prediction and modelling recognizing their limitations to solve complex engineering problems.
6. *The engineer and the world*: Analyze and evaluate societal and environmental aspects while solving complex engineering problems for its impact on sustainability with reference to economy, health, safety, legal framework, culture and environment.
7. *Ethics*: Apply ethical principles and commit to professional ethics, human values, diversity and inclusion; adhere to national & international laws.
8. *Individual and Collaborative team work*: Function effectively as an individual, and as a member or leader in diverse/multi-disciplinary teams.
9. *Communication*: Communicate effectively and inclusively within the engineering community and society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations considering cultural, language, and learning differences.
10. *Project management and finance*: Apply knowledge and understanding of engineering management principles and economic decision-making and apply these to one's own work, as a member and leader in a team, and to manage projects and in multidisciplinary environments.
11. *Life-long learning*: Recognize the need for, and have the preparation and ability for
 - i) independent and life-long learning
 - ii) adaptability to new and emerging technologies and
 - iii) critical thinking in the broadest context of technological change.

Program Educational Objectives

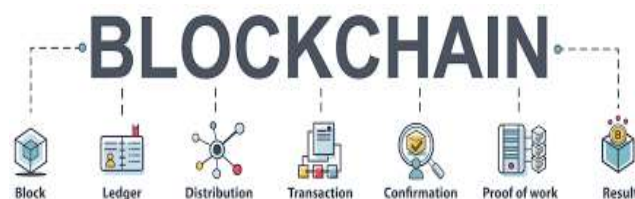
1. *To excel in industrial or graduate work in Information Technology and multi-disciplinary Environments.*
2. *To adapt to ever changing technologies by applying Engineering Principles.*
3. *To practice professionalism conforming to ethical values, team work and Leadership.*

Program Specific Outcomes

1. *To create better learning environment in line with technological updation and research progress.*
2. *To give industry exposure through research and consultancy in Information and Communication Technologies.*

Blockchain Technology

In 2008, an anonymous individual — or group — publishing under the name Satoshi Nakamoto released a nine-page white paper titled Bitcoin: A Peer-to-Peer Electronic Cash System. Few documents in the history of technology have been so brief, so misunderstood, and so consequential. The white paper did not merely describe a new currency. It described a new architecture — a method by which two parties who have never met, and who have no reason to trust each other, could nonetheless transact with absolute certainty, without a bank, a government, or any third party standing between them. Nearly two decades later, it is reshaping not just finance, but healthcare, governance, supply chains, identity, and the very concept of ownership in the digital age.



The Pillars of Blockchain Technology

1. Cryptographic Hashing Every block carries a unique hash — a fixed-length string generated by running the block's data through a mathematical algorithm (commonly SHA-256). Change even a single character, and the hash changes entirely, making tampering immediately obvious. Each block also contains the previous block's hash, creating a verified chain of history stretching back to the very first block — the *genesis block*.

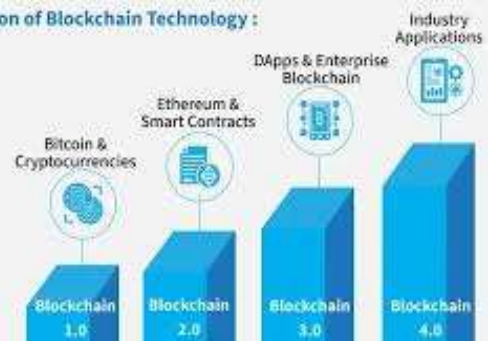


2. Distributed Consensus Mechanisms Thousands of independent nodes agree on a single truth through consensus protocols.

A Brief History: From White Paper to World Stage

- ▶ **2008** — Satoshi Nakamoto publishes the Bitcoin white paper. The first blockchain is born.
- ▶ **2009** — The Bitcoin network goes live. The genesis block is mined, containing a newspaper headline: “Chancellor on brink of second bailout for banks” — a pointed commentary on the centralised financial system blockchain was designed to circumvent.
- ▶ **2013** — Vitalik Buterin, then 19 years old, proposes Ethereum: a programmable blockchain capable of running decentralised applications, not just currency transactions.
- ▶ **2015** — Ethereum launches. Smart contracts become a reality. Blockchain expands beyond finance.
- ▶ **2017** — The ICO (Initial Coin Offering) boom. Billions of dollars pour into blockchain projects, legitimate and fraudulent alike. Regulatory scrutiny intensifies globally.
- ▶ **2020** — Decentralised Finance (DeFi) explodes, offering lending, borrowing, and trading without banks — entirely on-chain.
- ▶ **2021** — NFTs (Non-Fungible Tokens) enter mainstream consciousness. Digital art, sports collectibles, and virtual real estate sell for millions.
- ▶ **2022** — Ethereum completes “The Merge,” transitioning from Proof of Work to Proof of Stake in one of the most complex software upgrades in history — without downtime.
- ▶ **2024–2026** — Central banks across 130+ countries actively pilot or launch Central Bank Digital Currencies (CBDCs). Blockchain infrastructure quietly becomes embedded in global trade, healthcare records, and government identity systems.

Evolution of Blockchain Technology :



Satoshi Nakamoto



Satoshi Nakamoto is the anonymous creator of Bitcoin, who published its whitepaper in 2008 and launched the network in January 2009. They mined the very first Genesis Block before quietly disappearing in 2010, handing over control to developer Gavin Andresen. To this day, they are believed to hold around 1.1 million Bitcoin — a fortune that has never once been touched. Their true identity remains one of the greatest unsolved mysteries in the history of modern technology.

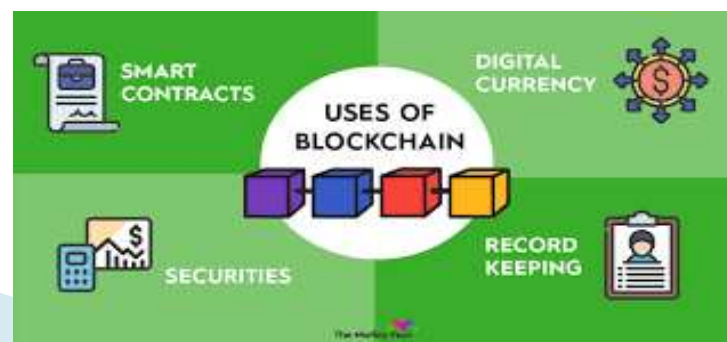
Vitalik Buterin



Vitalik Buterin is a programmer and blockchain researcher born on 31 January 1994. He is best known as the co-founder of Ethereum, which he proposed in 2013 and launched in 2015. Ethereum introduced smart contracts and decentralized applications, expanding blockchain use beyond digital currency. His work has greatly influenced the growth of cryptocurrencies and Web3 technology.

Uses of Blockchain

- Blockchain technology has a wide range of real-world applications across many industries. In **finance**, it enables fast, secure, and borderless transactions without banks or intermediaries, powering cryptocurrencies like Bitcoin and Ethereum.
- In **supply chain management**, it provides transparent and tamper-proof tracking of goods from origin to delivery, reducing fraud and improving accountability.
- In **healthcare**, patient records can be securely stored and shared across providers while maintaining privacy.
- Smart contracts** automate legal and business agreements, eliminating the need for middlemen in areas like real estate, insurance, and trade.
- Beyond these, blockchain is also being used in **voting systems, digital identity verification, and NFTs**, proving that its potential extends far beyond just cryptocurrency.



Gavin Andresen



Gavin Andresen is an American software developer who became the lead developer of Bitcoin after Satoshi Nakamoto mysteriously disappeared in 2010. He played a crucial role in the early growth of Bitcoin, maintaining and improving the Bitcoin Core software that powers the entire network. Andresen also founded the Bitcoin Foundation in 2012, working to promote and standardize Bitcoin's development worldwide.

Adam Back



Adam Back is a British cryptographer and computer scientist, best known for inventing Hashcash in 1997. He is one of the few people cited in Satoshi Nakamoto's original Bitcoin whitepaper, giving him a legendary status in the cryptocurrency world. Back is the co-founder and CEO of Blockstream, a leading blockchain technology company focused on Bitcoin infrastructure and development.

Key Features Of Blockchain :

1. **Decentralization** No single authority controls the network. Data is distributed across thousands of nodes worldwide, eliminating the need for intermediaries like banks or governments.
2. **Immutability** Once data is recorded on the blockchain, it cannot be altered or deleted. This makes it a permanent and tamper-proof ledger of transactions.
2. **Transparency** All transactions are visible to participants on the network, promoting trust and accountability while maintaining user privacy through cryptographic addresses.
3. **Security** Blockchain uses advanced cryptographic hashing and consensus mechanisms to protect data, making it extremely difficult for hackers to manipulate the network.



4. **Smart Contracts** Self-executing programs that automatically enforce agreements when conditions are met, removing the need for middlemen in business and legal processes.
5. **Consensus Mechanisms** Protocols like Proof of Work and Proof of Stake ensure all nodes agree on a single version of truth, maintaining the integrity of the network.
6. **Traceability** Every transaction is recorded with a timestamp and linked to previous ones, enabling full audit trails.

Benefits Of Blockchain

➤High Security – Data is encrypted and safe from digital theft and hacking.

➤Transparency and the Transactions are open and easy clarify and to verify.

➤Decentralization – No single person or authority controls it.

Immutability – Data cannot be changed once that was stored

Lower Cost – No middlemen, so the transaction fees are affordable and less.

Fast Transactions – Quick transfers across the global world.

Trustless System – No need to trust the third party members.

Automation – Smart contracts work automatically

Benefits of Blockchain



High Security

Data is encrypted and safe from hacking



Transparency

Transactions are open and easy to verify



Decentralization

No single person or authority controls it



Immutability

Data cannot be changed once stored



Lower Cost

No middlemen, so transaction fees are less



Fast Transactions

Quick transfers across the world



Trustless System

No need to trust third parties



Automation

Smart contracts work automatically

Disadvantages Of Block Chain



⚡ **High Energy Consumption** – Uses a lot of electricity, especially in mining.

🐢 **Low Scalability** – Handles fewer transactions per second.

💰 **High Cost** – Development and maintenance costs are very expensive.

❑ **Immutability Issue** – Wrong data cannot

❑ **Complex Technology** – Difficult to understand and tough to implement.

⚠️ **Security Risks** – Hacks and frauds can still happen.

📋 **Regulation Issues** – Laws are unclear in many countries.

🔍 **Privacy Concerns** – Transaction details may be visible to the public



Importance of Blockchain



🔒 Secure Data Storage
– Protects data using strong encryption

🌐 Decentralization – Removes the need for a central authority.

👁️ Transparency – All transactions can be verified by users

☐ Trust Building – Enables trust without third parties

⚡ Faster Transactions – Quick and global money transfers.

💰 Cost Efficiency – Reduces transaction and operational costs.



☐ Automation – Smart contracts execute automatically.

🚀 Digital Innovation – Supports cryptocurrencies, DeFi, NFTs, and Web3

Applications of Block Chain

- 💰 Cryptocurrency – Used for digital money like Bitcoin
- 🏠 Banking & Finance – Secure payments and fund transfers
- 📦 Supply Chain Management – Tracks products



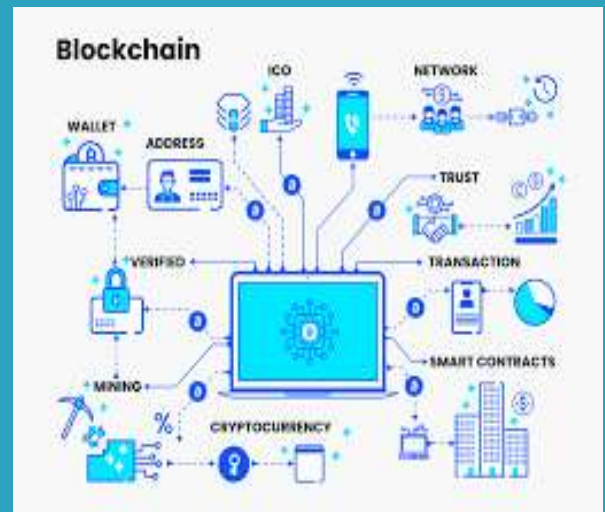
- 🛡️ Healthcare – Safely stores and shares medical records

☐ Voting Systems – Transparent and tamper-proof elections.

☐ Smart Contracts – Automatic execution of agreements.

🆔 Identity Management – Secure digital identity.

🏠 Real Estate – Transparent property buying and selling



Emerging Trends in Block Chain

- ❖ **Web3 Development** – Decentralized internet without central control
 - ❖ **DeFi (Decentralized Finance)** – Banking services without banks
 - ❖ **NFTs** – Digital ownership of art, music, and assets
 - ❖ **Layer-2 Solutions** – Faster and cheaper blockchain transactions
 - ❖ **Green Blockchain** – Energy-efficient and eco-friendly blockchains
 - ❖ **AI + Blockchain** – Smarter, automated, and secure systems
 - ❖ **Decentralized Identity (DID)** – User-controlled digital identities
 - ❖ **Blockchain in IoT** – Secure communication between smart devices
- 

Popular Tools and Technologies

- ❖ **Bitcoin** – First and most popular cryptocurrency
- ❖ **Ethereum** – Platform for smart contracts and dApps
- ❖ **Solidity** – Programming language for Ethereum smart contracts
- ❖ **Hyperledger Fabric** – Enterprise blockchain framework
- ❖ **MetaMask** – Crypto wallet and dApp browser
- ❖ **Truffle** – Development and testing framework for smart contracts
- ❖ **Ganache** – Personal blockchain for testing
- ❖ **Polygon** – Layer-2 solution for faster and cheaper transactions
- ❖ **Matplotlib**
- ❖ **Seaborn**



Case Study: Blockchain in Supply Chain (Walmart)

- ▶ **Walmart** uses blockchain technology to improve food supply chain tracking. Earlier, tracing the source of contaminated food took **several days**.
- ▶ By using blockchain, Walmart can now track food items like mangoes and leafy vegetables **within seconds** from farm to store. This improves **food safety, transparency, and quick recall** during contamination issues, reducing risk to customers and losses to the company..

Career Opportunities in Block Chain

Blockchain Developer – Builds blockchain apps and smart contracts

Smart Contract Developer – Writes and audits smart contracts

Blockchain Security Engineer – Protects systems from attacks

Blockchain Architect – Designs blockchain system structure

Blockchain Analyst – Analyzes blockchain solutions for businesses

Blockchain Tester – Tests blockchain applications for bugs

Blockchain Consultant – Advises companies on blockchain adoption

Crypto Analyst – Studies cryptocurrency markets and trends



Glossary

- ❖ **Blockchain** – A secure and distributed digital ledger
 - ❖ **Block** – A group of transactions stored together
 - ❖ **Decentralization** – No central authority controls the network
 - ❖ **Cryptocurrency** – Digital money using blockchain
 - ❖ **Smart Contract** – Self-executing digital agreement
 - ❖ **Node** – A computer that participates in the blockchain network
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Future of Blockchain Technology

- ❖ **Wider Adoption** – Used across banking, healthcare, education, and government
 - ❖ **Faster & Scalable Networks** – Improved speed with Layer-2 solutions
 - ❖ **Energy-Efficient Blockchains** – Shift toward eco-friendly consensus methods
 - ❖ **Integration with AI & IoT** – Smarter and automated digital systems
 - ❖ **Decentralized Identity** – Users control their own digital identities
 - ❖ **Enterprise & Government Use** – Secure record keeping and transparent services
 - ❖ **Growth of DeFi & Web3** – More decentralized apps and services
 - ❖ **Stronger Security & Privacy** – Advanced cryptography for data protection
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STUEDNTS PLACEMENT RECORD



K.L.N.COLLEGE OF ENGINEERING

(An Autonomous Institution, Affiliated to Anna University, Chennai)
www.klnce.edu Pottapalayam 630612, Sivagangai Dist, Tamilnadu



DEPARTMENT OF INFORMATION TECHNOLOGY placement 2024-2025



Sameerkhan S
Bliend



Sabari Vithya V
Zidio Evolpment



VISVESH KHANNA T R V
Educational Initiatives
Private Limited



Vaishnavi G K
Profit Apps India Pvt



Sivaranjani S
Inthera Consulting Group



Sastha C A
Jayasree Spun Bond



Santhosh E G
Solverminds



Priya Dharshini LS
Profit Apps India Pvt.



Rohinesh J
Bliend

STUDENTS ACHIEVEMENT(2025-26)



A.Mukeshwaran,IT-

- ▶ **Bronze(10M Pistol Championship Men(Team))**
- ▶ **Silver(10M Pistol Championship Junior Men(Individual))**
- ▶ **Madurai Rifle Club,Tamil Nadu Shooting Association**

STUDENTS PARTICIPATION(2025-26)



G.S.Amrita,IT
C.V.MadhuShyam,IT
Mahima Natarajan,IT
P.Harini,IT
Smart India Hackathon 2025,
Bannari Amman Institute of Technology
8.12.2025 to 12.12.2025

EVENT ORGANIZED 2025-26

Name of the Event	National/ International level	Organized by	Date of Event	No of Participant
Aptitude Training Resource Person: Mr.A.P.Viskulesh, Mr.Gobimuthu, Mrs.Muthamil, Connect Training Solution	Institute		17 th to 19 th July 2025	(2024-2028 batch) (93 students)
Full Stack Development Resource Person: Mr.S.Gokul Vignesh, Front end Developer, Mr.A.Arun Kumar, Backend Developer, OpenGenx Technologies Pvt Ltd	Institute	IIPC	26 th Jul 2025	2022-2026 batch (90 students)
Verbal Training Program Resource Person: Inba Vignesh, Trainer	Institute		29/7/2025 to 30/7/2025	(2023-2027 batch) 89 students
Verbal Training Program Resource Person: Inba Vignesh, Trainer	Institute		31.7.2025 to 1.8.2025	(2024-2028 batch) (93 students)
How to build a successful engineering career Resource Trainer: Balasubramanian Chitraputhiran, Lead Database engineer, Salesforce, Chennai	Institute		11.8.2025	(2024-2028 batch) (93 students)

List of Faculties participated in Workshop/Seminar/Other programs

<u>S.NO</u>	Name of the Faculty	Workshops,Seminar and Other Programs-Attended	Organized By	Date
1	Dr.P. GANESH KUMAR, Prof & HOD/IT	AI, Cybersecurity & Emerging Technologies	Auroitech - Aravind Eye Care System	1st and 2nd week of August 2025.
2	Dr.G.RAMESH, Prof/IT	AI, Cybersecurity & Emerging Technologies	Auroitech - Aravind Eye Care System	1st and 2nd week of August 2025.
3	Mr.P.L.SUBRAMANIAN, AP/IT	Workshop on AI for Research Planning & Topic Selection	A2Z EduLearning Hub	19th & 20th August 2025
		Masterclass on No-Code Web Development	A2Z EduLearningHub	3rd January 2025
4	Mrs.K.RANI, AP/IT	AI, Cybersecurity & Emerging Technologies	Auroitech - Aravind Eye Care System	1st and 2nd week of August 2025.
5	Mrs.M.MEENA,AP/IT	AI, Cybersecurity & Emerging Technologies	Auroitech - Aravind Eye Care System	1st and 2nd week of August 2025.
6	Ms.M.DHARSHINI, AP/IT	AI, Cybersecurity & Emerging Technologies	Auroitech - Aravind Eye Care System	1st and 2nd week of August 2025.
7	Ms.P.NAGALAKSHMI, AP/IT	Privacy – Self-Paced Course	Internet Society	1-Jul-2025
		AI for Educators 2025	SWAYAM + Intel	18 Aug – 22 Oct 2025

