Faculty of Engineering, D.E.I.

Summer Training Workshop on

"Fundamentals of Artificial Intelligence: Concepts, Tools, and Ethical Applications"

2 – 14 June, 2025

The Department of Electrical Engineering, Faculty of Engineering, Dayalbagh Educational Institute, Agra, in collaboration with the Head-Held-High Foundation and the ANUDIP Association for Diversity and Inclusion (AADI), organized a Summer Training Workshop titled *"Fundamentals of Artificial Intelligence: Concepts, Tools, and Ethical Applications"* from 2nd June to 14th June 2025. The workshop was further supported by program partners including the Asian Venture Philanthropy Network (AVPN), Google.org, and the Asian Development Bank (ADB). The initiative is aimed at providing participants with a foundational understanding of artificial intelligence, covering key concepts, practical tools, and critical discussions around its ethical implementation.

This 40-hour hands-on workshop provided participants with a comprehensive introduction to the world of Artificial Intelligence. The course emphasized the integration of theoretical foundations with practical applications, aiming to bridge the gap between academic learning and real-world implementation. The sessions were designed to be interactive and immersive, featuring digital tools, collaborative learning, and project-based assignments.

The workshop began with an overview of AI fundamentals, covering core concepts such as data-driven learning, model training, and the limitations of AI systems. Special emphasis was placed on Generative AI and prompt engineering, where students explored tools like ChatGPT, Gemini,

Perplexity, and Notebook LM. Through guided exercises, they learned to design effective prompts and critically assess AI outputs for accuracy and ethical soundness.

The curriculum was organized into seven modules, each focusing on a key dimension of AI knowledge. Participants were introduced to a range of AI tools for automating tasks, optimizing workflows, and generating content. Case-based discussions helped explore ethical issues, such as bias and data privacy, while encouraging students to adopt responsible AI practices aligned with globally recognized principles, including those by Google.

As part of the advanced modules, students engaged with real-world AI use cases across diverse sectors—such as healthcare, agriculture, finance, retail, transportation, and climate action. These examples highlighted how AI is reshaping industries and creating new opportunities for

innovation. Students also examined risk management strategies and developed insights into the governance of AI systems.

By the end of the program, participants demonstrated the ability to apply AI tools to workplace scenarios, automate routine processes, and identify areas for AI-driven improvement. They showcased their learning through capstone projects and interactive simulations, gaining a solid foundation for future career paths in engineering, entrepreneurship, and digital transformation. The workshop successfully empowered students with both the technical fluency and ethical mindset necessary for engaging with AI in a rapidly evolving world.

The feedback received from students was overwhelmingly positive, highlighting the workshop's practical value, inclusivity, and impact on their academic and career aspirations. Students appreciated the workshop's clarity, engagement, and relevance to real-world challenges. Vedant Saxena, a first-year BTech (EE) student, shared, *"This workshop was highly informative and engaging, providing a clear understanding of how AI can be used to create images, content, and ideas efficiently."* Druv Singh, from BTech (ME), noted, *"The AI workshop is thoughtfully inclusive and engaging—breaking down complex concepts into hands-on sessions... it equipped us with essential AI tools and critical thinking skills that will empower our future career and drive innovation."* Ahtisham Ahmad, another BTech (ME) student, added, *"This workshop enhances my skills, boosts creativity, and improves efficiency... it is a game changer for productivity, learning, and adapting to future tech trends."*

The Summer Workshop on Artificial Intelligence marks a significant step forward in the Department of Electrical Engineering's mission to equip students with future-ready skills. Through strategic collaborations, hands-on training, and a focus on ethical applications, the program successfully cultivated AI literacy and problem-solving capabilities among participants. The success of the workshop is a testament to the department's forward-looking approach, fostering a generation of engineers who are not only technically skilled but also ethically conscious and innovation-driven.