

Short Term Training Program on Effective AI Tools for Enhancing Teaching, Learning, and Research

Event Coordinator(s)

1. Prof. Smita Pawar
2. Prof. Madhura Shirodkar

Time, Date & Place:

1st July 2024 to 6th July 2024

9:30 AM to 3:30 PM

Online Platform: Zoom
Meeting.

No of participants: 120

From 1st July 2024 to 6th July 2024, Xavier Institute of Engineering hosted a 6-day course titled "Effective AI Tools for Enhancing Teaching, Learning, and Research". Coordinated by the Allyn Girls Committee in collaboration with the Department of Electronics and Telecommunication Engineering (EXTC), the course aimed to equip educators and researchers with practical insights and skills to leverage artificial intelligence (AI) technologies in academic contexts. From Allyn Girls Committee Shruti Parade, Riya Kamble, Prarambhi Kharose, Vishnu Priya Sahu, Kanchan Kumari and Erica D'Cruz enthusiastically participated in the event.

Day 1: 1st July 2024

The course commenced at 9:30 am with an inauguration ceremony hosted by Prof. Smita Pawar and Prof. Madhura Shirodkar where our esteemed Director Fr. Dr. John Rose S. J. gave an inspirational speech followed by the enlightening speech of our esteemed Principal Dr. Y.D Venkatesh. Further a keynote was address by Dr. Shilpa Joshi, Director of Academics, Universal AI University. Dr. Joshi discussed the transformative potential of AI in education and research, highlighting its role in revolutionizing teaching methodologies and enhancing scholarly pursuits.

Following the inauguration and keynote, the morning sessions were dedicated to exploring the fundamentals of Generative AI at 11:30 AM. The session was led by Mr. Aaron Johns where participants gained a comprehensive introduction to Generative AI technologies, understanding its principles and applications in various fields. The discussion expanded to explore how Generative AI can be effectively integrated into classroom environments to enhance learning outcomes and stimulate creativity among students.

After a brief break, Dr. Priyanka Chawla led a session on AI Tools in Education and Research at 2:00 PM. Dr. Chawla elaborated on cutting-edge AI tools designed specifically for educational and research purposes. The speaker introduced various AI tools like Scibber.com, Trinka, Sapling ai, Litmaps, Connected Papers, etc. Practical examples and case studies were shared to illustrate how these tools can streamline data analysis, optimize learning experiences, and facilitate innovative research methodologies.

Day 2: 2nd July 2024

On day 2, the event commenced at 9:00 AM with a session on Innovative AI Tools for Research, led by Dr. Ramchandra Mangrulkar. The session began with an emphasis on the importance of publishing papers in reputable journals. Participants were introduced to the concept of ORCID ID, a unique identifier for researchers, and learned about effectively utilizing Scopus to access research papers and journals. The session also covered database management tools such as Semantic Scholar and Mendeley. Overleaf, an online collaborative LaTeX editor, was demonstrated for its capability to facilitate seamless collaboration among researchers in drafting and editing research papers. The session concluded with a vote of thanks by Prof. Smita Pawar followed by a short break.

Dr. Mendus Jacob led the next session, which focused on Questionpaper.ai, an innovative tool in education. Questionpaper.ai was demonstrated for its capability to generating question papers with answer keys as well as generation of syllabi. Later in the session the speaker illustrated different types of prompts. The speaker also introduced questioning chats on ChatGPT, which allows ChatGPT to ask questions while the user has to answer. These kinds of chats are useful for a student for practice as well as for a teacher for generating questions.

Following a brief break, the course continued with an in-depth exploration of Teaching Tools for Generative AI with Mr. Aron Johns as the resource. Before introducing these advanced tools, Mr. Johns underscored the ethical considerations and responsible usage of AI, ensuring participants understood the importance of ethical practices in their applications. The session introduced attendees to a range of lesser-known Generative AI tools like Jan, Rytr, Upscal, and UVRS, sparking curiosity and enriching participant's understanding in this rapidly evolving field.

Day 3: 3rd July 2024

The event began at 9:00 AM on 3rd July 2024 with a session led by Fr. Fabien Barreto, who provided an insightful presentation on diabetic retinopathy. Diabetic retinopathy is a diabetes complication that affects the eyes, caused by damage to the blood vessels of the light-sensitive tissue at the back of the eye

(retina). Over time, it can lead to blindness if not properly managed. Fr. Barreto concluded his session at 11:15 am, after which Prof. Smita Pawar delivered a vote of thanks.

The second session commenced at 11:50 am with Prof. Lalita Moharkar discussing SciSpace. SciSpace is an innovative platform that helps researchers and academics discover, read, and collaborate on scientific literature more effectively. Prof. Moharkar logged into her account and provided a detailed demonstration of the platform's features and functionalities. This session wrapped up at 12:50 pm with a vote of thanks from Prof. Tejal Deshpande.

The third session started at 2 pm with Prof. Aaron Johns focusing on "Ethical Concerns of Deep AI: Deepfakes, Harmful Content, Job Displacement, and More." This session delved into the various ethical issues surrounding the development and deployment of advanced AI technologies. It covered the creation of deepfakes, the spread of harmful content, and the potential for significant job displacement as AI systems become more capable and widely adopted.

Day 4: 4th July 2024

On 4th July 2024, a comprehensive workshop on AI tools was conducted, spanning four sessions. The event began at 9:30 AM with a session led by Prof. Joshua Michael, who provided an insightful presentation on AI tools for generating images and videos. He highlighted tools like DALL-E, DeepArt, Runway ML, and NVIDIA GauGAN, which are revolutionizing graphic design, marketing, and entertainment by enabling the creation of high-quality visual content with minimal effort. Joshua Michael concluded his session at 11:00 AM, after which Prof. Smita Pawar delivered a vote of thanks.

The second session commenced at 11:30 AM with Prof. Suhas Lawand discussing QuillBot, an AI-powered writing assistant. QuillBot offers features such as paraphrasing, summarizing, grammar checking, and synonym suggestions, significantly enhancing writing efficiency and quality. Prof. Lawand logged into his account and provided a detailed demonstration of QuillBot's features and functionalities. This session wrapped up at 12:15 PM with a vote of thanks from Prof. Smita Pawar.

The third session started at 12:15 PM with Prof. Nitin Ahire focusing on AI tools for creating PowerPoint presentations, specifically Gamma Tool and SCISPACE. These tools streamline the process of generating professional and visually appealing slides, with Gamma offering diverse design templates and SCISPACE catering to scientific presentations. This session concluded at 1:00 PM, followed by a vote of thanks from Prof. Smita Pawar.

The final session commenced at 2:00 PM with Prof. Janice Fernandes discussing tools for summarizing academic papers, such as SciNote and Paper Digest. She also engaged the participants in a broader discussion on the ethical implications and challenges of AI tool adoption. The debate emphasized balancing AI efficiency with human creativity and responsible use. Janice Fernandes wrapped up her session at 3:30 PM with a vote of thanks.

Day 5: 5th July 2024

Day 5 commenced at 9:00 AM with a session on the Reference Management Tool Zotero, guided by Dr. Prashashti Kanilkar. The session focused on highlighting Zotero's capabilities in organizing and citing sources seamlessly. Dr. Kanilkar first discussed the advantages of using Zotero, emphasizing its role in academic research. During the demonstration, participants learned about installing and using Zotero. Dr. Kanilkar showcased four key activities to help attendees better understand the tool. These included automatic bibliography generation, PDF annotation features, and collaborative research group management functionalities. Overall, the session aimed to enhance efficiency and accuracy in academic research practices through the effective use of Zotero.

Following a small break, the second session started at 10:45 AM where participants explored Advanced AI Tools: Redefining Teaching and Learning in Higher Education with Dr Meenakshi Garg. The speaker elaborated on various AI tools tailored for higher education, including tools like Bard and Gemini for information gathering, and Grammarly and Quilbot for text editing. These demonstrations deepened participants' understanding of how AI technologies can significantly augment educational practices.

The Third session commenced at noon, led by Dr. Prathibha Sudhakaran, who delved into the realm of AI tools in research. Dr. Sudhakaran introduced a variety of AI tools that enhance the three crucial phases of research: discovering and accessing research papers, managing references, and facilitating note-taking.

The Fourth session was on Knowledge Management using LLM (Large Language Models) by Prof. Joshua Michael which started at 2:00 PM. Participants explored the capabilities of LLMs in knowledge management, information retrieval, and content generation. Practical demonstrations highlighted how LLMs can be integrated into academic workflows to automate document analysis, summarize research findings, and facilitate data-driven decision-making processes. At the end of the session the participants were able to implement basic Knowledge Management System.

The Fifth session was a session on Innovative Teaching Techniques on AI Tools by Prof. Tejal Deshpande and Prof. Paneel Jain. They underscored the importance of embracing technological advancements to optimize teaching methodologies and foster personalized learning experiences. Prof. Jain introduced a website called brightclass.com and teacheasy.ai as examples of AI in education which held capabilities like personalization and question generation. The day concluded with a vote of thanks by Prof. Smita Pawar and Prof. Madhura Shirodkar.

Day 6: 6th July 2024

The final day commenced at 9:00 AM with a hands-on workshop on Report Writing using LaTeX by Dr. Vidya Sarode as the resource person. Participants learned the fundamentals of LaTeX, a typesetting system renowned for its use in creating academic and technical documents. The speaker introduced various LaTeX tools like Overleaf, ShareLatex, TeXstudio, Authorea, etc. But due its advantage over others in terms of security TeXstudio was chosen for further demonstration. The session covered essential LaTeX commands, document structuring techniques, bibliography management, and template customization, equipping participants with the skills to produce professional-quality reports and research papers.

Recognizing the significance of mental well-being, the course included a session on Yoga and Meditation for Stress Management immediately following the morning session. Dr. Ekta led this session, focusing on the 6 Shuddhikriyas which are breathing and relaxation techniques aimed at enhancing mental well-being and productivity in academic and professional environments. The session underscored the importance of holistic wellness in sustaining peak performance throughout scholarly pursuits.

The last session was delivered by Mr. Yogesh Pawar on Efficient Use of Pivot Table in MS Excel. The session started with basic Microsoft Excel formulae and inclined to advanced data analysis and visualization techniques using Pivot Tables within Microsoft Excel. The session focused on summarizing, analysing, and interpreting large datasets effectively, empowering participants to derive actionable insights and make informed decisions in their research and academic endeavours.

The day concluded with a valedictory session in presence of our esteemed Principal Dr. Y.D Venkatesh and Director Fr. Dr. John Rose S. J. During this session, Prof. Smita Pawar as course organizer extended her gratitude to participants and speakers for their invaluable contributions and steadfast support throughout the course. Participants, in turn, expressed

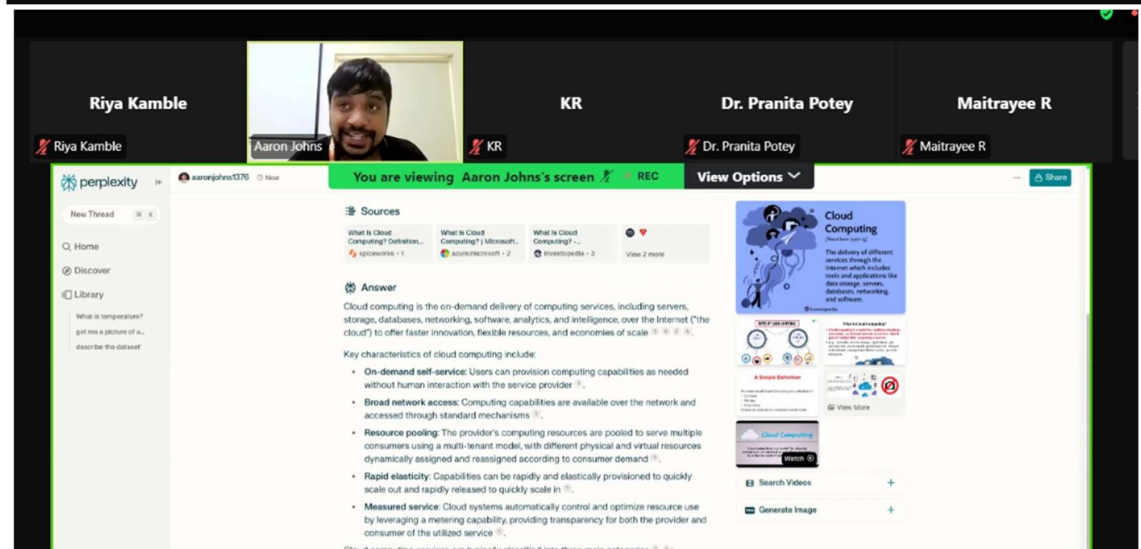
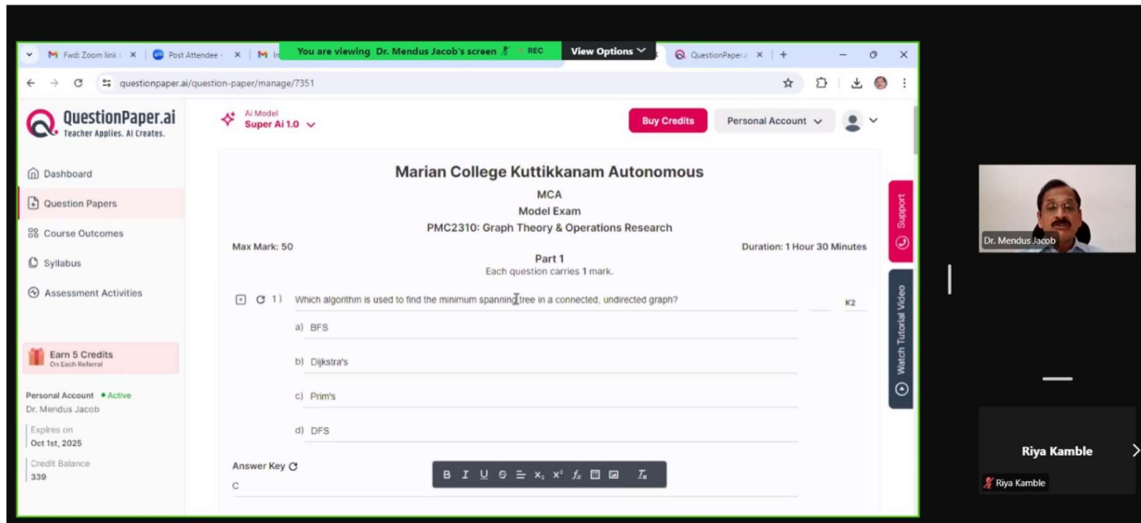
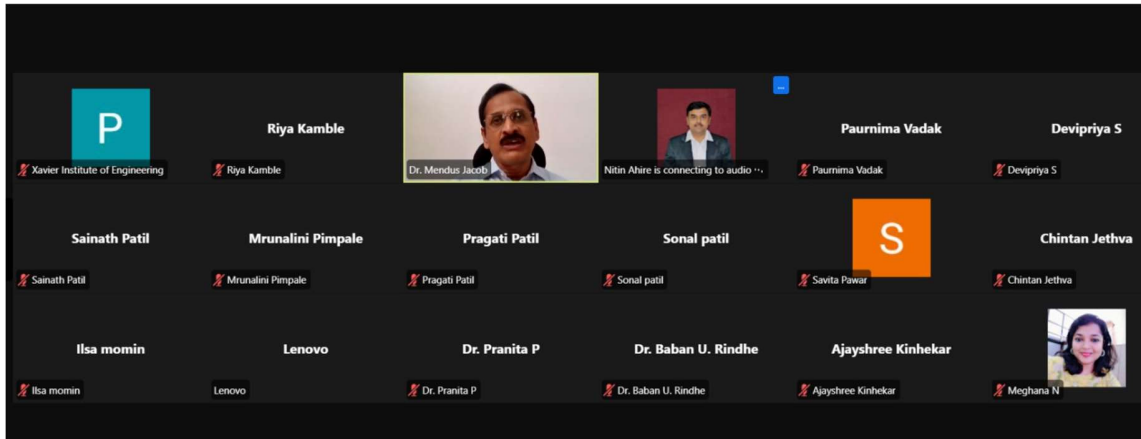
their satisfaction with the course content and its design. Following this, an online Quiz and Feedback session was conducted, allowing participants to evaluate their learning outcomes and provide constructive feedback on the course content and delivery. Certificates of completion were then awarded, recognizing participants' dedication to advancing their knowledge and skills in AI-enhanced teaching, learning, and research.

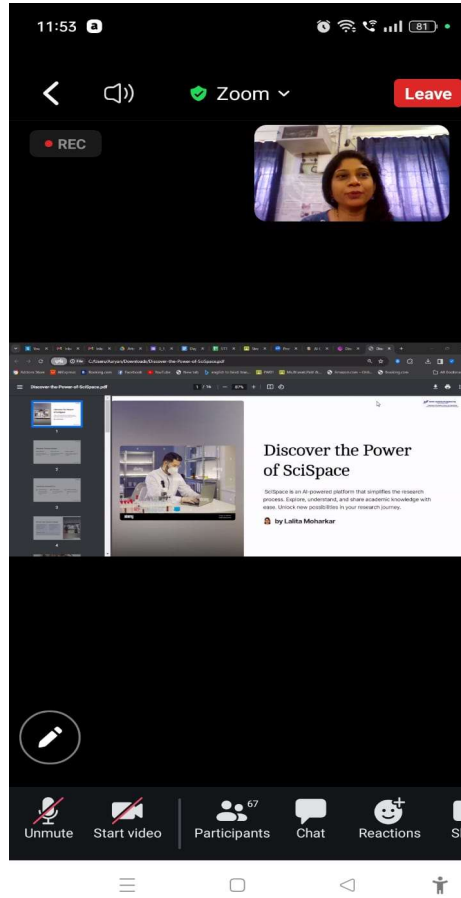
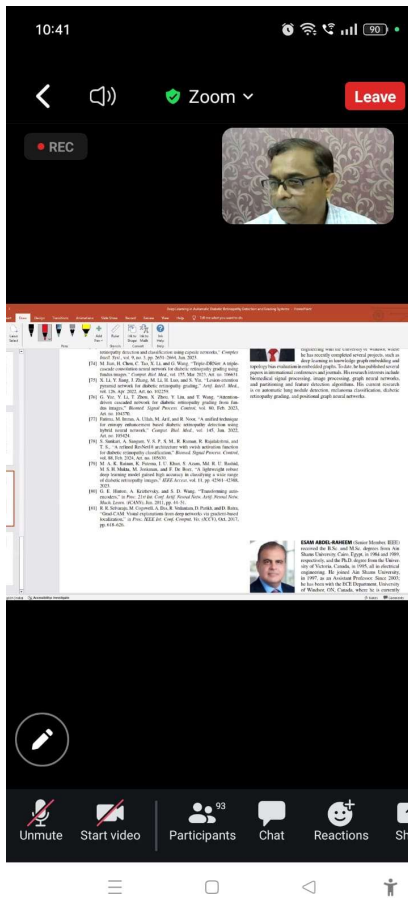
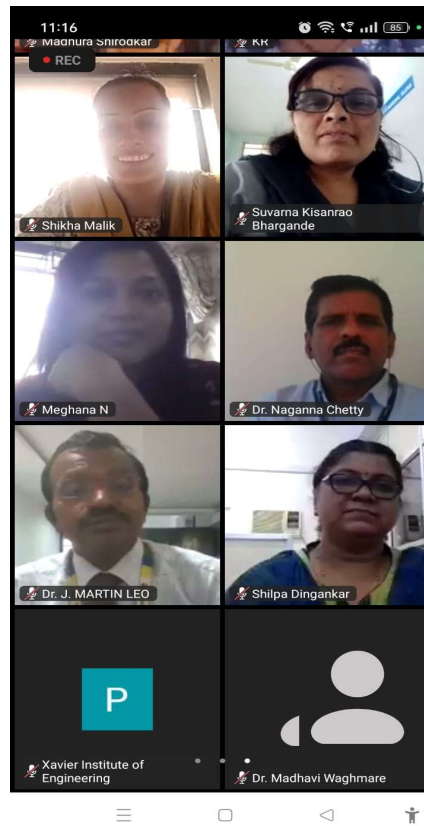
Participants in the six-day course on AI tools and applications in education and research gained comprehensive insights into cutting-edge technologies such as Generative AI, advanced AI tools for research, and ethical considerations in AI deployment. They learned practical skills in utilizing tools like Zotero, QuillBot, and LaTeX for enhancing academic productivity and research efficiency. The course emphasized the transformative potential of AI in revolutionizing teaching methodologies, fostering collaborative research environments, and promoting ethical practices in AI applications. Overall, participants were equipped with tools and knowledge to integrate AI effectively into educational and research contexts, aiming to optimize learning outcomes and scholarly pursuits.



Prof. Smita Pawar
Allyn Girls Convenor

Glimpse of the Event:





2. DDPM Paper

- Forward diffusion process gradually adds noise to input
- Reverse process learns to generate data by denoising [3].

The diagram illustrates the DDPM process. It shows a sequence of images x_0, x_1, \dots, x_T . The forward process is labeled $p(x_{t-1}|x_t)$ and the reverse process is labeled $q(x_t|x_{t-1})$. Handwritten notes include "noise" and "denoise".

ASSIGNMENT 1 – Experimenting with ChatGPT

1. Log into ChatGPT using this link www.chatgpt.com
2. Put these questions successively in ChatGPT and see the results.
 - List the soft skills required by university teachers today.
 - List the skills with regard to critical thinking required by university teachers today.
 - List the ethical decision-making skills with regard to critical thinking required by university teachers today.
3. Now try these queries and see the results
 - List 2 decision making skills required by university teachers in the 21st century giving an example of each relevant to the Indian scenario.
 - List 2 instances of university teachers having used their decision-making skills in a critical way in the last 5 years in India.
 - List an instance of a university teacher in Mumbai using their decision-making skills in a critical way in 2019 / 2022/1920 etc.

Cloud Computing

- **Broad network access:** Computing capabilities are available over the network and accessed through standard mechanisms.
- **Resource pooling:** The provider's computing resources are pooled to serve multiple consumers using a multi-tenant model, with different physical and virtual resources dynamically assigned and reassigned according to consumer demand.
- **Rapid elasticity:** Capabilities can be rapidly and elastically provisioned to quickly scale out and rapidly released to quickly scale in.
- **Measured service:** Cloud systems automatically control and optimize resource use by leveraging a metering capability, providing transparency for both the provider and consumer of the utilized service.

Cloud computing services are typically classified into three main categories:

1. **Infrastructure as a Service (IaaS):** Provides access to networking features, computers (virtual or on dedicated hardware), and data storage space.
2. **Platform as a Service (PaaS):** Provides a platform for developing, testing, delivering and managing software applications.
3. **Software as a Service (SaaS):** Provides access to software applications as a service, such as email, calendaring and office tools.

Some key benefits of cloud computing include cost savings, increased storage, better performance, enhanced security, and increased productivity.

More on this

- What are the main types of cloud computing
- How does cloud computing benefit businesses
- What are the security risks associated with cloud computing
- How does a hybrid cloud differ from a public cloud
- What are the top trends in cloud computing for 2023

Riya Kamble **Dr. Baban U. Rindhe** **Amit Nimbekar** **Shailaja Udtewar** **Meghana N**

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long term effects of screen time on children

Summary of top 4 papers

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These studies examine the long-term effects of screen time on children's development. Sanders et al. (2019) found that different types of screen time have varying impacts, with educational screen time showing positive associations with academic outcomes, while passive screen time was linked to negative outcomes. Cerniglia et al. (2020) reported that early screen time at age 4 was associated with later dysregulation symptoms and lower academic achievement at ages 6 and 8. Madigan et al. (2019) demonstrated a directional relationship between screen time and child development, with higher screen time at 24 and 36 months predicting poorer performance on developmental screening tests at 36 and 60 months, respectively. While these studies highlight potential negative effects of excessive screen time, they also suggest that the impact may vary depending on the type of screen activity and the child's age. Overall, these findings emphasize the importance of managing and monitoring children's screen time to mitigate potential developmental risks.

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Paper Abstract summary

Type of screen time moderates effects on outcomes in 4013 Add new step screens is harmful to Search or create a column

Workplace

dr. vidya **Riya Kamble** **Nitin** **Prof. Smita Pawar** **Y.D Venkayesh** **Fr Dr. John Rose Santiago SJ**

Zebatannim Ansari **Tejal Deshpande** **Xavier Institute of Engineering** **Mahalaxmi Palinge** **Palkavi Marie** **Yukti Bandi**

Shikha Malik **Sarjna Repal** **Shilpa Sewak** **Reeta Shaktivel** **AARTI ABHYANKAR** **Sonal patil**

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Xavier Institute of Engineering
Mumbai, Mumbai: 400019
Department of Electronics and Telecommunication Engineering
(programme accredited by National Board of Accreditation - NBA)

Certificate of Participation
ISTE Approved Short Term Training Program
Organized by the Department of Electronics and Telecommunication Engineering

This is to certify that **Prof. Chowdhury Sidra Fram Shamim Ahmed**, from **Shri Pandit Baburao Chaugule college of pharmacy Bhiwandi**, successfully completed **ISTE Approved National Level Six-Day Online Short Term Training Program on "Effective AI Tools for Enhancing Teaching, Learning, and Research"**, held from 1st to 6th July 2024.

Prof. Smita Pawar (Coordinator) **Prof. Madhura Shindekar** (Coordinator) **Prof. Nitin Abhai** (HOD, Co-secr)

 **Xavier Institute of Engineering**
Mahim, Mumbai 400016

Department of Electronics and Telecommunication Engineering
(Programme accredited by National Board of Accreditation - NBA)

Certificate of Participation


ISTE Approved Short Term Training Program

Organized by the Department of Electronics and Telecommunication Engineering

This is to certify that Ms. Shruti Parade (Allyn Girl) from Xavier Institute of Engineering,
successfully completed *ISTE Approved National Level Six-Day Online Short Term Training Program* on
“Effective AI Tools for Enhancing Teaching, Learning, and Research”,
held from 1st to 6th July 2024.


Prof. Smita Pawar
(Coordinator)


Prof. Madhura Shirodkar
(Coordinator)


Prof. Nitin Ahire
(HoD, Convener)