Marathwada Mitra Mandal's
College of Engineering
Karvenagar, Pune 52
Recipient of "Best College Award 2019" by SPPU
An Autonomous Institute
Department of Information Technology

InTegenious

Volume X| Issue 1 | JUNE 2024 – DEC 2024

Highlighting Events

- FDP on "Blockchain: The Next Frontier in Cybersecurity and Privacy"
- SDP on “Data Science” in association with Bharatsoft Solutions
- IITB Spoken Tutorial
- Dexterity 2k25
- Several informative expert sessions

Student Chapters/ Associations

MMCOE ACM STUDENT CHAPTER Dept of IT
Estd. Year - 2015

ITSA

IT TECH CLUB

MoU's with Industries

ATS Infotech Pvt. Ltd.

GANESHA

ybervau

ecoRise

AgileSoft Methodologies

Hirameki Solutions

AutomationEdge

KasNet
Trusted Partner in your Growth
INDIA | USA

SoftTech Data Securities

BHARAT SOFT SOLUTIONS

CarvingIT

InTegenious

A biannual newsletter from the Department of Information Technology, MMCOE

Volume X | Issue 1 | JUNE 2024-DECEMBER 2024

Contents

Vision of Department:

To emerge as a Centre of Excellence in education, research and innovation in Information Technology for enrichment of Society.

Mission of Department:

- To cater IT Industry with Engineers having theoretical & practical background and competent IT skills.
- To pursue advanced knowledge in the field of Information Technology.
- To inculcate budding IT Engineers with professional and interpersonal skills.

1. Message from HOD

Dear Esteemed Readers and Supporters,
Greetings from the Department of Information Technology, MMCOE! As we navigate through the ever-evolving landscape of engineering, innovation, and education, we're thrilled to bring you another edition of our newsletter.
Here's what's in store for you:
1. Student Chapters/Clubs Events
2. Student Achievements
3. Industry Interaction
4. Centre of Excellence
5. Faculty Highlights
6. Community Engagement
7. Featured Article and many more
Thank you for your continued support and dedication to advancing engineering excellence. Together, let's inspire innovation, foster collaboration, and make a lasting impact on the world through the power of engineering. I appreciate the efforts taken by InTegenious Team of Faculty and Students and wish them all the best for the upcoming issue.

Programme Educational Outcomes (PEO's):

PEO 01: Adequate knowledge and skills in Information Technology for implementation of complex problems with innovative approaches.

PEO 02: Inclination and technical competency towards professional growth in the field of Information Technology.

PEO 03: Ethics and value based interpersonal skills to facilitate lifelong learning and societal contributions.

Team InTegenious :

Volume X | Issue 1 |JUNE 2024 –DEC 2024

Our Mentor : Dr. Swapnaja Ubale,Professor, HOD IT

Faculty Editor : Ms. Punam V. Chavan, Assistant Professor, Dept. of IT.

Student Editor : Ms. Shravani Jadhav(TE IT)

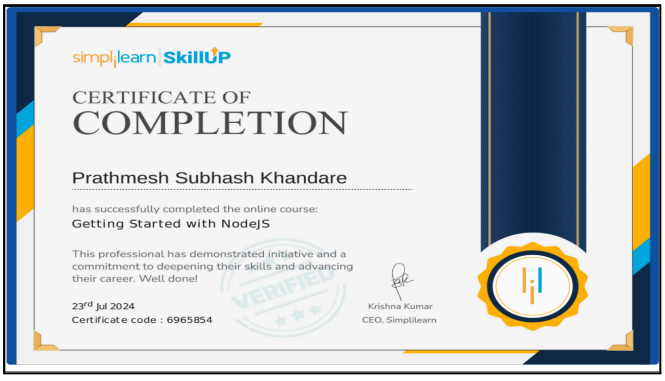
2. Student Placements

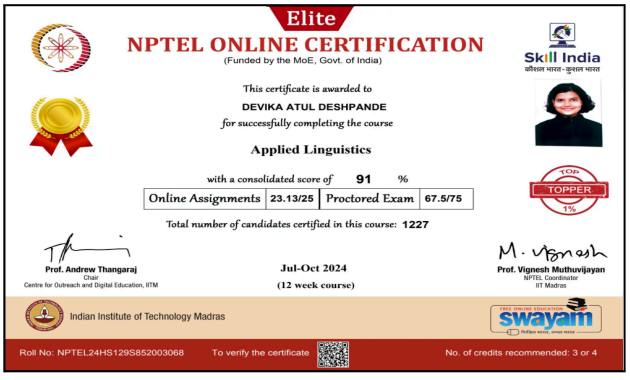
Sr. No.	Name of Student	Company Name	Package in Lacks/Year
1	Magdum Suraj Gafar	Healthlevel	4
2	Malwandikar Eeshan Narendra	Healthlevel	4
3	Khalekar Akash Narayan	Fundsroom	7
4	Mahajan Dhruv Abhijit	Toro Technologies India	8
5	Velankar Isha Shivaji	Bentley Systems	9
6	Naman Hariom Agnihotri	Dhiwise	8
7	Joshi Ashish Sunil	Ellicium	5.11
8	Joshi Mahi Makarand	Ellicium	5.11
9	Ayush Namdev Gunjal	Ellicium	5.11
10	Harshvardhan Grandhi	Ellicium	5.11
11	Kulkarni Rujuta Satish	Ellicium	5.11
12	Bhagwat Nishita Shirish	Ellicium	5.11
13	Sinha Dhruv Amarendra	Ellicium	5.11
14	Kothimbire Sneha Shivaji	Kpit	4.50
15	Kelkar Sanika Atul	Starhealth	8
16	Khalekar Akash Narayan	Bitwise	4
17	Jainak Omkar Sanjay	TUDIP	4
18	Gadekar Aashay Mangesh	TUDIP	4
19	Yash Mahesh Kamthe	Altimetrik	3.6

3. Student Achievements

Students Online Certifications

Sr. No.	Name of Student	Certification Body (NPTEL/Coursera/Udemy)	Name of certification course completed
1	Prathmesh Subhash Khandare	simplilearn	Introduction to Node js
2	Prathmesh Subhash Khandare	Udemy	Mastering React js
3	ONKAR SARADE	Teachnook	DATA ANALISIS
4	Tejashree Mulinti	GUVI - Grab Ur Vernacular Imprint	Generative AI
5	Parth Kolekar	Scaler Topics	Data Structures in C++
6	Sandip Awale	Udemy	Java
7	Sandip Awale	Udemy	Git
8	KUNAL BAGHELE	Linkedin Learning	Generative AI
9	Devika Deshpande	NPTEL	Applied LInguistics
10	Devika Deshpande	AICTE-EduSkills	Python Full Stack Developer Virtual Internship
11	Sachi Godbole	Cisco	Introduction to Cybersecurity
12	Neel Joglekar	Great Learning	Prompt Engineering for ChatGPT
13	Neel Joglekar	Deep Learning	ChatGPT Prompt Engineering for Developers
14	Nihira Patil	Udemy	Data structure and algorithms
15	Khushal Arun Patil	Cisco	Cisco- Endpoint Security
16	Harshvardhan Grandhi	AWS	AWS Technical Essentials
17	Rajvardhan Jagtap	NPTEL	Programming in JAVA





4. Student Internships

Sr. No.	Students Name	Company Name	Domain of work
1	Aliza Salim Sayyad	Farm DSS	Web Development
2	Umakant Shinde	Sustenify Energy	Full Stack Development
3	Sanika Kharade	Business Bhaarat	Web Development
4	Sanika Atul Kelkar	Atomic Loops	Python Backend
5	Yash Dilip Hanamghar	Vedge slide system	Data Analytics
6	Anish Peshwe	Atomic Loops	Web Development
7	Siddharth Mandke	Irys	Management
8	Ananthan Nair	iq innovation hub	Web Development
9	Anushka Chavan	DRDO, Pune	Machine Learning
10	Vishal shitole	Athena automation	Internet Of Things
11	Harshvardhan Sawant	Athena automation	Internet Of Things
12	Bhavesh Sonar	Athena automation	Internet Of Things
13	Kunal Pawar	Vivada.tech	Web Development
14	Akash Khalekar	FUNDSROOM	Software Developer
15	Shravani Jadhav	Exposys Data Labs	Web Development
16	Omkar Jainak	Feynn lab	ML
17	Atharv Phadke	Sustanify Energy	AI & ML
18	Sandip Awale	Reks Multitech	Web Development

Internship Certificates of Student

REKS MULTITECH

28 October 2024

To Whom It May Concern

This letter is to certify that **Sandip Kalappa Awale** has successfully completed his internship program of three months with **Reks Multitech**.

His internship period was from **20/07/2024** to **25/10/2024**. He was working with Development team and was actively involved in the projects and tasks assigned to him.

During the span, we found him punctual and reliable person. His learning powers are good and he picks up quickly. His feedback and evaluation proved that he learned strongly. Moreover, his interpersonal and communication skills are brilliant.

Sincerely,

Karishma Rekalwar
HR And Admin Manager

+91 7387903733
hr@reksmultitech.in
Renuka Niwas, Office no-3, Anna choudhari estate, Warje Pune Maharashtra 411058

iQ Innovation Hub LLP

INTERNSHIP LETTER

Confidential

11th March 2024

Dear Ananthan Nair,

We are delighted to offer you an opportunity to join our team as an intern. The term of your internship will be for 6 months starting from 1st April 2024 to 30th September 2024 with a commitment of some fixed hours (25-30) per week. Your domain of working would be decided after your joining.

In addition to your work, you will also engage in other activities outside of this role aimed at developing your knowledge, confidence, and skills. Please acknowledge your acceptance of our offer by signing and returning the duplicate copy of this letter. We look forward to hearing back from you soon and cannot wait to embark on this unforgettable experience with you!

If you have any questions at all, please don't hesitate to contact us.

With Warm Regards,
for iQ Innovation Hub, Pune

KISHORE DATTATRAY KULKARNI
Digitally signed by KISHORE DATTATRAY KULKARNI
Date: 2024.03.11 12:02:21 +05'30'

Kishore Kulkarni
General Manager

Accepted and Signed by
Ananthan Nair

Punarva Kalkar
Human Resource

5. Student Publications

Sr. No.	Name of Students	Paper Title	Publisher
1	Arundhati Wani Rujuta Kulkarni Vishvjita Savkare Ananthan Nair	Analysis of Speech Emotion: A Survey of SER and FER with Multilingual Dialects	International Journal Of Innovative Research In Technology(IJIRT)
2	Jinnet Vaishnav Trupti Kashid Vedant Raut Devanshu Ukey	Smart E-Healthcare: An IoT, Cloud, and AIBased Real-Time Patient Monitoring System	International Journal of Creative Research Thoughts (IJCRT)
3	Buddhabhushan tikte Hemant gaikwad Ankita bhide	Interpretable Machine Learning Models for Healthcare Decision Support	International Journal for Research in Applied Science & Engineering Technology (IJRASET)

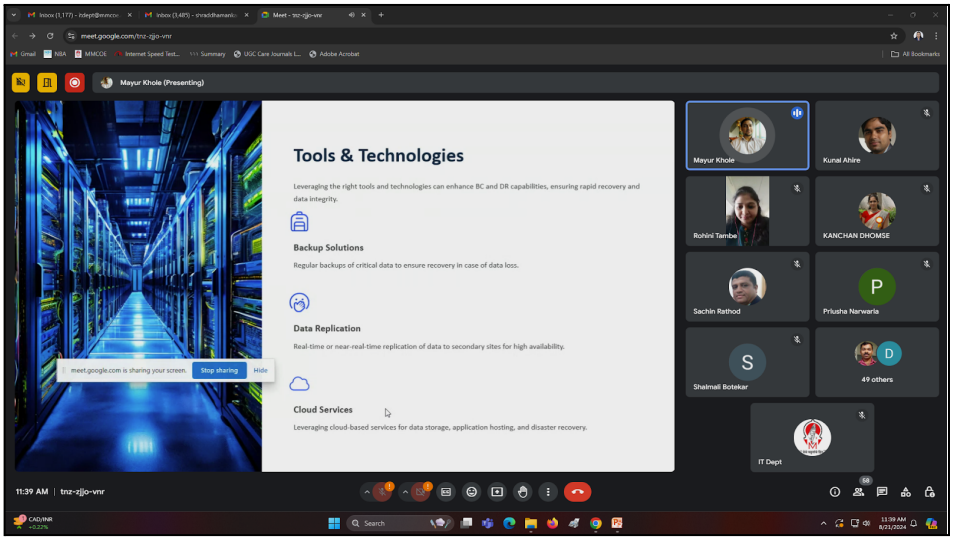
6. Workshops & Technical Events Conducted by Department

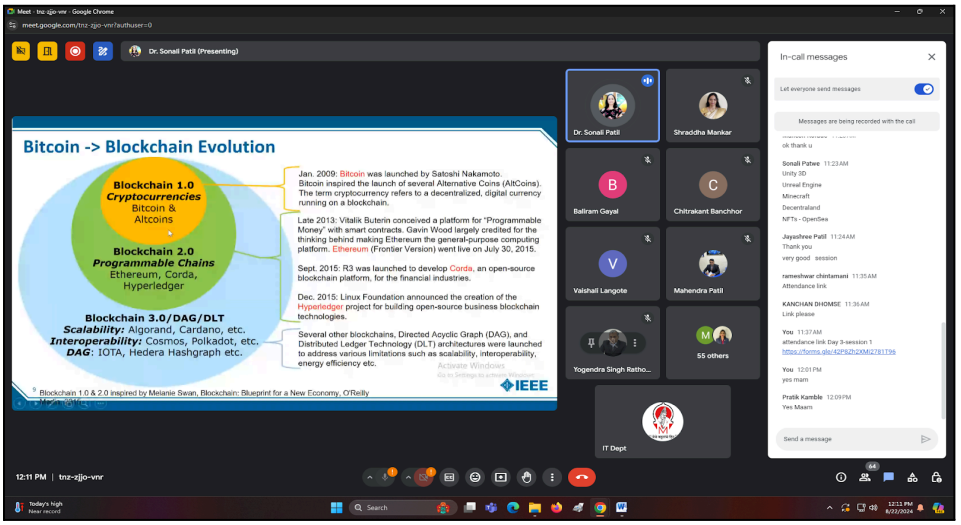
1. One week FDP on "Blockchain: The Next Frontier in Cybersecurity and Privacy":

Event name: Blockchain: The Next Frontier in Cybersecurity and Privacy
Event date: 20/08/24 to 24/08/2024
Platform: Google meet

Faculty Development Program (FDP) on "**Blockchain: The Next Frontier in Cybersecurity and Privacy**' was organized by the Department of Information Technology, Marathwada Mitra Mandal College of Engineering, Pune. The FDP was held over five days from 20th Aug 24 to 24th Aug 24, in association with Ayanworks Technologies.

The program was inaugurated by the Head of the Information Technology Department, **Dr. Swapnaja Ubale**. The FDP coordinators, **Ms. Shraddha Mankar** and **Ms. Rohini Tambe**, provided an overview of the FDP schedule and highlighted the significance of the topics covered. Around 180+ participants actively engaged in the sessions, acquiring valuable insights into the evolving landscape of blockchain and cybersecurity.





▪ Spoken Tutorial :

Event Name : Spoken Tutorial Online Test

The summary of the result of the spoken tutorial test for Sem-II were as follows :

Branch	Year	Course Name	Candidates Appeared	Candidates Passed	Passing Percentage
IT	S.E	Python 3.4.3	64	63	98.43
IT	T.E	RDBMS PostgreSQL	60	60	100
IT	B.E	PHP and MySQL	61	61	100

● Parent Teacher Meeting :

Event Date: 28/09/2024
Mode of Conduction: Offline
Venue: AC 401, IT Department, 4th Floor, MMCOE, Karvenagar.

Parent Teacher meeting for the academic year 2024-25, Semester-I was conducted on 28/09/2024 in the college campus. Around 32+ Parents from SE, TE and BE were present for the Meeting.
The details of Parent Teacher meeting conducted are as below:

- *Registration of Parents from 10:00 AM to 10:20 AM.*
- *Commencement of the Parent Teacher meeting at 10:30 am with the welcome speech by Ms. Rohini Tambe.*
- *Felicitation of the SPPU university ranker and academic toppers for 2023-24 Semester-II.*
- *Department presentation regarding infrastructure details and progress of the department was presented by Dr. Swapnaja A. Ubale , HOD.*
- *Dr. Bharati Vasgi, Dean Academics discusses the academic policies followed by the department.*
- *Ms. Punam Chavan, Academic Coordinator discusses the unit test, exam policy with parents.*
- *Ms. Preeti Joshi, Training and placement coordinator, highlights the effort taken by the department and college for placement of students.*
- *Questions and issues of the parents were then addressed by HOD Dr. Swapnaja Ubale and faculty members of the Department.*
- *The parent teacher meeting concluded at 12:30 pm followed by refreshment.*

Following points were discussed in Meeting:

1.At the start of the Presentation the Vision and Mission of the Department was disseminated to the Parents.
2.Briefed about various activities conducted in the department like skill-development programs,

Curriculum gap bridging Lectures, Guest Lectures, Workshops, coding competitions and other events conducted under ITSA, IT Tech. Club and ACM student chapter.
3.Last year and Current year placement scenario were discussed with the parents.
4.Discussed the efforts taken by the Department and College for placement and internship.
5.Mrs. Preeti Joshi , TPO Coordinator of the department discussed various initiatives taken by the college for Students' Internships and Placements.
6.Parents appreciated the efforts taken by the College and Department and were happy to meet the faculties in person.

7. Seminars / Guest Lectures Conducted by Department

Sr. No.	Name of Resource Person	Designation and Organization	Topic of Lecture	Date	Beneficiary
1	Mr. Vivek Kulkarni	Director Software Product Engineering, Innovation Management, Product and People Management, Agile Expert, Device Telemetry, Device Management, Life Sciences, Data Analytics, Actionable Insights, India Operations Leader Pune, Maharashtra, India	Decidable & Undecidable Problems and Applications of TOC	30/09/2024	55
2	Ms. Monali Fulbande	Fulbandhe, Technical Trainer, AutomationEdge Pvt. Ltd. Pune, Maharashtra	"Enhancing OS Knowledge: Practical applications of IPC, Threading, Synchronization and CURD"	23/08/2024	55
3	Mr. Swami Panjala,	Founder & Director at Elite Softwares Pvt. Ltd. Pune.	Interactive website development	22/10/24	35
4	Mrs. Vidya Nadkarni	-	Bayes Theorem	5/8/2024	55
5	Mr. Gireesh Hampe,	Senior Software Engineer Manager at Siemens Industry Software	Data Structure and Algorithms: Backbone of scalable Software	04/09/2024	45
6	Ms. Riya Chougule,	Masters Student, The University of Texas at Dallas	Generative AI	19/07/2024	30

8. ACM Student Chapter Activities

The students selected for the mentioned posts of MMCOE ACM Students chapter , for the AY 2024-25 are as below:

Sr. No.	Name of Post	Name of Student
1	Chairperson	Ms. Shravani Avinash Jadhav
2	Vice Chairperson	Ms. Sanika Thite
3	Treasurer	Ms. Anupama Tilak
4	Joint-Treasurer	Ms. Aditi Talnikar
5	Secretary	Ms. Arya Deshpande
6	Joint-Secretary	Mr. Aditya Shinde
7	Webmaster	Mr. Bhavesh Sonar
8	Creative Head	Ms. Devika Deshpande
9	Event Manager-Frontend	Mr. Ishan Kasande
10	Event Manager-Technical	Mr. Kunal Pawar
11	Publicity and Sponsorship Head	Mr. Vaibhav Hawale
12	Social Media Manager	Ms. Eshita Shirolkar
13	Department Coordinator	Mr. Vishesh Chourasia
14	Department Coordinator	Mr. Onkar Wajage
15	Department Coordinator	Ms. Inshal Hashmi
16	Department Coordinator	Ms. Anushka Bhitade

- **ACM Event/Workshop :**

Event Name : Internal Hackathon For Smart India Hackathon 2024

Event Date: 14th September 2024

Event Detail:

Smart India Hackathon (SIH) is a premier nationwide initiative designed to engage students in solving some of the most pressing challenges faced in everyday life. The Internal Hackathon for SIH 2024 was organized at MMCOE in collaboration with ACM Students' Chapter, MMCOE on 14th September 2024 in the college campus. This Internal Hackathon was a Powerpoint Presentation Evaluation conducted as a screening process to select top 50 teams from the institute for nomination towards the grand finale of SIH 2024.

Glimpses of the Event:

Event Name : Innovators Challenge 2024

Event Date: 27th and 28th September

Event Detail:

The Innovators Challenge 2024 was conducted by ACM SC MMCOE in collaboration with ISTE MMCOE. The event was a 24-hour hackathon i.e. The Innovators Challenge, conducted on 27th and 28th September 2024. The event was open to all SE, TE, BE, and ME/MTech students across all the branches.The event encouraged participants to develop innovative hardware or software prototypes. Teams competed in two categories: the Innovation Category for startup ideas and the SIH Nominated Team Category for SIH 2024 participants. Selected teams were awarded cash prizes, incubation support, MSME 4.0 mentoring, and access to technical resources.

Glimpses of the Event:

Event Name : Dexterity Logolympics

Event Date: 15th October 2024

Event Detail:

This event consisted of three rounds. All of the rounds were conducted on Google Forms. First round had 30 logos presented on a projector and participants had to guess the name of the company and submit it on the form. Second round was based on 20 influential personalities related to the IT field. Third round was a tie breaking round. All of the events were time-bound and the winners were selected on the basis of most accurate answers.

Glimpses of the Event:

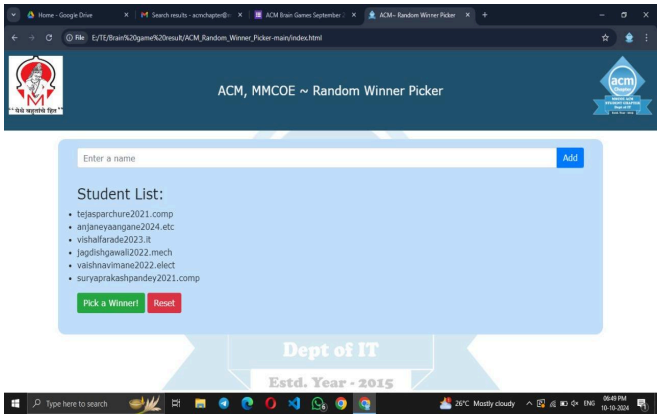
Event Name : Brain Games

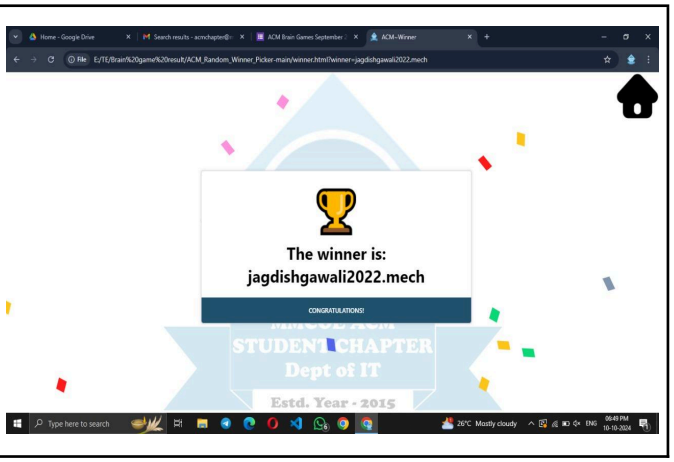
Event Date: End of every month

Event Detail:

Brain Games is a monthly event, where we will release a quiz based on logical thinking and one student will be declared winner based on his / her score in the quiz every month. In cases where more than one student scores full marks, the winner will be chosen based on a lucky draw. Winners are awarded with ACM goodies.

Glimpses of the Event:





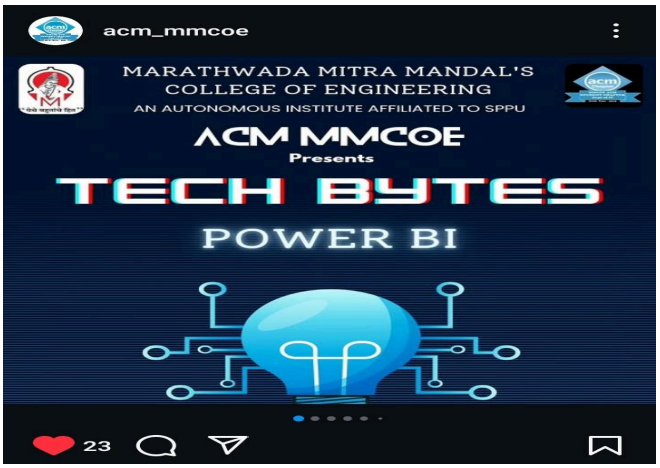
Event Name : TechBytes

Event Date: Every month

Event Detail:

Techbytes are concise insights or updates about technology, combining “tech” from Technology with “bytes”, the unit of digital information. They encompass quick information, tips and trends within the tech industry, shared through platforms like newsletters and social media to keep audiences informed about the latest developments in technology.

Glimpses of the Event:



9. Students Association (ITSA) Activities

- ITSA is an association of IT department students for the students by the students of the students. ITSA was formed in AY 2014-2015.
- ITSA Student Committee for 2024-25:

Sr. No.	Post	Name
1	President	Mr. Prathamesh Khadilkar
2	Vice President	Mr. Onkar Sarade
3	Secretary	Mr. Kaushal Jaiswal
4	Department GS	Mr. Ruturaj Patond
5	Treasurer	Ms. Sanika Thite
6	Social Media Head	Mr. Onkar Wajage
7	Creative Head	Ms. Aditi Talnikar

- **ITSA Event/Workshop :**

Event Name : SE Induction Programme

Event Date: 20th September 2024

Event Detail:

The Department of Information Technology, MMCOE organized an induction programme for SE students on 20thSeptember. The event was held in the college seminar hall and it was attended by SE students. The purpose of the programme was to welcome the SE students and to help them get to know each other.

To foster interaction and community building among the new students, a fun activity was organized for the second-year students. This interactive session allowed students to work in teams, promoting teamwork and communication. It was an effective icebreaker, helping students to form connections and build friendships as they embark on their academic journey together.The snacks are also arranged for the students.

Glimpses of the Event:

Event Name : Code Mania

Event Date: 15th October 2024

Event Detail:

This event consisted of two rounds. It was an individual participation event.
Round 1: General aptitude and technical MCQ based quiz. This round was considered for shortlisting participants for round 2.

Round 2: Data Structures and Algorithms (DSA) round. Winners were declared based on scores of both the rounds.

Glimpses of the Event:

10. IT Tech Club Activities

About Club: MMCOE IT Tech will work as a platform for students where they will be able to build their technical skills and bring the best out of them in today's dynamically developing world.

Office Bearers for A. Y. 2024-25

Sr. No	Name of Post	Name of Student
1.	President	Mr. Ruturaj Patond
2.	Vice-President	Mr. Sahil Kulkarni
3.	Student Advisor	Mr. Umakant Shinde
4.	UI / UX Head	Ms. Nihira Patil
5.	Web Development Head	Mr. Vishal Shitole
6.	Data Science & AL-ML Head	Ms. Tejashree Mulinti
7.	Social Media Head & Event Management	Mr. Pratham Kokardekar
8.	Support Team Lead	Mr. Prathmesh Salunkhe

- **IT Tech Event/Workshop :**

Event Name : Algorand Foundation Session Meet

Event Date: 6th August 2024

Event Detail:

The session was an offline meet at the Algorand Annual sessions. The session was related to blockchain and Web3 technologies, sponsored by algorand foundation. The session introduced many different ideas to grow in the field of blockchain and web3. Algorand foundation also introduced their most awaited hackathons and idea presentation competitions.

Glimpses of the Event:

Event Name : Locker Escape

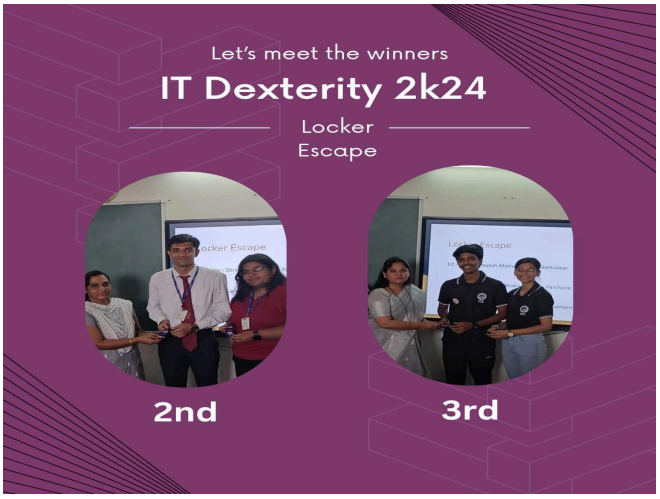
Event Date: 15th October 2024

Event Detail:

Locker Escape is a collaborative, code-based problem-solving event where teams must work together to identify errors in the code and unlock subsequent challenges. Each team will be given a series of PDFs containing codes, and the participants will need to pinpoint the exact line of error in each code snippet. The identified line number serves as a pass code to unlock the next PDF for their teammate.

Glimpses of the Event:


GPS Map Camera
Pune, Maharashtra, India
18, Vadar Vasti Rd, Dhanashree Colony, Karve Nagar, Pune, Maharashtra 411052, India
Lat 18.490372°
Long 73.809096°
15/10/24 04:17 PM GMT +05:30
Google

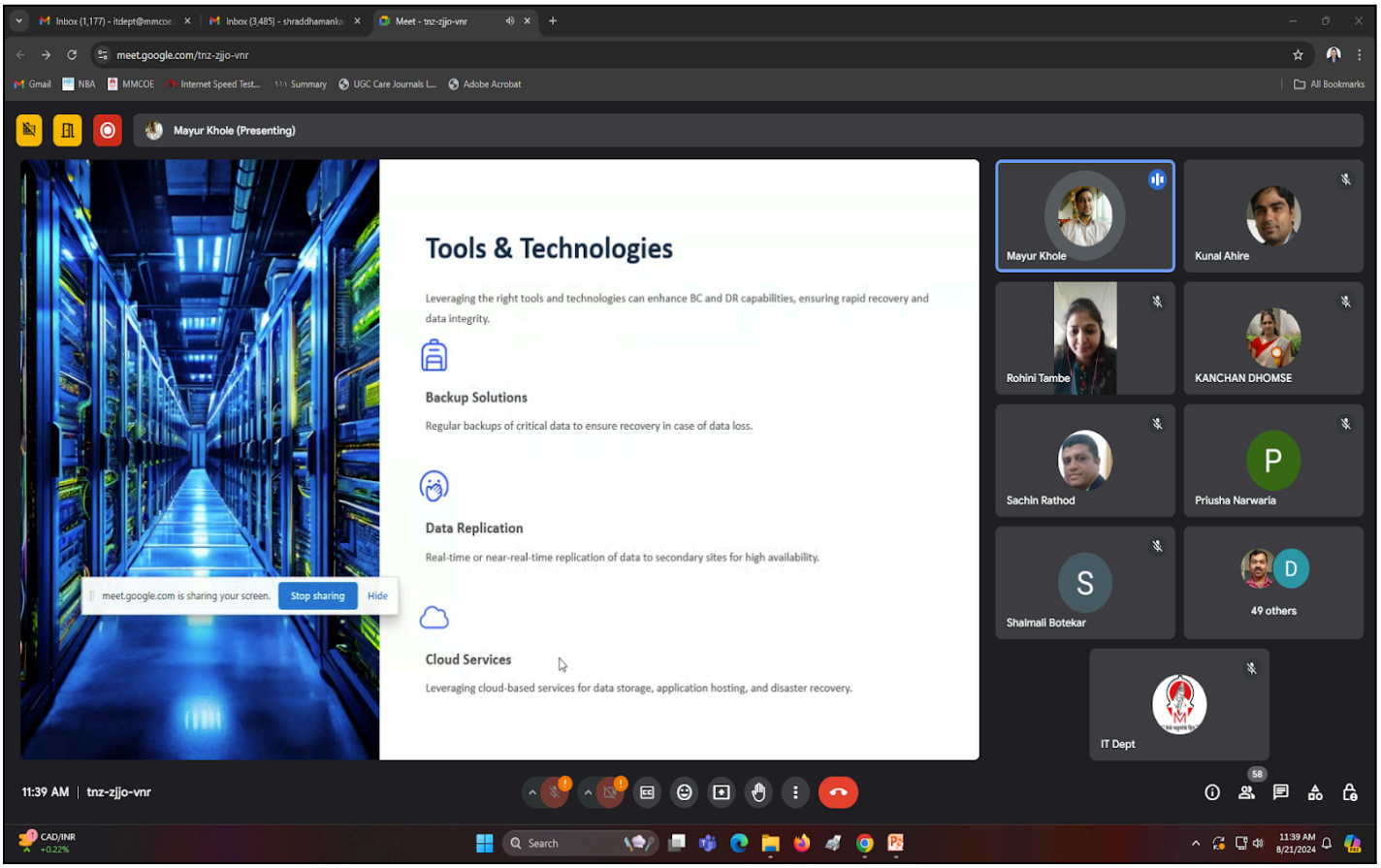

Let's meet the winners
IT Dexterity 2k24
Locker Escape
2nd
3rd

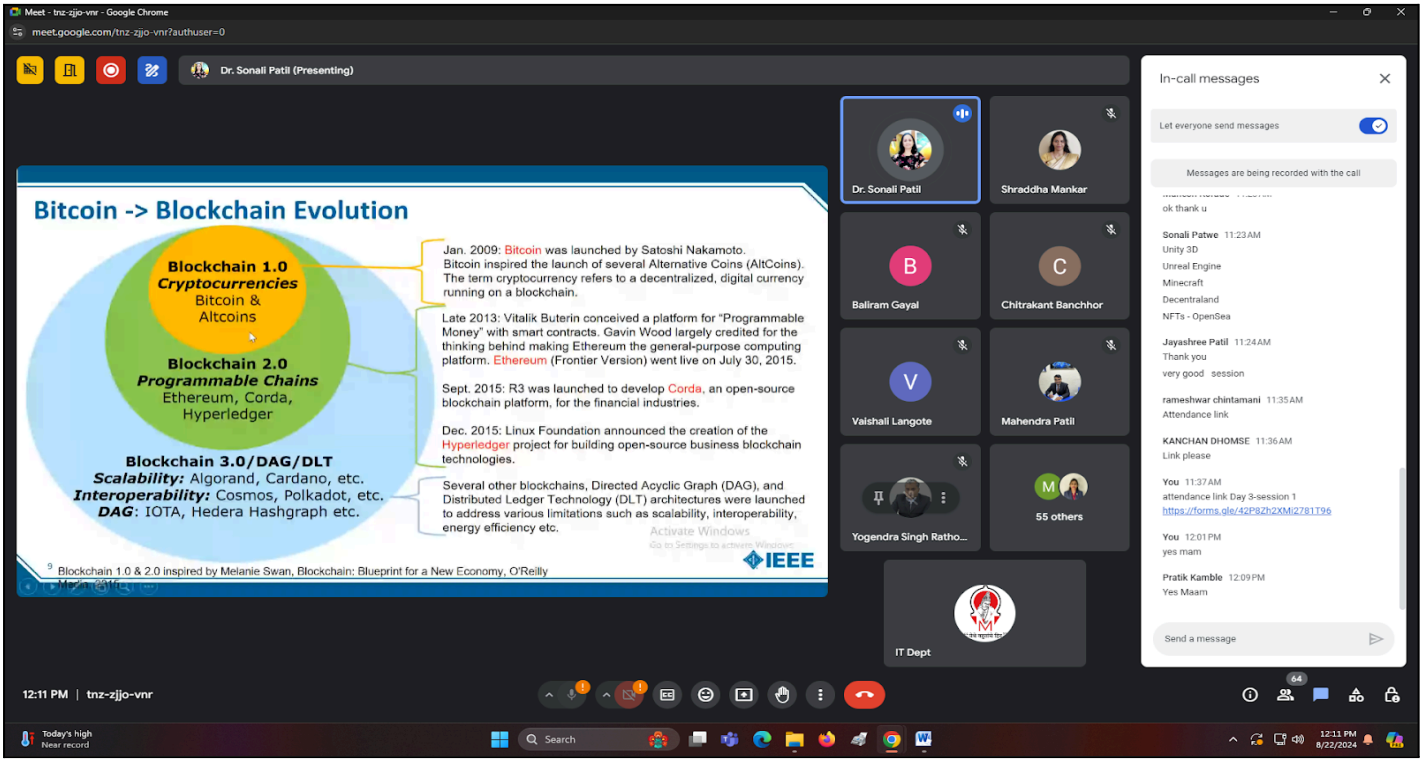
11. Center of Excellence

Activities under COE

Sr. No.	COE	Event Conducted	Domain
1	Blockchain	FDP on "Blockchain: The Next Frontier in Cybersecurity and Privacy"	Blockchain Technology
		Project on "Cryptocurrency Using Blockchain Technology"	
		Project on"Unlocking Blockchain: A Beginner's Guide to Decentralized Technology"	
2	Computational Intelligence	SDP on "Data Science" in association with Bharatsoft Solutions	Data Science and Machine Learning

Glimpses of Events





FDP on SecureChainCityCoin:A Convergence of Blockchain in Smart Cities

12. Result (AY 2024-25 Sem I)

Sr. No.	Class	No. of Students Appeared	Passing Percentage
1	SE	73	75.35
2	TE	63	98.41
3	BE	71	100

Our Toppers

Class	Rank	Name of Student	SGPA
SE	1	Somanache Rajvi Sachin	10
	2	Pangarkar Malhar Yogesh	9.59
	3	Sourabh M Phadtare	9.45
		Vaidya Varad Prasad	
TE	1	Salunkhe Prathmesh Ravindra	9.86
	2	Khandare Prathmesh Subhash	9.71
	3	Pawar Siddhi Suresh	9.62
BE	1	Kothimbire Sneha Shivaji	10
		Kuchankar Aryan Babarao	
		Magdum Suraj Gafar	
	2	Velankar Isha Shivaji	9.95
	3	Kudapane Aishwarya Bharat	9.90
		Ladhe Vaibhavi Vikas	

13. Technical Blogs by Students

Title : Tech and Transportation: Japan
Author : Shravani Avinash Jadhav(TE-IT)

Introduction:

Japan is globally recognized for its cutting-edge public transportation system. From the iconic Shinkansen (bullet trains) to AI-powered scheduling and automated ticketing, Japan has set a benchmark in efficiency, reliability, and innovation. In this blog, we will explore how technology has transformed public transport in Japan, making it one of the best systems in the world.

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1. The Marvel of Shinkansen: Japan's High-Speed Bullet Trains

- **History & Development**

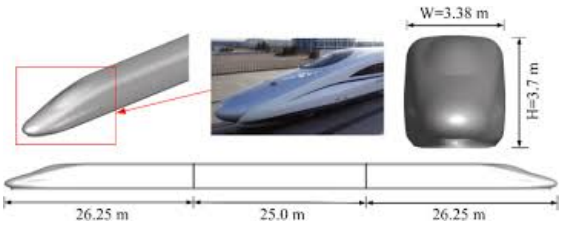
The Shinkansen, introduced in 1964, was the world's first high-speed rail system, initially connecting Tokyo and Osaka. Over the years, it has expanded into a vast network covering almost all major cities in Japan. Today, it is one of the fastest, safest, and most punctual train systems in the world.

Speed & Efficiency

- The fastest Shinkansen can reach speeds of up to 320 km/h (199 mph), reducing long travel times significantly.
- The Maglev (Magnetic Levitation) Shinkansen, currently under development, is expected to reach speeds of 500 km/h (311 mph)!

Technology Behind the Shinkansen

1. Aerodynamic Design: The nose shape (inspired by the Kingfisher bird) reduces air resistance and noise pollution.



2. Earthquake Detection & Safety: Advanced sensors automatically stop trains during earthquakes, ensuring passenger safety.
3. AI-Powered Scheduling: AI optimizes train departure, arrival, and maintenance schedules, reducing delays to mere seconds!

Environmental Impact

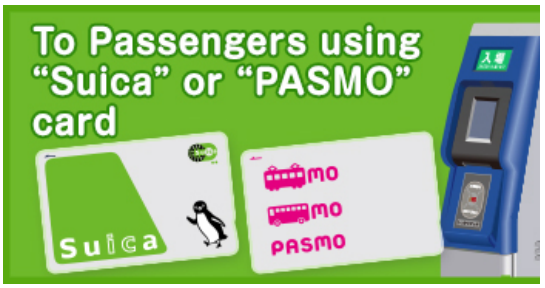
- The Shinkansen is designed to be energy-efficient, emitting less CO_2 compared to airplanes or cars.
- The introduction of hydrogen-powered trains is being explored to reduce emissions further.

2. Automated Ticketing Systems: No More Long Queues!

Japan has eliminated the need for paper tickets with automated ticketing systems like IC Cards and QR-based ticketing.

Types of Automated Ticketing

1. IC Cards (Suica, Pasmo, ICOCA, etc.)
    - These contactless smart cards can be recharged and used across trains, buses, and even vending machines.
    - They enable seamless, cashless travel, reducing wait times.



2. Facial Recognition & QR-Based Ticketing
    - Some stations have AI-powered facial recognition systems that allow passengers to enter without using a card or ticket.
    - QR code-based entry is also becoming common for digital tickets, reducing physical contact and improving efficiency.
3. Smartphone Apps for Ticket Booking
    - Apps like JR East's "Ekinet" and Shinkansen Reservation App allow passengers to book seats, make changes, and check train schedules in real-time.

Advantages of Automated Ticketing

✅ Faster entry & exit from stations
✅ Reduced human errors in ticketing
✅ Less paper waste, contributing to eco-friendly travel

3. AI-Powered Scheduling & Traffic Management

With millions of passengers traveling daily, Japan uses Artificial Intelligence (AI) and Big Data to optimize train schedules and prevent congestion.

AI & IoT in Public Transport

1. AI-Based Train Scheduling
    - AI predicts passenger flow and adjusts train frequency to reduce overcrowding.
    - Smart algorithms prevent delays and automatically reroute trains when necessary.
2. Real-Time Data Monitoring
    - Sensors installed in trains, stations, and tracks collect real-time data to detect potential failures before they happen.
    - AI analyzes weather patterns, passenger density, and accidents to adjust train speeds and routes dynamically.
3. Smart Traffic Management for Buses & Metro
    - AI-powered bus systems adjust timings based on traffic conditions and passenger demand.
    - Some Japanese cities have introduced self-driving buses to improve connectivity in rural areas.
4. 5G & Smart Stations
    - 5G technology enables ultra-fast communication between trains, allowing for instant updates and safety alerts.
    - Smart stations use AI-powered chatbots to help tourists with directions and ticket booking in multiple languages.

4. Future of Japan's Public Transport: What's Next?

Japan continues to push the boundaries of transportation technology. Here's what the future holds:

✅ Maglev Shinkansen – Expected to be operational by 2027, reducing Tokyo-Osaka travel time to just 67 minutes!

✅ Fully Autonomous Trains – AI-controlled trains with no human drivers are being tested for greater efficiency.

✅ Sustainable Energy Trains – Research on using hydrogen fuel cells to power trains is underway.

✅ Hyperloop Technology – Japan is exploring vacuum-based high-speed transport similar to Elon Musk's Hyperloop.

Conclusion: A Global Model for Smart Transport

Japan's public transportation system is a perfect blend of technology, efficiency, and sustainability. With bullet trains, automated ticketing, and AI-driven scheduling, Japan has redefined urban mobility. Other countries are now adopting similar smart technologies, making Japan a global leader in transportation innovation.

Title : How Generative AI is Changing the Creative Industries
Author : Prathmesh Salunkhe(TE-IT)

Introduction

The creative industries have always thrived on innovation and ingenuity. From the invention of the printing press to the advent of digital photography, new technologies have constantly reshaped the ways in which art, design, and storytelling are conceived and consumed. Today, generative AI is at the forefront of this transformation, redefining the boundaries of creativity and pushing the limits of human imagination.

The Rise of Generative AI

Generative AI refers to artificial intelligence systems capable of creating content such as images, music, text, and even video. Leveraging advanced machine learning models, these systems can analyze vast datasets and generate outputs that mirror human creativity. Tools like DALL·E, MidJourney, and ChatGPT have democratized access to sophisticated creative capabilities, allowing both professionals and enthusiasts to experiment with AI-generated art, design, and storytelling.

Revolutionizing Content Creation

One of the most striking impacts of generative AI lies in its ability to streamline and enhance content creation:

-Visual Art and Design: AI-generated artwork is challenging traditional notions of artistry. Digital artists are using AI to create intricate, unique pieces, blending human ingenuity with machine learning.

-Music Composition: Generative AI tools like AIVA and Amper Music are enabling composers to co-create musical compositions or automate the process altogether, opening up new possibilities for soundtracks and jingles.

-Creative Writing: From scriptwriting to poetry, generative AI is providing

authors with new ways to draft ideas, experiment with styles, and speed up the writing process.

Shifting Roles and Collaboration

Rather than replacing human creators, generative AI often acts as a collaborative tool. For example, graphic designers can use AI to generate concepts, which they refine into final works of art. Similarly, filmmakers can use AI to visualize scenes or storyboard their ideas before production begins. This synergy between human creativity and machine precision is sparking innovation like never before.

Challenges and Ethical Considerations

While generative AI offers exciting opportunities, it also raises important ethical questions. Issues like copyright infringement, biases in AI-generated content, and the authenticity of AI-created works are subjects of ongoing debate. It's crucial for creative professionals and tech developers to establish guidelines that ensure ethical use and recognition for human creators.

The Future of Creativity

Generative AI is not just a passing trend — it is reshaping the creative landscape. As these tools continue to evolve, they will empower a new generation of creators to experiment, innovate, and redefine artistic boundaries. The fusion of human creativity and AI promises to open up uncharted possibilities in the arts, offering a glimpse into a future where imagination knows no limits

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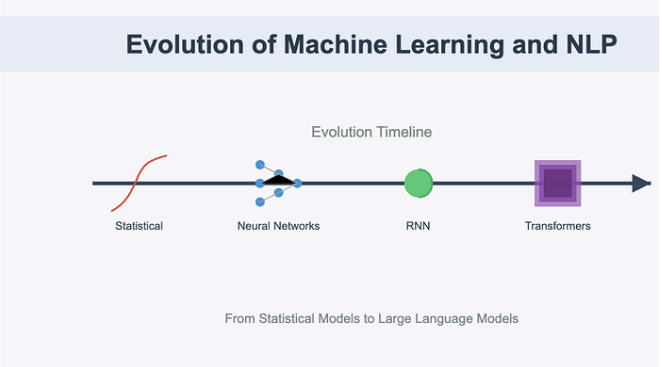
Title : Transformers: Revolutionizing Natural Language Processing

Author : Anupama Tilak (TE-IT)

Transformers are a type of deep learning model introduced in the "Attention Is All You Need" paper by Vaswani et al. (2017).

Introduction

Transformers have transformed the field of Natural Language Processing (NLP) by introducing a powerful deep-learning architecture that excels in understanding and generating human language. Unlike traditional sequence models like RNNs and LSTMs, transformers use self-attention mechanisms to process entire sequences at once, making them highly efficient and scalable.



Need of Transformers

Before transformers, models like Recurrent Neural Networks (RNNs) and Long Short-Term Memory (LSTMs) were used to process sequential data. However, they faced significant limitations:

1. ***Long-Term Dependency Issue*** — *RNNs struggle with retaining information over long sequences.*
2. ***Sequential Processing*** — *They process one word at a time, making training slow.*
3. ***Vanishing Gradient Problem*** — *Information from earlier words gets diluted over long sentences.*

Transformers introduce a parallelized approach using the ***self-attention mechanism****, allowing them to*

- *Process words simultaneously instead of sequentially.*
- *Retain long-term dependencies efficiently.*
- *Handle complex language structures better than previous models.*

Architecture of Transformers

A transformer model consists of two main components:

Encoder — Processes the input sequence and extracts contextual representations.

Decoder — Uses these representations to generate the output sequence.

Encoder: Understanding the Input

The encoder processes the input sentence by converting words into meaningful numerical representations. It consists of:

(a) Input Embedding

Each word in the input sentence is converted into a high-dimensional vector representation.

(b) Positional Encoding

Since transformers don't process words sequentially, positional encoding is added to retain word order information.

(c) Self-Attention Mechanism

This mechanism allows each word to focus on relevant words in the sentence, even if they are far apart. It works using ***Query (Q), Key (K), and Value (V)*** *matrices:*

- ***Query*** — *Represents the current word.*
- ***Key*** — *Represents other words in the sequence.*
- ***Value*** — *Provides the meaning of words.*

The attention score determines how much focus each word should give to other words. If the words are related , they will have high attention score and for the unrelated words, the attention score will be low.

(d) Feed-Forward Network (FFN)

After attention is applied, a fully connected feed-forward neural network refines the word representations.

(e) Layer Normalization & Residual Connections

These components help stabilize training and prevent information loss.

Decoder: Generating Output

The decoder takes the encoded input and generates output step by step. It includes:

(a) Masked Self-Attention

*Unlike the encoder, the decoder uses **masked self-attention** to ensure it only focuses on past words when predicting the next word.*

(b) Encoder-Decoder Attention

This mechanism ensures the decoder pays attention to important words in the input sequence.

(c) Feed-Forward Network (FFN) & Normalization

Like the encoder, the decoder also contains a feed-forward network and normalization layers to refine word predictions.

(d) Linear & Softmax Layers

*Finally, a **linear layer** maps the decoder's output to vocabulary words, and a **softmax function** selects the most probable word.*

How Transformers Power NLP Models

Transformers serve as the foundation for state-of-the-art NLP models, including:

- ***GPT (Generative Pre-trained Transformer)** — A model designed for generating human-like text.*
- ***T5 (Text-to-Text Transfer Transformer)** — A model capable of text summarization, translation, and question-answering.*

Conclusion

Transformers have revolutionized NLP by overcoming the limitations of traditional models. With their ability to process entire sequences in parallel, understand long-range dependencies, and generate high-quality text, they have become the backbone of modern AI applications. As research advances, transformers will continue to shape the future of artificial intelligence and human-computer interaction

14. Faculty Highlights

1. Seminar/ Workshop / Conferences Attended :

Sr. No.	Name of Faculty	Name of FDP/STTP/Conferences	FDP/ Workshop/ Conference	No. of Days	Date (From-To)

1	Dr Swapnaja Amol Ubale	Recent trends in Computing 4.0	FDP	6	8th July 2024 to 13th July 2024
2	Dr. Bharti Vasagi	Recent trends in Computing 4.0	FDP	6	8th July 2024 to 13th July 2024
3	Mrs. Preeti Joshi	Cyber Security and Ethical Hacking	FDP	5	26/08/2024 to 30/08/2024
4	Mr Nikhil Dhavase	National Level One Week Faculty Development Programme On Data Analytics Using Tableau	FDP	6	15th July 2024 to 20th July 2024
5	Ms. Shraddha Prakash Mankar	AI for Sustainable Development	FDP	5	5th August 2024 to 9th August 2024
6	Ms. Priti Warungse	AI for Sustainable Development	FDP	5	5th August 2024 to 9th August 2024
7		Dynamics of Research : IPR, Publication, Funding	FDP	3	25th June 2024 to 27th June 2024
8		Recent trends in Computing 4.0	FDP	6	8th July 2024 to 13th July 2024
9	Ms. Rohini Rankhamb	“Exploring IoT & 5G using AI,ML”	FDP	5	2nd September to 6th September 2024.
10		Cyber Security and Ethical Hacking	FDP	5	26/08/2024 to 30/08/2024
11		Recent trends in Computing 4.0	FDP	6	8th July 2024 to 13th July 2024
12		AI for Sustainable Development	FDP	5	5th August 2024 to 9th August 2024
13	Ms. Sneha Vanjari	Dynamics of Research : IPR, Publication, Funding	FDP	3	25th June 2024 to 27th June 2024
14		Recent trends in Computing 4.0	FDP	6	8th July 2024 to 13th July 2024
15		AI for Sustainable Development	FDP	5	5th August 2024 to 9th August 2024
16		Machine Learning and Artificial Intelligence	FDP	5	12th Aug to 19th Aug 2024.
17	Ms. Rohini Tambe	Artificial Intelligence by SkillDzire	FDP	30 Days	2nd Sept 2024 to 2nd Oct 2024
18	Ms. Punam chavan	Recent trends in Computing 4.0	FDP	6	8th July 2024 to 13th July 2024
19		Google Workspace for Education - Higher Ed Program	STTP	6	28 August 2024 to 9 Sept 2024.
20		Research Proposals, Publications and IPR	Workshop	6	23 Sept 2024 to 27 Sept 2024

21	Mr. Yogesh Pawar	Recent trends in Computing 4.0	FDP	6	8th July 2024 to 13th July 2024
22	Mr. Chavan Jitendra R.	REVOLUTIONARY AI: Blending Generative Power With Learning Machines	FDP	6	16 Dec 2024 to 20 Dec 2024
23		Generative-AI	FDP	6	7 Oct 2024 to 12 Oct 2024

2. Faculty Achievements :

Sr. No.	Name of faculty	Name of award/ recognition	Agency/ Body
1	Dr. Swapnaja A. Ubale	Reviewer	3 rd IEEE International Conference on Blockchain & Security
2	Dr. Bharati P. Vasgi	Reviewer	2nd IEEE International Conference on Artificial Intelligence and Quantum Computation-Based Sensor Applications, (ICAIQSA-2024)
3	Dr. Bharati P. Vasgi	Reviewer	2nd IEEE International Conference on Emerging Trends in Engineering and Medical Sciences

15. List of faculty members in the Department

- **List of Teaching Staff Members :**

Name of the Staff & Designation		Name of the Staff & Designation	
Dr. Swapnaja A. Ubale *Professor*		**Dr. Bharati P. Vasgi** *Associate Professor*	
Mrs. Preeti S. Joshi *Assistant Professor*		**Mr. Nikhil S. Dhavase** *Assistant Professor*	
Mr. Jitendra R. Chavan *Assistant Professor*		**Ms.Shraddha P. .Mankar** *Assistant professor*	
Mr. Yogesh J. Pawar *Assistant Professor*		**Ms. Punam V. Chavan** *Assistant Professor*	

Mrs. Sneha Vanjari *Assistant Professor*		**Ms.Rohini Rankhamb** *Assistant Professor*	
Ms. Priti Warungase *Assistant Professor*		**Ms.Rohini Tambe** *Assistant Professor*	
Mrs. Asharani Chadchankar *Assistant Professor*			

- **List of Visiting/Adjunct/Professor of Practice:**

Name of the Staff & Designation	
Mr. Dipak Pawar *Adjunct Faculty* *ME E&TC, Data Scientist at Collabera Digital*	

- **List of Non-Teaching Staff Members :**

Name of the Staff & Designation		Name of the Staff & Designation	
Mrs. Smita Kari *Lab Assistant*		**Mr. Dinkar R. Patil** *Technical Assistant*	

InTegenious

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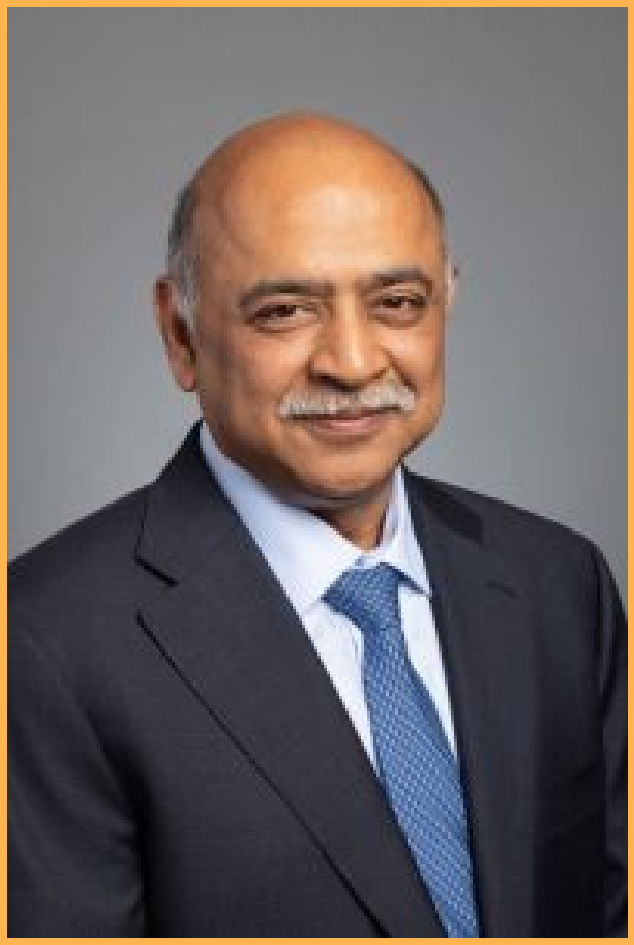
"The only way you survive is you continuously transform into something else "



Arvind Krishna

23 November 1962

"Chairman and CEO of IBM"