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VIDYAVARDHINI'S COLLEGE OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION

ENGINEERING (NBA AND NAAC ACCREDITED)

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FROM THE HOD'S DESK



It gives me immense pleasure and honor to present the annual technical magazine of the Electronics and Telecommunication Engineering department for the academic year 2024-25. In today's rapidly evolving technological landscape, it is more important to focus on developing technical skills that align with the fast-changing industrial scenario. The ETA Committee's efforts are precisely in this direction, and this year's PULSE Magazine, the 15th edition, is the fruitful result of their hard work. The department conducted training on advancements in technology in association with IIT Bombay, which has led to an increased number of students opting for assignments and jobs in core technical fields.

PULSE reflects the dynamic changes in the industry, and this year, the theme is "Generative AI: The Science of Creative Intelligence." This field has garnered immense attention recently as it holds the potential to revolutionize industries by leveraging the power of artificial intelligence to generate creative solutions. From designing art to solving real life complex problems, Generative AI is at the forefront of innovation and is transforming fields such as healthcare, entertainment, and business. As AI continues to evolve, it plays a pivotal role in unleashing the power of creative intelligence, shaping the future of technology.

The various activities and events led by faculty members and students, in collaboration with IEEE VCET SB and IETE VCET SF, have significantly contributed to the department's growth. Alumni interviews, industry visits, and technical events have been instrumental in bridging the gap between academia and industry.

Building this magazine from the ground up, learning from the predecessors, and striving for excellence to create this beloved PULSE is truly the result of great teamwork by the ETA Committee. I would also like to extend my appreciation for the guiding work done by Mrs. Ashwini Katkar, the staff in charge of the ETA.

I send my best regards to the entire ETA team and wish them continued success in their future endeavors.

Dr. Amrita Ruperee HOD, EXTC





FROM THE STAFF INCHARGE



Dear Readers,

Greetings from ETA Pulse! I am delighted to welcome you to our publication. At Pulse, we're passionate about exploring the latest advancements and breakthroughs in technology. We're also dedicated to showcasing the innovative work of our students and faculty, whether it's a cutting-edge startup or a groundbreaking research project, curricular or extracurricular achievements. Our goal is to inspire others to push boundaries and achieve greatness.

We know that college is a time of exploration, so our magazine is here to keep you updated on the latest trends and best practices in your field. Our articles are crafted to be informative and engaging, ensuring you stay informed while enjoying the ride.

The theme of Pulse'25 is "Generative AI: The Science of Creative Intelligence," encompassing a broad spectrum of topics, from an introduction to the field, its applications, emerging technologies, ethical considerations, future trends, and the potential job opportunities it opens up. In addition, we are pleased to feature interviews with our esteemed alumni who have achieved success in this exciting and rapidly evolving field.

I would like to extend my sincere gratitude to Dr. Rakesh Himte, Principal, for his invaluable support, and to Dr. Amrita Ruperee, our HOD, EXTC, for her unwavering guidance and assistance. I would also like to commend the hard work of Mr. Vishal Tiwari, Secretary and Ms. Alfiya Shaikh, Deputy Secretary, and the entire team 'ETA' for their dedicated efforts. I sincerely appreciate you selecting our magazine as your go-to source for information and inspiration. Our dedication lies in delivering top-notch content and we eagerly anticipate receiving your valuable feedback and suggestions.

Happy Reading!

Mrs. Ashwini Sunil Katkar Staff in Charge, ETA





FROM THE SECRETARY DESK



It is my honour to introduce our latest magazine on Generative AI. This journey has been incredible, filled with learning, challenges, and growth. ETA is more than just a committee, it's a platform that pushes us to improve, to explore beyond our limits, and to expand our knowledge. It's a community of passionate individuals who are always eager to stay ahead in the ever-evolving field of Electronics and Telecommunication.

Over the years, we have continuously evolved, sharpening our skills and broadening our perspectives through research for our newsletters and magazines. As Secretary, I've had the privilege of working with a team of exceptionally talented individuals, people who have dedicated their time, expertise, and enthusiasm to the committee's work. More than just teammates, they have been the driving force behind our success.

Throughout my tenure, I have always believed in fostering team spirit, encouraging time management, and creating an environment where every member feels valued. This magazine is a reflection of our collective efforts, and I hope it not only informs but also inspires you to dive deeper into the world of Generative AI.

I would like to express my sincere gratitude to our respected HOD and our Staff-In-Charge for their invaluable support and guidance. I would also like to thank my team without them, this magazine would not have been possible.

Mr. Vishal Tiwari Secretary,ETA



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Generative AI refers to a subset of artificial intelligence that focuses on creating new content—such as text, images, audio, or code—by learning patterns from existing data. Unlike traditional AI systems that perform specific tasks based on predefined rules, generative AI models, like GPT-4 and DALL·E, utilize deep learning techniques to produce novel outputs that closely resemble human-generated content. These models are trained on vast datasets, enabling them to understand and replicate the intricacies of language, visuals, and other data forms. The emergence of transformer-based architectures has significantly advanced the capabilities of generative AI, leading to applications in various industries, including creative arts, entertainment, and education. However, the rise of generative AI also raises ethical considerations, such as the potential for misuse in creating deepfakes or spreading misinformation, highlighting the need for responsible development and deployment of these technologies.

TIMELINE OF AI



HOW GENERATIVE AI WORKS!



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Fig. 1: How Generative AI works

Generative AI operates through a series of backend processes that enable machines to create new content resembling human-generated material. The key steps involved are:

- 1. Data Collection and Preprocessing: Amass extensive datasets relevant to the desired content type—text, images, music, or code. This data is then cleaned and organized to ensure quality and consistency.
- 2. **Model Selection:** Choose an appropriate AI model architecture tailored to the content generation task. Options include:
 - Transformer-based Models: Ideal for natural language processing tasks.
 - Convolutional Neural Networks (CNNs): Suited for image-related applications.
 - *Recurrent Neural Networks (RNNs)*: Effective for sequential data like music or time-series analysis.
- 3. **Training the Model:** Feed the preprocessed data into the selected model, allowing it to learn patterns and structures inherent in the data. This phase involves:
 - Forward Propagation: Input data passes through the model to generate predictions.
 - Loss Calculation: Evaluate the difference between predicted outputs and actual data.
 - *Backpropagation*: Adjust model parameters to minimize errors, enhancing accuracy over iterative cycles.
- 4. Fine-Tuning: Refine the pre-trained model on specialized datasets to tailor its outputs to specific applications or domains. Techniques like Reinforcement Learning from Human Feedback (RLHF) are often employed to align model responses with human preferences.
- 5. Integration and Deployment: Embed the trained model into applications via APIs or other interfaces, enabling it to generate content in real-time based on user inputs.
- 6. Continuous Monitoring and Updating: Regularly assess the model's performance, collecting user feedback to identify areas for improvement. Update the model periodically to maintain relevance and accuracy in its outputs.

By meticulously executing these steps, generative AI systems can produce high-quality, contextually relevant content across diverse mediums.

Transformer Models: The Key to Human-Like Content Generation



Fig. 2 : Architecture of Transformer Models

Transformers enhance efficiency and contextawareness for realistic AI-generated content. Why Transformers Stand Out

- Self-Attention: Analyzes entire input sequences at once for better context.
- Parallel Processing: Processes multiple elements simultaneously, improving speed.
- Context Retention: Remembers long-range dependencies better than RNNs.

Popular Transformer Models

- GPT: Powers ChatGPT for text generation.
- DALL'E & Stable Diffusion: Generate images from text.
- BERT: Enhances search engines and chatbots by understanding language better.



ELIZA: Is something troubling you ? YOU: Men are all alike. ELIZA: What is the connection, do you suppose ? YOU: They're always bugging us about something or other. ELIZA: Can you think of a specific example ?

The first chatbot ever created was ELIZA developed in 1966 by Joseph Weizenbaum at MIT, laying the foundation for modern AI chatbots like Siri, Alexa, and ChatGPT!



ChatGPT generates responses through a structured sequence of steps:

- 1. User Input: A user types a prompt into the chat interface, such as, "Explain how ChatGPT works step by step."
- 2. Tokenization: The input is divided into tokens subwords, words, or characters. For example, "How does ChatGPT work?" becomes [How], [does], [Chat], [GPT], [work], [?]. These tokens are then converted into numerical representations for processing.
- 3. Context Understanding: Utilizing its Transformer architecture, ChatGPT analyzes the tokens, considering the context of the current and previous interactions to comprehend the user's intent.
- 4. Response Generation: The model predicts the most probable next words based on learned patterns. For instance, given the input, it might predict:
 - "...generate human-like text." (85%)
 - "...play chess." (5%)
 - "...cook food." (1%), The model selects the most appropriate continuation.
- 5. Formatting: The chosen tokens are converted back into coherent, grammatically correct text.
- 6. Response Delivery: The generated response is presented to the user in the chat interface, enabling seamless interaction.

This process allows ChatGPT to produce relevant and contextually appropriate responses.

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AI TECH GIANTS: SHAPING THE FUTURE OF GENERATIVE AI

Company	AI Expertise	Flagship AI Models/Tools	CEO
OpenAI	NLP, Generative AI, Multimodal AI	GPT-4, DALL·E, Whisper	Sam Altman
Google DeepMind O DeepMind	AGI Research, AI for Science, Robotics	Gemini, AlphaFold, AlphaCode	Demis Hassabis
Anthropic	AI Alignment, Safe AI, Conversational AI	Claude	Dario Amodei
Meta AI	Open-Source AI, AI for Social Media, VR & AR	LLaMA, Emu, AI- generated avatars	Mark Zuckerberg
Microsoft AI	AI for Productivity, Cloud AI, Enterprise AI	Copilot (MS Office), Azure AI	Satya Nadella
Stability AI stability.ai	Image Generation, Open-Source AI	Stable Diffusion, SDXL	Emad Mostaque
Amazon AI amazon	AI for E-Commerce, Cloud AI, Voice Assistants	Alexa AI, AWS AI Services	Andy Jassy
NVIDIA	AI Hardware, AI for Gaming, AI Acceleration	CUDA, AI-powered GPUs, Omniverse AI	Jensen Huang
IBM Watson	AI for Healthcare, Enterprise AI, Quantum AI	Watson AI, IBM Cloud AI	Arvind Krishna 05

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- ChatGPT is expected to remain the most used Generative AI tool, holding around 40% of the market
- Google's Gemini is projected to increase its share to 22%, driven by deep integration into Google Search and Android.
- Anthropic's Claude is growing steadily, reaching 15% market usage, fueled by partnerships and enterprise trust.
- Meta's LLaMA is expanding its influence in open-source AI, capturing 10% of the market.
- Stable Diffusion & MidJourney continue leading in AI-generated visuals, their market share remains smaller than textbased AI models.







Fig. 5 : Growth in Generative AI market size

The Generative AI market is experiencing rapid growth, driven by advancements in natural language processing and computer vision. In 2023, the market was valued at \$43.87 billion and is projected to reach \$967.65 billion by 2032, reflecting a compound annual growth rate (CAGR) of 39.6%. North America led with a 49.78% market share in 2023. The software segment dominated, accounting for 66.7% of revenue, due to increased demand and model enhancements. The COVID-19 pandemic accelerated digital transformation, boosting AI adoption across sectors. Overall, Generative AI is set to revolutionize industries and significantly contribute to economic growth in the coming decade.



India's Generative AI market is projected to skyrocket from approximately \$1.1 billion in 2023 to over \$17 billion by 2030, reflecting a remarkable compound annual growth rate (CAGR) of 48%.



Fig. 6 : Increase in GEN AI revenue

Market Growth: The Generative AI market is experiencing rapid expansion, with valuations increasing from approximately \$85 million in 2022 to a projected \$1,097 million by 2032, reflecting a Compound Annual Growth Rate (CAGR) of 30%.

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Tech Giants' Investments: Major technology companies are making substantial investments in AI. Microsoft has invested over \$13 billion in OpenAI to advance models like GPT-4. Google has committed \$2 billion to Anthropic to compete in the AI space. Other leaders, including Meta, Amazon, and Apple, are heavily funding AI research and infrastructure.

Impact on Stock Market: AI-centric companies such as Nvidia, Microsoft, and Google have seen their stock prices reach all-time highs, outperforming traditional tech firms. Hedge funds and financial firms are increasingly utilizing AI for automated trading, leading to higher profits and enhanced efficiency.



Fig. 7 : NVIDIA'S GEN AI CHIP

NVIDIA'S AI CHIP

The GenAI wave is increasing demand for AI chips and processors for training and deploying LLMs at scale. NVIDIA has surged to a \$2.7 trillion market cap, a 750% increase since the start of 2023, and has become the third most valuable company globally (NVIDIA is the leader in AI chips).However, even Nvidia is two to three months behind on new order fulfilment for cloud server chips. Training costs and computing power availability are becoming a constraint for startups and companies wanting to train and deploy LLMs. Globally, AI chips funding started ramping up in 2017-2018 and peaked in 2021.

<u>AI INVESTEMNT</u> AND GROWTH IN <u>INDIA</u>

India's artificial intelligence (AI) landscape is experiencing rapid growth, driven by substantial investments from both the public and private sectors. Projections indicate that the AI market in India is poised to reach approximately \$8 billion by 2025, with a compound annual growth rate (CAGR) exceeding 40% from 2020 to 2025. This expansion positions India as a significant player in the global AI arena.

Government Initiatives:

The Indian government has launched the **IndiaAI Mission**, a comprehensive program designed to foster AI innovation across various sectors, including healthcare, agriculture, and education. With a substantial investment of \$1.25 billion, this initiative aims to develop indigenous AI models tailored to the Indian context, emphasizing ethical and responsible technology deployment. A key component of this mission is the establishment of the IndiaAI Compute Facility, which will provide state-of-the-art shared computing infrastructure to support AI research and development.

• Private Sector Engagement:

Major technology companies are making significant investments in India's AI ecosystem:

- Microsoft: In January 2025, Microsoft announced a \$3 billion investment to expand its Azure cloud and AI capacities in India. This initiative underscores Microsoft's commitment to enhancing India's digital infrastructure and includes plans to train 10 million Indians in AI by 2030.
- Cognite: Backed by Saudi Aramco, • Cognite has established an AI services center in Bengaluru, focusing on with collaborations major Indian conglomerates. The company plans to invest millions of U.S. dollars in the region, reflecting India's strategic importance in the global AI landscape.



"Elon Musk's ×AI and Nvidia Join BlackRock and Microsoft's \$30bn AI Fund"

Published: March 18, 2025Elon Musk's AI company, xAI, and chip manufacturer Nvidia have joined a \$30 billion AI infrastructure fund backed by BlackRock, Microsoft, and Abu Dhabi. This collaboration aims to develop data centers and energy projects to meet the demands of generative AI.

Talent and Workforce Development:

India boasts a robust IT industry valued at \$250 billion, with a workforce comprising nearly 5 million programmers. This talent pool positions India favorably to capitalize on AI advancements. The demand for AI professionals is expected to grow at a CAGR of 15%, further solidifying India's role as a global AI hub.

Economic Impact:

AI has the potential to contribute \$500 billion to the Indian economy by 2025, revolutionizing key sectors such as agriculture, healthcare, urban planning, and manufacturing. This transformative impact is anticipated to drive inclusive growth and solidify India's position in the global AI landscape.

AI AGENTS

AI Agents are software programs designed to simulate human intelligence, enabling them to perceive their environment, make decisions, and take actions autonomously. They are widely used in fields such as customer service, healthcare, finance, and robotics. AI agents range from simple chatbots to advanced systems like autonomous vehicles.

Types of AI Agents:

1. Simple Reflex Agents

- These agents operate based on pre-defined rules, reacting to specific inputs with specific outputs.
- Example: A thermostat that turns on the heater when it gets cold.

2. Model-Based Reflex Agents

- They use an internal model to track changes and make informed decisions.
- Example: A self-driving car adjusting speed based on traffic.

3. Goal-Based Agents

- These agents take actions to achieve a specific goal, evaluating the best options.
- Example: Navigation systems like Google Maps calculating the shortest route.

4. Utility-Based Agents

- They maximize utility by assessing outcomes using mathematical models.
- Example: Stock trading AI optimizing investment decisions.

5. Learning Agents

- These agents improve over time by learning from their environment and feedback.
- *Example: ChatGPT enhancing responses through user interaction.*



https://cdn.educba.com/academy/wp-content/uploads/2019/10/Types-of-Intelligent-Agents.png

AI Agents in Real-Life Applications





Applications of AI Agents

1. Virtual Assistants

• Siri, Alexa, and Google Assistant use AI agents to understand voice commands and assist users with tasks.

2. Autonomous Vehicles

• Self-driving cars, like Tesla's Autopilot, rely on AI agents to navigate roads safely.

3. Healthcare & Diagnosis

- AI agents in healthcare help in diagnosing diseases, predicting patient outcomes, and assisting in surgeries.
- Example: IBM Watson helps doctors make data-driven medical decisions.

4. Customer Service Chatbots

• AI agents power chatbots like ChatGPT, Bard, and Drift, which provide 24/7 customer support.

5. AI in Cybersecurity

- AI agents detect and prevent cyber threats, phishing attacks, and malware intrusions.
- Example: Darktrace AI autonomously identifies cyber threats in organizations.

- DID YOU KNOW?

"Autonomous AI agents are projected to replace 40% of manual data-processing jobs by 2035, revolutionizing industries like finance and healthcare." – McKinsey & Company

Fig. 8 : Types of AI Agents

Generative AI: Challenges & Ethics

KISKS

Privacy

Deepfakes

Persuasive S

Fig. 9:Risk of AI

"Artificial Intelligence is like fire. It can cook your food or burn your house down." — Elon Musk

Generative AI: Risks & Ethical Concerns

Generative AI has revolutionized industries, enabling creativity, automation, and problem-solving at an unprecedented scale. However, its rapid advancement also brings serious ethical, security, and societal challenges. Let's explore the **Darker side of Generative AI** and the risks it poses.

AI Risks at a Glance:

AI poses risks like spreading misinformation, enabling fraud through deepfakes, and automating jobs in creative and service sectors. Overuse can lead to uninspired content, while biases reinforce unfair practices. AI-powered surveillance threatens privacy, and cyber threats become more advanced. False data, ethical challenges, and high energy consumption further complicate its impact. Balancing innovation with responsible regulation is essential.



BIAS

SCAM

ALERT

Job Displacement

In 2024, a terrifying deepfake kidnapping scam emerged in the US, where criminals used AIgenerated voice cloning to trick a mother into 15-year-old believing her daughter was kidnapped. The scammer played a perfect replica of her daughter's voice, crying and begging for help, demanding a \$1 million ransom. The mother was moments away from transferring funds when law enforcement intervened. This case showcased how AI voice cloning can be used to emotionally manipulate victims into handing over large sums of money.

AI Deepfake CEO Scam Costs UK Company \$243,000 (2023)

Ethical

Power-seeking

Weaponization

In 2023, cybercriminals used AI-generated deepfake technology to impersonate the CEO of a UK-based company. The finance department received a video call from what appeared to be their CEO, instructing them to wire \$243,000 to international account for an an urgent acquisition. The deepfake was so convincing that employees transferred the money without suspicion. By the time authorities intervened, the funds had disappeared. This incident exposed how AI-generated voices and video manipulation could bypass traditional fraud detection measures.

GOVERNMENT FAKES THE LEAD!

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In early 2024, AI-generated fake news and deepfake propaganda surged across the U.S., India, and the EU, affecting elections and public trust. During the U.S. presidential primaries, deepfake videos of candidates went viral, and AI-generated robocalls mimicking President Biden discouraged voter participation. In India's state elections, AI-created fake interviews misled millions on WhatsApp, fueling political tensions. In response, governments implemented strict regulations: the U.S. FCC banned AI-generated robocalls and imposed penalties on AI misuse in campaigns, the EU's AI Act (2024) mandated transparency for AI-generated political ads, and India's Election Commission launched an AI task force with strict penalties for misinformation. By 2025, global governments are enforcing stricter AI regulations, emphasizing transparency, fact-checking, and accountability to combat AI-driven misinformation, voter suppression, and election interference.



India's Legal and Regulatory Framework for Generative AI

India is actively working on regulating AI, including Generative AI, through existing and proposed laws. Existing Legal Frameworks

While India lacks a dedicated AI law, several regulations address AI-related concerns:

- *Digital Personal Data Protection Act 2023*: Enacted in August 2023, this law governs data protection, crucial for AI development.
- Copyright Act 1957: Protects intellectual property, relevant for AI-generated content.
- *Information Technology Act 2000:* Regulates digital transactions and cyber activities, covering aspects of AI usage.

Proposed Legislation

• Digital India Act (DIA) 2023: Expected to replace the IT Act 2000, DIA will regulate AI ethics, highrisk AI systems, and transparency in AI-generated content.

Government Initiatives

- *Meit Y Advisories*: AI models must avoid bias and not undermine electoral integrity.
- AI Safety Guidelines: Planned regulations will ensure transparency in AI training data.

Recent Developments

- Copyright Lawsuit Against OpenAI (2025): Indian publishers sued OpenAI for unauthorized use of copyrighted content.
- *AI Tools Advisory (2025):* India's Finance Ministry advised officials against using ChatGPT and DeepSeek due to data privacy concerns.

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WILL AI TAKE YOUR JOB?

The rise of generative AI has sparked widespread debate about the future of employment. While some fear widespread job displacement, the reality is more nuanced. AI is poised to transform the job market rather than eliminate it, creating new opportunities while changing existing roles.

AI technology is rapidly transforming the workplace, with these roles facing the highest risk of automation: data entry specialists, customer service representatives, basic content creators, translators, administrative assistants, market researchers, retail cashiers, legal document reviewers, routine software testers, and basic graphic designers. These positions typically involve predictable, rule-based tasks that AI systems can execute efficiently, potentially displacing human workers or fundamentally changing how these roles function.



https://miro.medium.com/v2/resize:fit:1057/1*nPJ6-KZRVMRbhwtUjjYpug.png Fig. 10 :Learning path of AI

Preparing for the Generative AI Job Market

Essential Skills

- Technical Literacy: Understanding AI fundamentals, even for non-technical roles
- Critical Thinking: Evaluating AI outputs and making judgment calls
- Domain Expertise + AI Knowledge: Combining field-specific knowledge with AI capabilities
- Adaptability: Embracing continuous learning as technology evolves
- Human-AI Collaboration: Working effectively alongside AI systems

Learning Pathways

- Formal Education: Degrees in AI, machine learning, or domain-specific AI applications
- Certifications: Specialized courses in AI tools and methodologies
- Hands-on Projects: Building a portfolio demonstrating AI application skills
- Interdisciplinary Studies: Combining technical AI knowledge with business, ethics, or domain expertise

Top Educational Programs for Generative AI

India

- 1. *Indian Institute of Technology (IIT) Delhi* -M.Tech in Artificial Intelligence
- 2. *Indian Institute of Science (IISc) Bangalore* PG Diploma in AI and Machine Learning
- 3. *International Institute of Information Technology* (*IIIT*) *Hyderabad* - MS in Computational Linguistics and AI
- 4. *Indian Institute of Technology (IIT) Bombay* -B.Tech in AI and Data Science
- 5. *Plaksha University, Mohali* AI and Machine Learning specializations

Global

- 1. *Stanford University (USA)* MS in Computer Science with AI specialization
- 2. *Massachusetts Institute of Technology (USA)* AI-focused programs through CSAIL
- 3. *Carnegie Mellon University (USA)* Master of Science in Machine Learning
- 4. *University of Cambridge (UK)* MPhil in Machine Learning and Machine Intelligence
- 5. *ETH Zurich (Switzerland)* MSc in Data Science with AI focus
- 6. *University of Toronto (Canada)* M.Sc. in Applied Computing with AI concentration
- 7. *Tsinghua University (China)* Master's program in AI and Machine Learning
- 8. *National University of Singapore* MSc in Artificial Intelligence

Elon Musk (Tesla & SpaceX CEO) – "AI poses one of the biggest existential threats to humanity, and we must regulate it before it's too late."



Fig. 11 : Job profiles in AI New Careers AI is Creating:

- **AI Trainers**: Improve AI by teaching models and refining algorithms.
- Data Annotators: Label data to help AI learn patterns.
- **Prompt Engineers:** Design inputs for better AI responses.
- AI Ethics Auditors: Ensure ethical AI use and prevent bias.
- AI Product Mnagers: Align AI products with business goals.
- AI Researchers: Develop and enhance AI algorithms.
- AI Cybersecurity Specialists: Safeguard AI from cyber threats.

AI-Enhanced Traditional Roles

- AI-Augmented Marketers: Using generative AI for content creation and data analysis
- **AI-Powered Designers:** Leveraging AI tools for rapid prototyping and creation
- AI-Enhanced Legal Professionals: Employing AI for document review and research
- AI-Integrated Healthcare Providers: Using AI for diagnostics and treatment planning

Future Predictions forGenerative AI (2030 & Beyond)

AI as a Research Partner – AI will help scientists develop new medicines, solve mathematical proofs, and explore deep space faster than ever.

AI-Human Conversations – Conversational AI will become indistinguishable from human interactions, making chatbots as reliable as human assistants.

Hyper-Personalized Shopping – AI will design custom clothing, meal plans, and even homes based on your habits and tastes.

AI-Powered Creativity – AI-generated art and music will become mainstream, challenging traditional human creativity.

 Al Series Al Ethics & Regulation – Governments will impose stricter AI laws to prevent deepfake misuse, biased decision-making, and mass job displacement.

AI & Sustainability – Future AI models will be designed to run on renewable energy, reducing their carbon footprint.

AI in Personalized Medicine – AI will create customized treatment plans based on a person's genetics, lifestyle, and health history.



"Generative AI doesn't remove the need for original thought—it challenges us to think even deeper."

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AI Advancements Expected by 2030

By 2030, AI will revolutionize industries with:

- *Advanced NLP*: Near-human language comprehension for seamless interactions.
- *Autonomous Systems*: Widespread adoption of self-driving vehicles and robotics.
- *Personalized AI Assistants*: Intelligent tools enhancing personal and professional productivity.
- *AI in Healthcare*: Improved diagnostics and personalized treatments.
- *Green AI:* Focus on energy-efficient models to minimize environmental impact.



Fig.12 :Generative AI : The Path to Impact The Rise of AGI (Artificial General Intelligence)

- Artificial General Intelligence, capable of human-like intellectual tasks, is on the horizon
- Milestones: Early-stage AGI systems with generalized reasoning by 2030.
- Ethical and Economic Impacts: Challenges in safety, regulation, and labor markets alongside innovation opportunities.



"In the future, generative AI will not replace human creativity but will amplify it, enabling new forms of expression we've yet to imagine." — Sam Altman (CEO, OpenAI)

Quantum AI & Next-Gen Computing

Quantum computing will accelerate AI capabilities: Efficiency: Optimization in complex systems like drug discovery and supply chains.

New Algorithms: Breakthroughs in AI training and deployment.

Challenges: Hardware scalability and stability remain hurdles.

📢 Shaping AI's Future Together

AI is transforming our world—from healthcare to entertainment. The question is not whether AI will shape the future, but how we will shape AI.

AI's Role: Boosting creativity, solving global challenges, and ensuring ethical development.

Your Role: Stay informed, learn AI skills, advocate for ethical policies, and explore creative uses. AI's future is in our hands. Will you shape it or watch from the sidelines?

Gen-Al Meets Human Intelligence: "Let's Shape the Future!" GPS Map Camera

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MEET OUR DEPARTMENT



Dr. Amrita Ruperee Ph.D. (Wireless Communication) Area of interest: Wireless Communication



Dr. Vikas Gupta Ph.D. (EXTC) Area of interest: VLSI, Signal Processing, Digital Communication, Satellite & Radar Communication



Dr. Sunayana Jadhav Ph.D. (Electronics) Area of interest: Wireless Networks



Dr. Ashish Vanmali Ph.D. (IIT Bombay) M. Tech. (IIT Bomaby) B. E. (University of Mumbai) Area of interest: Image Processing, Video Processing, Signal Processing, IoT



Ms. Shaista Khanam M.E. (Electronics) (Ph.D Pursuing) Area of interest: Microprocessor and Microcontroller, VLSI



Ms. Shraddha GosaviM.E. (EXTC) Area of interest: Speech Recognition, Optical Fiber Communication



Ms. Sandhya Supalka M.E. (Electronics) Area of interest: Image Processing, VLSI



Ms. Ashwini Katkar M.E. (EXTC) (Ph.D Pursuing) Area of interest: Nano-communication



Ms. Neha Gharat M.E. (EXTC) (Ph.D Pursuing) Area of interest: Image Processing, Microwave

MEET OUR DEPARTMENT



Ms. Trupti Shah M.E. (Electronion) (Ph.D Pursuing) Area of interest: Image Processing



Mr. Sandeep Pawar M.Tech (EXTC) Area of interest: VLSI, Signal Processing, Digital Communication, Satellite & Radar Communication



Ms. Kanchan Sarmalkar M. E. (Instrumentation and Control) Area of interest: Embedded Systems, Automation



Ms. Bharati Gondhalekar M.E.(EXTC)

Mrs. Diksha Save Lab Technician

Mrs. Bhagyashree Rane Lab Technician

Mrs. Harita Raut Lab Technician





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IEEE VCET SB organized an exciting F.E. Quiz Competition for all the first-year students on 7th February 2025. The FE quiz was organized to cheer up the first-year students as they begin their engineering journey. The students from all the departments were the enthusiastic audience to witness this exciting event. All the students were at the edge of their seats to know the answers and the participants were very active. The event concluded with the prize distribution ceremony. The winners and the runner-up were felicitated by the HOD of EXTC who shared his words of wisdom and encouraged students to take part in such activities. FE Quiz was indeed a learning experience for both the audience and the participants. The participants were thrilled to be a part of the beautifully organized event.

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IEEE-SB in association with First Year Engineering organized a 2 days Arduino workshop on February 5th, 2025 for first-year students, conducted by Ms. Shaista Khanam and Ms. Trupti Shah. The workshop focused on fundamental Arduino programming, covering topics such as hardware and software programming to enhance skills in Arduino and its simulator. It began with an overview of components and basic coding for Arduino UNO. Participants learned to use the Arduino IDE, connect their Arduino to a computer, and upload programs. This initiative aimed to equip students with essential Arduino knowledge for their future projects.

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DEPARTMENTAL EVENTS LOGO MAKING COMPITITION



On September 3, 2024, department in collaboration with IEEE-SB, hosted a "Logo Making" competition judged by Mr. Ashish Vanmali. The event encouraged participants to showcase their creativity by designing a logo for 'IC3ET' using various design software within a one-hour timeframe. It aimed to enhance design skills, foster teamwork, and boost student engagement while providing a fun platform for students to express their artistic talents. The competition concluded positively, celebrating the creativity and effort of all participants.

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THINK ALOUD



On Augest 9, 2024, the department in collaboration with IEEE-SB, hosted the "Think Aloud" group discussion competition to enhance students' confidence, public speaking, and analytical skills. The event featured individual group speeches followed by discussions among twelve finalists. promoting respectful dialogue and teamwork. It provided a valuable learning experience and fostered inter-branch interaction in a supportive environment.

NATIONAL SCIENCE DAY



The National Science Day was organized by the IEEE Student Branch in association with the FE Department, led by Dr. Amrita Ruperee, Dr. Sunayana Jadhav, and Ms. Chandrakishori Sonarkar. Participants from all branches of the FE Department showcased their knowledge and presentation skills, promoting engagement in scientific exploration and innovation. The event fostered collaboration and enthusiasm for science among students.

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DEPARTMENTAL EVENTS

WORKSHOP ON PT-51 MICROCONTROLLER

The "Workshop on PT-51 Microcontrollers," held from July 3 to July 14, 2024, with 48 participants, was conducted by Ms. Shaista Khanam, Ms. Trupti Shah, and Ms. Kanchan Sarmalkar. It focused on microcontroller programming, interfacing techniques, and real-world applications, covering architecture, instruction sets, and hands-on sessions with LEDs and peripherals, enhancing skills in embedded system design and fostering innovation in technology.

CPLD TRAINING



ng 7 :.828864 AM GMT+05:30 y GP: Map Camer The Department in association with IEEE SB, organized a 30-hour Student Development Program on "Digital System Design and Verification using the CPLD (Krypton) Board" for third-year students. The program was conducted by Dr. Sunayana Jadhav, Associate Professor, and Ms. Sandhya Supalkar, Assistant Professor, from the EXTC Department. The program was designed to equip students with the skills necessary to meet industry standards and requirements. The program aimed to provide students with a comprehensive understanding of Quartus software, multiplexers, various types of adders, and both combinational and sequential circuits, while exploring different architectural styles using VHDL.

WAVE TALK: EXPLORING DSP

The "Wave Talk: Exploring DSP in Speech Processing" event took place on 18th October 2024 in association with IETE, conducted by Dr. Ashish Vanmali. The session provided an insightful exploration of how Digital Signal Processing (DSP) is transforming speech technologies, such as voice assistants, speech-totext systems, and noise cancellation. Through engaging discussions, live demos, and expert insights, attendees learned about the core principles, advanced techniques, and real-world applications of DSP in speech analysis, synthesis, and recognition.

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DEPARTMENTAL EVENTS

SEMINAR ON NVIDIA



The "Seminar on NVIDIA Jetson AI Edge Device" was held on 30th August 2024 in association with IETE, with Mr. Anil Sarode as the speaker. The seminar provided participants with a detailed overview of the NVIDIA Jetson AI Edge Devices, their architecture, key features, and real-world applications. Through live demonstrations and hands-on sessions, attendees explored the use of Deepstream and Generative AI, learning how to efficiently use these technologies for real-time video analytics and edge computing. The seminar aimed to equip participants with the skills needed to work with Jetson Devices and NVIDIA Software Stacks, encouraging innovation in embedded systems and Generative AI. Participants also had the opportunity to develop small projects, applying their knowledge to practical applications in the field.

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INTRODUCTION TO FPGA

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The "Introduction to FPGA" workshop, held on 29th & 31st January 2025 and 5th & 14th February 2025, in association with IETE-SF. The workshop, led by Ms. Shaista Khanam and Ms. Trupti Shah, provided a comprehensive understanding of FPGA technology, digital logic design, and hardware programming. Participants gained hands-on experience with Xilinx software and VirtualBox, learning to implement digital circuits and explore FPGA applications. With practical exercises and an introduction to FPGA optimization strategies, the workshop aimed to enhance participants' ability to design FPGA-based systems and establish a strong foundation in FPGA architecture and programming.

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INDUSTRIAL VISITS

CETTM

EVERGREEN ENGINEERING



On January 22, 2025, a visit to the Centre for Excellence in Telecom Technology and Management (CETTM) in Powai, Mumbai, was organized by IEEE-SB, VCET for final year students. Staff Incharge Ms. Ashwini Katkar and Ms. Trupti Shah were accompanied by final-year students for the industry visit. The visit focused on emerging Telecom technologies and communication systems. Mr. Sitanshu Mishra from MTNL presented the evolution of Mobile Networks, followed demonstration of the bv transmission, broadband, and wireless labs, students learned about network where switches, fiber optic communication, and wireless systems.



Evergreen Engineering Co. Pvt. Ltd., a leading LED light manufacturer, hosted an Industrial Visit on October 3, 2024, organized by IEEE Committee. The visit was led by Staff Incharge Ms. Sandhya Supalkar and Ms. Trupti Shah with 55 students in three batches. The visit offered the LED insights into manufacturing process, including assembly, quality control, and industry practices. The visit provide insites on understanding manufacturing industry standard practices, techniques, learning quality control methods and practical applications of electronic concepts.

PROCESS PRECISION INSTRUMENTS



The Industrial Visit to Process Precision Instruments, Vasai, Palghar, Maharashtra took place on 15th October 2024. The visit aimed to expose students to precision instruments used in industrial automation and measurement. Ms Shaista Khanam and Ms Kanchan Sarmarkar accompanied the students for industry visit. The company specializes in devices for measuring pressure, temperature, flow, and level, offering both analog and digital solutions. Students also learned about calibration techniques and testing for accuracy and reliability.

TRACTION SUBSTATION



On 22nd January 2025 SE students with Staff Incharge Ms. Bharati Gondhalekar visited Vasai Traction substation, Western Railway Vasai. This visit helped the students in gaining valuable insights into real world applications of Engineering principles. They were celebrating their 100 year and also shared rich history, values and modern technology implementation. Conversion of High voltage supply to railways from MSEB lines were also explained to students by Sr Section **Engineer**. 22

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STAFF ACHIEVEMENTS

AS REVIEWERS/CONFERENCE CHAIRS

- Dr.Vikas Gupta was invited as a Session Chair at the 7th IEEE International Conference on "Emerging Smart Computing and Informatics" at AISSMS Institute of Information and Technology, held on 5th to 7th March 2025.
- Dr.Amrita Ruperee and Dr. Sunayana Jadhav served as a Technical Program Committee Member for the 7th IEEE International Conference on Emerging Smart Computing & Informatics (ESCI)-2025.
- Dr.Amrita Ruperee and Dr. Sunayana Jadhav was invited as a reviewer for International Conference on Climate Change (ICCC-2025) at SNDT University.
- Dr.Amrita Ruperee successfully completed ATAL FDP on Recent trends in 5G/6G Wireless
- Dr.Amrita Ruperee was invited as Session chair in IEEE international conference organized by AISSMS, Pune
- Dr. Vikas Gupta was reviewer as a Session Chair at the International Conference on Computational Complexity and Intelligent Algorithms (IC3IA), held on March 8-9, 2025.
- Dr. Vikas Gupta is invited as a Session Chair at MULTICON-W at Thakur College of Engineering & Technology, Mumbai, held on 21st and 22nd February 2025.
- Dr. Vikas Gupta was a Reviewer at the IEEE 2nd DMIHER International Conference on AI in Healthcare, Education & Industry (IDICAIEI 2024) on 29 and 30th November , 2024.
- Dr. Vikas Gupta was invited as a expert for Electronics & Computer Science on 31st May 2024, for an interview scheduled on 25th June 2024, for the post of Professor and Assistant Professor in the Electronics & Computer Science branch.
- Dr. Amrita Ruperee was invited as a reviewer for International Conference on Emerging Trends in Industry 4.0 Technologies .
- Dr. Amrita Ruperee and Dr. Sunayana Jadhav were session chairs for NCRENB 2025 at VIVA Institute of Technology, Virar on 7th and 8th March, 2025.
- Dr. Sunayana Jadhav was invided as judge at the 18th Avishkar Inter Collegiate Research Convention (Zonal Round, 2024-25).
- Dr. Ashish Vanmali was invited as a reviewer at the 7th IEEE International Conference on "Track Image and Signal Processing at AISSMS Institute of Information and Technology, held on 5th to 7th March 2025.
- Dr. Sunayana Jadhav was convenor for the FDP "Inculcating Universal Human Values in Technical Education" at VCET, Vasai in association with AICTE 31st Aug.-2nd Sep. 2024
- Dr. Ashish Vanmali was contributed as a reviewer at IEEE International Conference on Interdisciplinary Approaches in Technology and Management for Social Innovation (IATMSI-2025), held on 6 to 8th March 2025 at IIIT Gwalior.
- Dr. Ashish Vanmali was invited as a Session Chair at the 7th IEEE International Conference on "Emerging Smart Computing and Informatics" at AISSMS Institute of Information and Technology, held on 5th to 7th March 2025.
- Ms. Trupti Shah was invited as a Judge at Thadomal Sahani College of Engineering for 48 Hours Hackathon on 29th March 2025.

STAFF ACHIEVEMENTS

PATENTS AND COPYRIGHTS PUBLISHED

- Dr. Sunayana Jadhav and Dr. Amrita Ruperee's patent for the work, "Smart Dynamic Vibration Damping System," was published in 2025.
- Ms.Shaista Khanam published a copyright for the work "Smart Farming: Enhancing Network Infrastructure for Agricultural Sustainability".
- Ms. Ashwini Katkar's work on "An Advance Bank Application for Enhanced Customer Experience and Efficiency in Operation", has been published under copyright.

PAPER PRESENTED/PUBLISHED

- Dr. Amrita Ruperee, Dr. Sunayana Jadhav, and Ms. Trupti Shah published the paper, "An Investigation and Design of a Conceptual Framework of Digital Twin with Industry 4.0 Enabling Technologies," in the SSRG Scopus-indexed Journal.
- Dr. Sunayana Jadhav's and Dr. Amrita Ruperee's paper titled, "Smart and Secure DoorBell", has been published in MSJ, Volume XIII, August 2024.
- Dr. Amrita Ruperee and Dr. Sunayana Jadhav's paper titled "Centralized Resource Management and Tracking System", has been published in MSJ, Volume XIII, September 2024.
- Dr. Sunayana Jadhav and Dr. Amrita Ruperee's paper titled "Intelligent Crime Scene Recognition: Advancing Public Safety through Deep Learning Architectures and Event Sequence Analysis", has been published in SSRG International Journal of Electrical and Electronics Engineering.
- Ms. Shaista Khanam's research paper "Hybrid Feature Approach for Enhancing Zero-Shot Image Classification," was published in Communications in Computer and Information Science by Springer.
- Ms. Ashwini Katkar's research paper, "Modeling Channel Dynamics in Molecular Communication Systems," has been published in the Scopus-indexed Journal of Information Systems Engineering and Management.
- Ms. Ashwini Katkar's paper "Hybrid Feedback Controlled Strategy for Enhanced Molecular Communication" won the Best Paper Award at the Multicon International Conference-2025, at TCET, Mumbai.
- Ms. Neha Gharat's research paper "Machine Learning- Enhanced Hybrid Source Location Privacy Protocol for Improved Security and Network Longevity in IoT Networks" has been published in the Scopus Indexed Journal of Information Systems Engineering and Management.
- Mr. Sandeep Pawar's paper titled "Compact Size High Gain RFID Antenna Array ", has been published in International Journal of Microwave and Optical Technology, Volume 19, May 2024.

STAFF ACHIEVEMENTS

WORKSHOPS/TRAINING CONDUCTED

- Ms. Shaista Khanam conducted FPGA workshops at Shree L. R. Tiwari College of Engineering, on 4th July 2024.
- Ms. Shaista Khanam conducted FPGA workshops at Rajiv Gandhi Institute of Technology, Andheri on 17th March,2025.
- Ms Shaista Khanam an ISTE-approved STTP Expert Session on "Autonomous Drone Operation" at Thakur College of Engineering, Kandivali on June 27, 2024.
- Dr. Sunayana Jadhav and Ms. Sandhya Supalkar conducted a 30-hour training on "Digital System Design and Verification" using the CPLD (Krypton) Board in collaboration with IIT Bombay Well Lab.
- Ms. Shaista Khanam, Ms. Trupti Shah, and Ms. Kanchan Salmalkar organized a 30-hour training on "Microcontroller PT-51" with IIT Bombay Well Lab.
- Ms. Shaista Khanam conducted a Expert lecture on "From Features to Intelligence: Journey and Recent Trends" at Vidyalankar Institute of Technology on 29 March,2025.

STTP/FDP ATTENDED.

- Dr.Amrita Ruperee and Dr. Sunayana Jadhav attended an ATAL-Sponsored FDP on "Recent trends in 5G/6G Wireless Communication", at Sanskruti College of Engineering and Technology, from 6th January to 11th January 2025.
- Dr. Vikas Gupta attended an ATAL-Sponsored FDP on "mmWave Technologies at Vivekanand Education Society's Institute Technology from 13th January 2025 to 18th January 2025.
- Dr.Amrita Ruperee and Dr. Sunayana Jadhav attended an ATAL-Sponsored "Industry 4.0: Research and Applications Perspective", at Prashanti Institute of Technology and Science, from 16th December 2024 to 21st December 2024.
- Dr. Sunayana Jadhav attended an ATAL-Sponsored FDP on "Next Gen Communications for IoT and Industrial Automation", at Holy Mary institute of technology and science Hyderabad, from 20th January to 25th January 2025.
- Dr. Sunayana Jadhav attended a "Universal Human Values-Introductory Face-to-Face", at VCET, Vasai from 31st August to 2nd September 2024.
- Dr. Ashish Vanmali, Ms. Sandhya Suplakar, Ms. Ashwini Katkar, Ms. Neha Gharat, and Ms. Trupti Shah attended an ATAL sponsored FDP on "Data to Impact: AI in Healthcare and Agriculture", at SPIT, Andheri from 9/12/24 to 14/12/2024.
- Dr. Ashish Vanmali has successfully completed ISTE approved FDP on "Effective AI Tools Enhancing Teaching, Learning and Research", from Xavier Institute of Engineering, Mahim held on 1-6th July 2024.
- Ms. Ashwini Katkar attended an ATAL sponsored FDP on "Geo- AI: Innovations in AI for improved Spatial Data Processing", at RAIT from 2/12/24 to 7/12/2024.
- Ms. Neha Gharat topped the NPTEL 12-week FDP on Industry 4.0 and IoT.
- Ms. Sandhya Supalkar, Ms Shraddha Gosavi and Ms. Bharati Gondhalekar completed FDP on "Semiconductor Fabrication & Packaging Technology", organized by EICT Academy, IIT Roorkee.

PROJECT DEVELOPMENT

- Ms.Shaista Khanam developed a project on AI Chatbot (Customized) for Websites Frugal Solutions, Mumbai
- Ms.Shaista Khanam and Ms. Trupti Shah developed a product "Railway Rakshak" for safety of workers working on railway tracks under Access Enterprises, Vasai East.

STUDENTS ACHIEVERAENTS

Varun Parab (BE EXTC) won Badminton Men's Doubles Intercollegiate Tournament at SFIT, Borivali.

- Sairam Lagane(SE), Riddhesh Chaudhari(TE), secured first price in Kabaddi in External kabaddi Competition.
- Tejas Chougule(SE),Harsh Gangavane(SE) won first price in boys Doubles Carrom competition
- Tejas Chougule(SE) won the first price in boys Single Carrom Competition.
- Jayesh Sawant(BE), Nitish Devaduga(BE), Varun Parab(BE), Rohit Kale(BE), Krish More(TE), Harshwardhan Dasari(TE), Kartavya Thakur(TE), Tanmay Talekar(TE) won second price in mixed Cricket Competition.
- Rashmi Mote(BE), Bhargavi Atre(TE) won first price in Girls Doubles Badminton.
- Rashmi Mote (BE) secured the title of Runner Up in Girls Single Badminton Competition. Bhargavi Atre(TE) won the first price in Girls Single Badminton Competition.
- In MIT WPU (" SUMMIT National Level Sports Meet VCET("Avahan") Riddhesh Chaudhari (TE), Sairam Lahane (SE), Sanchit Gaykwad (FE) secured first runner up position.

ZEAL'25

- Shweta Pandey(SE) secured first price in Group Dance.
- Sakshi More(BE), Shreya Phondk(BE) secured second price in Internal Duet Dance Competition.
- Rhea Titre(BE) won second price in True Pals and won first price in Antakshari.
- Harsh Shimpi(BE) won first price in Think Aloud Competition.

HACKATHON

SIH (Chattisgarh) at Bhilai institution of technology

Aditya Pal, Prapti Raut, Arya Vartak, Aditya Shigam, Pranjal Bhanushali from third year won the first runner up position for the project "Waste Management System" under the guidance of Ms. Shaista Khanam.





Swaach Bharat at Annasaheb Vartak College

Prapti Raut, Aditya Pal, Omkar Laad, Aditya Shigam, Pranjal Bhanushali from third year won the first price at Annasaheb Vartak College under the guidance of Dr. Ashish Vanmali and Ms. Shaista Khanam.



ISF Congress 2025

Vinay Gawai, Mihir Gosavi & Hemant Jena fron final year secured 3rd prize at the ISF Congress 2025 at Shah and Anchor Kutchhin Engineering College, Mumbai

Circuitry Maze Competition at Thadomal Shahani College.

- Chinmayi Upadhya(TE),Bhakti Bosamiya (TE), Sachin Chaudhary(BE) secured second price in Circuitry Maze Competition.
- Azhar Khan(TE), Adarsh Singh(TE) secured third price in Circuitry Maze Competition.



Tech-A-Thon'25 Competition in Thadomal Shahani College.

Aditya Pal, Chinmayi Upadhya, Aditya Shigam and Pranjal Bhanushali from third year Participated in 48 hours Tech-A-Thon'25 conducted by Thadomal Shahani Engineering College, Mumbai



A.Y. 2023-2024

TOPPERS

BE TOPPERS

1st	Vijay Patil	9.41 CGPI
2nd	Nikhil Kargatia	9.25 CGPI
3rd	Hetsi Parmar and Dhanashree Tandel	8.96 CGPI

TE TOPPERS		
1st	Harsh Shimpi	8.86 CGPI
2nd	Rashmi Mote	8.72 CGPI
3rd	Sakshi More	8.71 CGPI

SE TOPPERS

1st	Sonal Taru	9.40 CGPI
2nd	Pranav Chavan	9.09 CGPI
3rd	Aditya Pal	8.82 CGPI

HIGHER STUDIES

Shikhar Mehta Batch-2023-24 Pace University,USA MS in Information Systems

Pinanshu Surve Batch-2023-24

University of California ,Irvine MS in Electrical Engineering and Computer Science





Preet Thakur Batch-2023-24 SPIT,Mumbai M.Tech in EXTC

Rohan Vishwakarma Batch-2023-24 Dublin City University,Ireland MSc Electronics and Computer Technology

(IoT)

Omkar Joshi Batch-2023-24

Dublin City University,Ireland MS in Electronic and Computer Engineering

PLACEMENT'25

A.Y. 2024-2025 *

sc_next	DcSr.No.e (Student Name	Company
	1	Sakshi More	Bristelcone
;	2	Hemant Jena	Bristelcone
10 100 args])	3	Atharva More	TCS
100 1010	4	Bhavesh Chaturvedi	TCS
ogram") 010 50	5	Shubham Baikar	TCS
100 101 10	6	Tejas Palkade	TCS
	7	Harsh Shimpi	Feedspot
= getNu = new S orintln	821 (SAman Vishwakarma	TCS
oid	9	Harsh Raut	Brandworks ⁰ I
	*Plac	cement in Process	τθ θθτθ Γθ θθτι 100 θ

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PLACEMENT'24

A.Y. 2023-2024

Sr.N o.	Student Name	Company
xtDo	Mayank Patil	Bristlecone
2	Shraddha Kobnak	Vodaphone Idea
n) 3 [.]	Ankit Pandey	Infytrix
4	Dhanashree Tandel	TCS, Parle Global
5	Sarvesh Sant	Enpower
6	Vaidehi Gohil	Enpower
7	Chandan Thakur	Prama Hikvision
8	Kimaya Shejwalkar	ECI Telecom India
9	Pawan Singh	Prama Hikvision
10	Manthan Patil	Prama Hikvision
11	Soham Kavathkar	Prama Hikvision
12	Suraj Shelar, stem.in)	Prama Hikvision
13	Vijay Patil	TCS,Saffiretech
14	Aditi Bhat	Titanium Washers
15	Manali Bhadange	Wattera Industries
16	Mrudula Bidwi	TCS, Qspiders IO 0010
C1.0 C 17	Shruthi Sawant	Davision Electronics
a.c18 "	Nilesh Jangid	TCS

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PLACEMENT'24

+ "Program"); A.Y. 2023-2024

Sr.No.	Student Name	Company
19	Sourabh Teli	TCS
20 ExtDoub	Kishan Yadav	Prama Hikvision
21	Siddhesh Parab	Prama Hikvision
22	Atish Rakte	РРІ
23	Sourabh Chavan	Logiq Embedded
24	Sankalp Chavan	Brainhunter
25	Shubham Jha	V5 Global Service
26	Shreya Darde	Plus
27	Shruti Rane	Prolite Autogio Ltd
28	Akshat Waghmare	SAMEER
29	Yash Joshi	Talakunchi Networks
30	Raj Pal	Prama Hikvision
31	Shashank Mishra	TCS
32	Sahil Mhapadi	TCS OF OOT T
in ³³ 8 ti	Sahil Mhapadi	TCS
34	Vaibhav Mishra	Frootle IO OOTO C
cin j (i	Mihir Hakani	TCS
36	Aastha Gulhane	Secmark Consultancy Pvt. Ltd.

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MOU DETAILS

Sr. No.	Name of the Company
1	Whirlybird Electronics Pvt Ltd, Unit no.2,ground Floor,Saarthak Building,square Industrial park, Sativali Rd, Vasai East, Palghar, Maharashtra
2	Europower, F-305, Lucky Palace, Station Road, Vasai (W), Maharashtra
3	Evergreen Engineering Co. Golani Naka, Vasai East, Vasai-Virar, Maharashtra
4	Om Technical Solutions, Dahisar, Mumbai, Maharashtra
5	Tropical Electronic Equipment Co. Kandivali (East), Mumbai, Maharashtra
6	Smart Vision Technologies, Sativali Rd, Vasai East, Mumbai, Maharashtra
7	NN Technology Solutions, Block 104, Bldg, 2, Sector 3, Millenium Business Park, Sector 2, Mahape, Navi Mumbai, Maharashtra
8	Logiq Embedded Systems India Pvt Ltd, Vasai East, Maharashtra
9	Fox Domotics Private Limited, Waliv, Vasai East, Dist. Palghar, Maharashtra
10	Securizen Systems Pvt. Ltd., Andheri (E), Maharashtra
11	Autocal Solutions Pvt Ltd., Navghar, Vasai-Virar, Maharashtra
12	Remi Elektrotechnik Ltd. Valiv, Vasai (East), Dist. Palghar, Maharashtra
13	Sun Fire Engineers, Naigaon, Maharashtra
14	Process Precision Instruments, Vasai East, Maharashtra
15	Bits Pilani, Hyderabad
16	Parle Global Technologies, Vasai (East), Palghar, Maharashtra





TUSHAR RAO

Offering Leader - "Hybrid Cloud Transformation" with a Global Technology MNC. Batch-1999

1) Can you share your journey from graduation to where you are today in your career?

I started my career with an ISP which was acquired by Videsh Sanchar Nigam Ltd. Got handson experience with Telecom networks, and OSS systems. Later moved to Capgemini in 2006 and Amdocs in 2010, wherein I delivered various Consulting and Implementation engagements in UK, Europe and ASEAN regions in over 10 countries. In 2016, I switched gears to delivering Digital Transformation engagements for Banks in India. My current role involves managing complex Cloud Migration and Modernization programs.

2) What strategies do you use to stay motivated and productive in a fast-paced environment?

Set clear priorities – Focus on the most important tasks first to stay on track.Manage time well – Use a schedule and take short breaks to stay fresh and productive. Stay flexible – Adapt quickly to changes and find solutions instead of stressing over problems. Keep learning & collaborating – Talk to colleagues, get feedback, and stay updated to work smarter.

3)What are some of the competencies that you think are essential and how did you developed them or improved them?

Other than technical competencies, following are essential .Growth Mindset – Being able to take failure and setbacks in stride and remain goal-focused. Communication – Ability to condense any concept, status update or solution to 3 bullet points, or a 1 minute script! People lack time & attention span.Collaboration – Necessary for teamwork on large projects with different stakeholders. Improved by actively listening and valuing different perspectives. Adaptability – At multiple levels. Ability to gain new skills skills. Ability to change priorities. Ability to accept failure and pivot the approach. Ability to adapt communication approach to the situation and so on

4)Can you describe a time when you had to collaborate with a diverse team? How did you handle differences in opinions or work styles?

I collaborated with a diverse team of architects, technical experts, and client representatives, to structure a complex solution for a major contract. This was achieved by actively facilitating discussions to bridge differences in priorities, ensuring technical feasibility while aligning with business objectives. I encouraged open dialogue and leveraged each team member's strengths, assigning roles based on expertise to enhance productivity. I used a structured approach to resolve conflicts, focusing on data-driven decision-making and compromise to achieve a win-win outcome. Key is to have a growth mindset and provide psychological safety to the team

5) Are there any new skills or area of knowledge you're currently focusing on developing?

AI & Automation – It has become critical to have good understanding how AI can optimize business processes and drive innovation. Since the field is evolving rapidly, one must continuously learn. Regulatory Compliance – Staying updated on global regulations like GDPR and India's DPDP Act. Also regulation related to sustainability is critical to keep up with.Navigating Ambiguity – Developing the ability to make informed decisions despite uncertainty, a critical skill for managers in fast-changing environments. Environment – I have developed keen interest in concepts of Shared Commons, Anthropocentric v/s Ecocentric development approaches, and other aspects of environment & sustainability

6) What advice would you give to the students or new graduates looking to succeed in software development field?

Fundamentals must be mastered - Focus on basics of your subjects (whether its applied science viz. engineering or core science and mathematics).Build Real Projects - Work on hands-on projects. Whether its building working prototypes or contributing to opensource, or create your own apps to gain practical experience. Do not be a theoretical engineer. Keep Learning - Stay updated with new technologies, frameworks, and industry through certifications publications, trends and also industry blogs, and networking.Develop Problem-Solving Skills - Pick up real world problems and try ot solve them. Also, hone your analytical and critical thinking.Soft Skills Work well in teams, ask questions. Learn to listen well and speak well.



SHIRISH DESAI Information and Communication Technologies BATCH-2005

1) Can you share your journey from graduation to where you are today in your career?

Shirish: I graduated in B.E. Electronics and Telecommunication (Class of 2005) and completed Advanced Management Program from Indian School of Business (Class of 2017). After my graduation, I got selected to join Finland telecom giant Nokia in campus placement, where I worked for 5 years. I joined Bharti Airtel and worked there for 5 years where my primary responsibilities were design and planning of Bharti Airtel's core telco network in West India. After this, I joined Swedish telecom giant Ericsson, worked there for another 5 years. Presently I am working in IBM as Cloud Architect with expertise in 5G & Network edge and also Telecom security.

2) Can you tell me about your role at IBM and what your typical day looks like?

Shirish: As a cloud architect, my primary responsibilities to build robust, resilient and secure infrastructure for our clients mainly in Telecom industry. It has unique performance requirements compare to Enterprise applications and hence cloud infrastructure need to be 'tuned' to support telecom workload.. My typical day have series of client engagement activities, solution brainstorming workshops and sometimes also hands-on work on systems.

3)What attracted you to work at IBM, and how has your experience met those expectations?

Shirish: IBM's legacy. IBM is 114 years old company which has touched lives of millions of people in past century. IBM is one of the companies with most Nobel laureates (5) which affirms IBM's prowess of innovation. Most important thing which makes IBM one of the best places to work is its culture of inclusiveness, respect towards everyone irrespective of their demographics and strong focus on business ethics. In IBM, I always felt stress-free because whatever I am asked do is always within principals of social norms of ethics, regional laws. Even when we are deploying AI, we see that not invading privacy and other rights of fellow citizens.

4) Are there any new skills or area of knowledge you're currently focusing on developing?

Shirish: Technology is fast changing; hence I will not advocate specific domain. But I believe in current scenario, students can find lot of scope in domains like AI/ML including Generative AI, cloud security, Data science, AI powered VLSI chips.

5) Can you explain the most complex project you've worked on at IBM and your contribution to its success?

Shirish: However, I always take pride that I worked at organization which had proven numerous times in the past its ability to successfully execute complex projects involving peoples, partners, technologies and processes spanning globally. IBM provides required tools and learning opportunities to all of its practitioners so that they can contribute to best of their abilities without unfair stress and sufferings.

6) IBM is known for its innovation in technology. Can you give an example of a time when you had to innovate or think outside the box to solve a development problem?

Shirish: It is hard to quote one or two examples. At IBM, we encourage "Growth Mindset". What it means in simplest form is "Things can be changed… If something is NOT in DNA, then still it can be learned and acquired ". We continuously thrive to make our portfolio better and aligned to business needs of our client. We do not restrict ourself to particular technology or solution, rather we adapt, customise to create value. IBM's culture encourages balance of risk taking, rationality, flexibility.

7) What are some of the competencies that you think are essential and how did you developed them or improved them?

Shirish: For successful career in any industry including software or telecom, we need to have core technological competencies and personal competencies i.e. soft skills. Technological skills changes vastly based on industry or product you are working on. Soft skills more or less remain same but sometimes certain soft skills e.g. presentation skills need to be harness for certain roles e.g. Sales/Pre-sales. Technological skills are relatively easy to acquire, but soft skills require lot of practice and habit formation. One such important skill is "Listening with empathy". Active listening for understanding instead of just responding, has profound impact on practitioners' effectiveness at work and success of any project or organization. Another important skill is "Growth mindset" as it encourage innovation, eagerness to learn , perseverance, ability to navigate through failures

8) What advice would you give to the students or new graduates looking to succeed in software development field?

Shirish: Most important thing which new graduates should do is "career planning" so that they can achieve their personal and professional growth. You need to invest time to unlearn and reskills as per industry demands. While navigating through such fast-changing global trends, you should not feel overwhelmed and for that you should focus on your well-being of mind and body. Many practitioners ignore this and find it difficult to get going after success in early years. To assimilate this information, we need to develop strong habit of "Reading". Reading also helps you in staying recent with industry and technology. No matter, how many years of experience you have, you should never hesitate to do hands-on systems when required. Great seller of software, are generally those you have themselves worked as developer and designer.



SAILI SAKPAL BATCH 2020

Oracle Cloud - Domain IT

As Test Automation Engineer-Senior Analyst.

Exploring a Career in AI: A Journey into Genarative AI

From Electronics to IT: My Journey, Challenges, and Lessons Learned

Starting a career in IT, especially when coming from a different background, is both exciting and challenging. I graduated in 2020 from VCET with a degree in Electronics and Telecommunications (EXTC). Despite my electronics background, I decided to dive into IT. Was it easy? Not at all! I had to learn new programming languages, tools, and concepts that weren't part of my college curriculum. There were moments when I felt lost, but with persistence, self-learning, and guidance from experienced colleagues, I found my way.

One thing I've realized over the past four years? Learning in IT never stops! Technology evolves at lightning speed, and to stay relevant, you need to keep upgrading your skills. If you're just stepping into IT, be open to learning—seriously, it's your best asset.

You might not always work with what you studied in college (I'm proof of that!), but don't let it hold you back. With the right mindset, you can pick up new skills and thrive in any IT domain.

Change is inevitable in IT—you'll switch roles, learn new tools, and face challenges that make you want to pull your hair out. Sounds overwhelming? Maybe, but take it one step at a time, and it becomes manageable. IT isn't just about coding; understanding how systems impact businesses makes you a smarter problem-solver. Stuck on an issue? Don't panic—analyze it, try different solutions, and then ask for help if needed. Trust me, figuring things out on your own first boosts your confidence! Also, don't underestimate the power of networking. Connect with experienced professionals, ask questions, and learn from their journeys—you never know when a simple conversation might open doors to new opportunities.

Beyond technical skills, IT also teaches you some major life lessons—time management, teamwork, financial independence, and professional communication. The transition from student life to corporate life is a big one, but it helps you grow in ways you never expected.

Every IT journey is unique, with its ups and downs—but that's what keeps it exciting! Think of it as leveling up in a game—the more you learn, the better you get. Some days you'll feel stuck, other days like a tech wizard. Embrace it, stay curious, and enjoy the ride. Keep learning, stay motivated, and success will follow!

As interviewed by Bhakti Bosamiya(TE)





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