

Faculty Development Programme on Recent Advancements, Innovations, Future Trends in Emerging Technologies, and their Impact on Higher Education

A five-day Faculty Development Programme on ‘Recent Advancements, Innovations, Future Trends in Emerging Technologies and their Impact on Higher Education’ was organised by the Association of Indian Universities (AIU)—Academic and Administrative Development Centre (AADC), Amity School of Engineering and Technology (ASET) and Amity Academic Staff College (AASC), Amity University Haryana, Gurugram from July 17-21, 2023.

The event saw the participation of eighty registered faculty members representing diverse academic disciplines. The attendees engaged in a series of sessions, focusing on critical topics such as artificial intelligence, machine learning, data science, blockchain technology, and cyber security.

The programme commenced with opening remarks by Dr. Sanjna Vij, Dy Director, Academic Staff College, Amity University Haryana. In her opening remarks, Dr. Vij emphasized the crucial significance of embracing new technologies in the field of education. She underlined the importance of upskilling and reskilling teachers to enhance their competence and confidence in utilizing these technological advancements effectively. By doing so, teachers can significantly improve their teaching methodologies and contribute positively to the academic community.

During her address, Dr. Shalini Bajaj Bhaskar, Director, Amity School of Engineering and Technology, Amity University, Haryana talked about recent advancements and emerging trends in the field of Engineering. She talked about virtual reality, artificial intelligence, cloud computing, experiential learning, project-based learning, and much more. She also stated that innovations drive change in society and hence Educators must keep themselves updated all time in order to bring innovative ideas among their students.

Prof. Vikas Madhukar, Pro Vice Chancellor, Amity University Haryana, during his address, talked about the ‘Smart Campus Capabilities and its Framework’. Prof. Madhukar’s vision of the Smart Campus demonstrates a commitment to leveraging technology to create a forward-looking educational environment. By embracing learning technologies and building a digitally enabled infrastructure, Amity University Haryana aims to adapt to the evolving needs of students and provide a more engaging, personalized, and transformative learning experience. The Smart

Campus framework emphasizes the institution's dedication to innovation and continuous improvement in higher education.

Prof P B Sharma, Vice Chancellor, Amity University Haryana during his address emphasised emerging technologies, such as artificial intelligence, virtual reality, augmented reality, and advanced analytics, which have the potential to transform the learning experience for students. Prof Sharma also highlighted that embracing emerging technologies would likely revolve around leveraging these technologies strategically to enhance the quality of education, improve research capabilities, and prepare students for the dynamic and technology-driven future. Prof Sharma brought attention to the profound impact of Artificial Intelligence technology on students' learning experiences. Prof Sharma highlighted how incorporating AI into higher education can revolutionize the way students acquire knowledge, encouraging personalized learning, interactive engagement, and improved educational outcomes.

Dr. Amarendra Pani talked about Industry 4.0 and its requirement and urged that the faculties should learn, unlearn, and relearn and keep themselves abreast of technological developments. Dr Pani also stated that by adopting a mindset of continuous learning, unlearning, and relearning, faculty members can effectively contribute to their student's education and research while also fostering an environment of innovation and growth within the academic community.

Guest of Honour, Prof. Kushal Sen, Indian Institute of Technology, New Delhi focused on sustainability development goals 4.0 SDG-4.0 (Education for all). He highlighted the role of a teacher in this technologically advanced world and how it has changed from the traditional role. He talked about the various pedagogical changes the teacher needs to adopt as per the student's needs and classroom requirements. He also discussed various online learning platforms that can lead to 24x7 Education for all.

During Technical Session, Dr. Ravi Datta Sharma, Amity University Haryana talked about how Artificial Intelligence (AI) is revolutionizing the healthcare sector. He said that AI can be used for patient examination and diagnosis too. With the help of AI, doctors are able to get useful insights into the patient's treatment process by examining the samples using AI tools and then administrating the patient's treatment using another set of AI tools. He then shared various AI startups working for the healthcare sector. He also discussed various challenges as well as the future of AI in Healthcare.

Dr Mani Madhukar, IBM, India made the hands-on session by demonstrating IBM's Auto AI for model building and deployment. The Auto AI graphical tool analyses the data and discovers data transformations, algorithms, and parameter settings that work best for predictive modeling AI problems. He demonstrated the tool with enthusiasm, and it was a very engaging session.

Dr Richa Singh, Birla Institute of Technology, Mesra, Ranchi deliberated on an information filtering approach. She discussed the general model of the recommendation system and its evaluation metric. Dr. Singh discussed artificial intelligence, machine learning, information retrieval, recommender systems and deep learning.

The next session was given by Dr. Ranjana Arora, Amity University Haryana on the topic 'Application of Multi-objective Optimization in Engineering and Technology'. She discussed the application and importance of multi-objective optimization in Engineering and technology in detail and engaged the participants actively.

Dr Alok Srivastava, L V Prasad Eye Institute, Hyderabad spoke on 'Data Science in the Digital Era: Exploring Opportunities and Challenges' and justified it with his detailed discussion on data science, data analytics, data strategy, machine learning, deep learning, business intelligence, statistical analysis, predictive modeling and natural language processing. In the next session, Dr Sunil Sikka, talked about the 'Role of Artificial Intelligence (AI) in Robotic Process Automation'. He discussed software technology that makes it easy to build, deploy, and manage software robots that emulate humans' actions interacting with digital systems and software. The session was knowledgeable and interesting.

Dr Shweta Sinha, Amity University Haryana in her session discussed human-machine communication in Industry 4.0. She gave a very engaging session and discussed the nuances of device-to-device and human-to-device communication. She gave a detailed description of speech technology too. In the same session, Mr. Akshat Aggarwal, Amity University Haryana discussed several devices in daily life through which human communication is done via voice. He made the session interactive by demonstrating the speech models of Siri, Alexa, Google Home devices. Mr. Akshat discussed the recent challenges faced in the Human-machine communication domain. In the end, a question-answer session was conducted.

Dr. Amit Dua, BITS Pilani discussed the topic 'Different Types of Stable-coins and Risks Involved With Them'. He presented the aspects of stablecoins (fiat currency) and blockchain. He talked in

detail about Blockchain technology and how it has revolutionized the world. He discussed the various cryptocurrencies available in the market nowadays and their working mechanisms.

Dr Anuj Kumar Singh, Adani University, [Shantigram, Ahmedabad](#), Gujarat talked about Cyber Security and blockchain Integration. His topic of discussion was ‘Blockchain for Cyber Security in Modern Computing’. He discussed a variety of cyber-attacks happening nowadays and the need for cybersecurity to protect against such unfavorable occurrences. He also discussed the benefits of employing blockchain to overcome cyberattacks.

Dr Amit Tyagi, National Institute of Fashion Technology, Delhi talked about the current trends in Blockchain and the application areas where Blockchain finds its place in the present time. He talked about a variety of application areas such as finance, healthcare, supply chain management, and even voting systems. He said that companies like Microsoft and Amazon have already implemented Blockchain-as-a-Service (BaaS) which acts as a cloud service where users can create digital products using blockchain fundamentals.

Prof Manju Khari, Jawaharlal Nehru University, New Delhi discussed the ‘Challenges and Issues in Internet of Things Security’. She talked about various security issues in IoT like IoT malware and ransomware, data privacy concerns, escalated cyberattacks and the rise of remote working. She then discussed various ways to avoid and mitigate them.

During the Valedictory Session, Dr Khushboo Tripathi, Amity University Haryana, and Dr. Abhishek Jain, Wipro Technologies talked about ‘Recent and Future Trends in Cyber Security and Digital Transformation’. Dr. Khusboo explained various threats related to databases, web, and information systems. She also highlighted the solutions for mitigating these threats with the help of live examples. In addition to that, Dr. Abishek Jain gave remarks on the threat landscape, cyber forensics case studies and digital transformation in cyber-security areas. Dr. Shweta Sinha thanked all the esteemed speakers for sharing their knowledge and insights with all the participants. It was an informative event for the faculty members.

Faculty Development Programme on Research Methodology

The one-week Faculty Development Programme on ‘Research Methodology’ was organised by the

Association of Indian Universities, New Delhi—Academic and Administrative Development Centre (AADC), IEEE Committee, Shoolini University, Solan, Himachal Pradesh during July 24-30, 2023. About fifty participants registered for the programme. The programme aimed to enhance participants' understanding of research methodology, ethics, academic writing, interdisciplinary research, and technical writing using LaTeX. The event saw the active participation of fifty attendees, including students and faculty members from various departments of the university. The event was inaugurated by Prof. Virender Rihani, Dean, Engineering who highlighted the importance of research methodology in conducting high-quality research. Mr. Daman Dev Sood, IEEE Chairman, New Delhi Section delivered the Keynote Address, emphasizing the significance of choosing the right research methodology based on research questions, design, data collection, and analysis methods.

The plenary talks by Prof. Valentina E Balas and Dr. Shubhajit Roy Chowdhury covered the challenges in engineering research and the importance of interdisciplinary research. Prof. Balas stressed the ethical considerations in research and the responsible use of artificial intelligence. Dr. Roy Chowdhury explained the phases of interdisciplinary research and its benefits in addressing complex problems.

The next session was focused on research ethics and academic writing. Dr. Manu Sood presented ethical principles, including autonomy, beneficence, non-maleficence, justice, scientific validity, and honesty. He also discussed academic integrity and ways to prevent plagiarism. The participants gained insights into writing styles, citations, and appropriate source referencing.

Dr. Barsha Mitra delivered the plenary talk on 'Quality Publications'. She covered publication types, choosing venues, research paper sections, manuscript submissions, and ethical considerations. Further, Dr. Nageshwar Rao led the hands-on practical workshop on LaTeX for technical writing, where participants learned to create documents, format text, and incorporate mathematical expressions, tables, and figures. Dr. Samiya Khan discussed ethical considerations in computer science and engineering research in his session. Topics included informed consent, data ownership, privacy, data sharing, and the code of ethics for researchers in this field.

Dr. Gousia Habib spoke on 'Research Proposal Writing Strategies to Secure Research Grants' during the session. Participants learned about the structure of a proposal and the importance of a well-defined research problem, objectives, scope, significance, methodology, and anticipated

results. The event provided an enriching experience for the participants. They gained insights into research methodologies, ethical considerations, academic writing, interdisciplinary research, and technical writing using LaTeX. The event equipped them with valuable knowledge and skills for conducting high-quality research in their respective fields.