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THE OFFICIAL NEWSLETTER OF
DEPARTMENT OF MECHANICAL
ENGINEERING

Adi Shankara
INSTITUTE OF ENGINEERING AND TECHNOLOGY

THE COTERIES BULLETIN.

MISSION

To provide quality education for moulding competent professionals in mechanical engineering

To promote collaborative activities and positive contributions to society

To facilitate continuous learning environment

VISION

"To make the Mechanical Engineering Programme a Centre of Excellence. in professional education. and research."

FDP ON ARITIFICIAL INTELLIGENCE AND MACHINE LEARNING IN MANUFACTURING

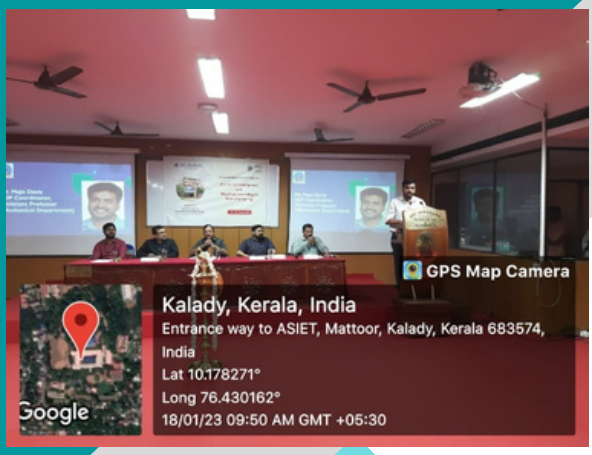
A three-day faculty development program on the theme of 'Artificial Intelligence and Machine Learning in Manufacturing' was conducted from January 18-20, 2023, at Mechanical Dept., ASIET. The program, which was handled by experts in the field, featured eight technical sessions and was inaugurated by Dr. Vinay V Panicker, Associate Professor from NIT Calicut.

During the inaugural address, Dr. Panicker emphasized the importance of learning AI and ML techniques for basic branches in order to succeed in one's career. The Associate Director, Shri. Jacob George, also spoke at the event, highlighting the high demand and high pay for professionals with basic branch knowledge and AI/ML skills.

The Principal, Professor K T Subramanian, emphasized the importance of practical implementation of AI/ML techniques in courses, and the COO reminded all participants to teach their students what they learn from the program.

The welcome address was given by Dr. Eldose K K, HoD of Mechanical Dept. The program was coordinated by Dr. Vinay Varghese, Associate Professor and Mr. Majo Davis, Assistant Professor.

The program was concluded with vote of thanks by Dr. Vinay Varghese. The master of the ceremony was Dr. Nidhin Raj A and 3 day's events were overall coordinated by Dr. Sivaprasad P V.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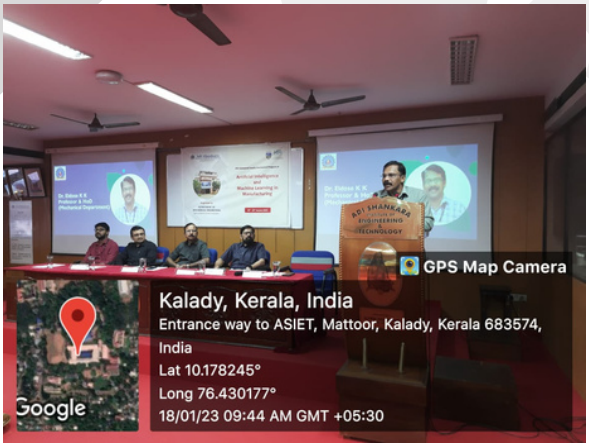
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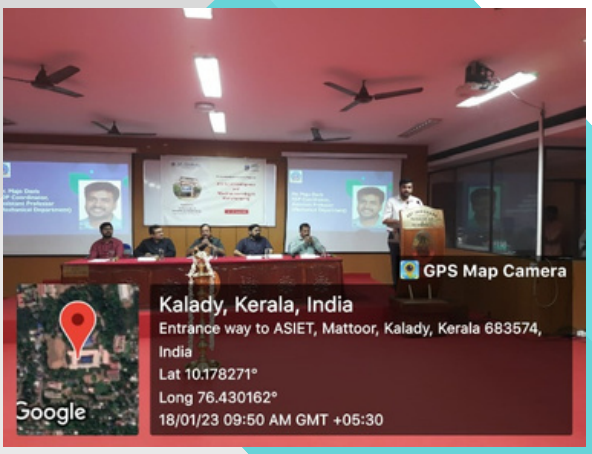
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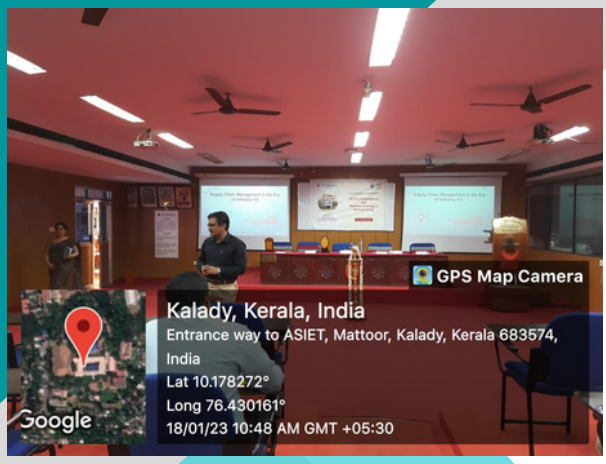
DAY-1



The first session was handled by Dr. Vinay V Panicker on the topic, ‘Supply Chain Management in the Era of Industry 4.0.’ During his talk, Dr. Panicker highlighted the importance of understanding customer demands, competition in the market, and the need for a customer-focused approach in today's business landscape.

Dr. Panicker also discussed the role of data analysis in supply chain management and how it has evolved from statistics. He also gave a historical perspective by mentioning different industrial revolutions and the impact of Q-commerce and IoT on supply chain management in the Indian context.

Overall, the session provided valuable insights on how to navigate the challenges of modern supply chain management and stay competitive in the era of Industry 4.0.

"Understanding the Core: Machine Learning to Deep Learning" was the topic of the second session, led by Dr. Shailesh S, Assistant Professor at CUSAT. The session provided an overall basic introduction to Artificial Intelligence (AI) and Machine Learning (ML).

Dr. Shailesh began by discussing various data analysis techniques such as descriptive, diagnostic, predictive and prescriptive analytics. He then went on to explain the differences between supervised and unsupervised learning, and the properties of big data. He also touched upon reinforcement learning and the various uses of machine learning including classification, regression, clustering, and optimization.

The session also covered the basics of artificial neural networks, including the perceptron model and the multi-layer perceptron model. Dr. Shailesh also briefly introduced deep learning neural networks, such as convolutional neural networks (CNNs).

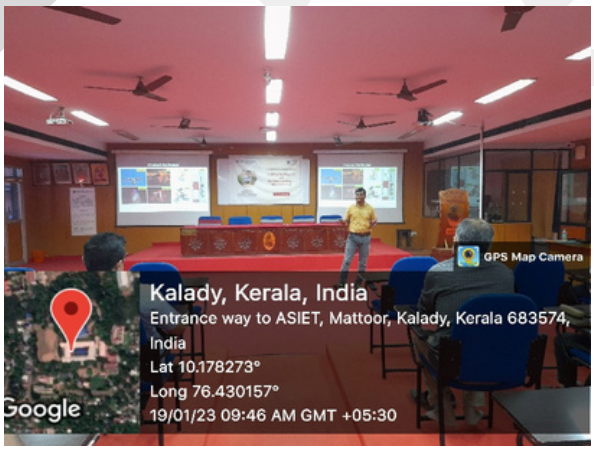
Overall, the session provided a comprehensive introduction to the fundamentals of AI and ML, giving attendees a solid foundation to build upon.

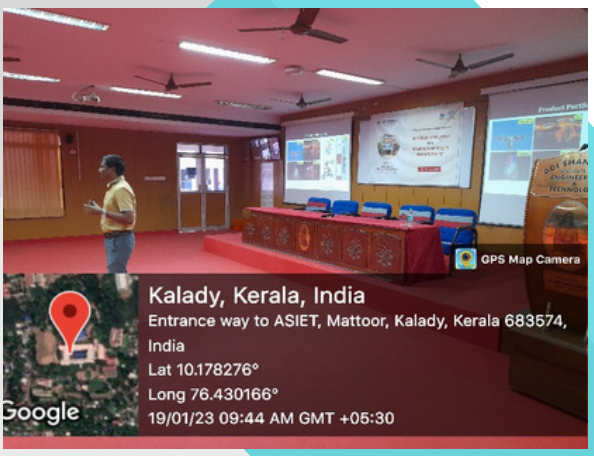
DAY-2

"Intro to Additive Manufacturing and Advanced Material Processing via DED" was the topic of the first session on the second day, led by Dr. Mallikarjuna B, Assistant Professor at NIT Trichy. The session aimed to introduce the audience to novel Direct Energy Deposition (DED) techniques and the importance of predictive maintenance during the process.

Dr. Mallikarjuna discussed how Artificial Intelligence (AI) and Machine Learning (ML) can be used to achieve predictive maintenance in the manufacturing process. He also delved into the Laser Engineered Net Shaping (LENS) process for DED and how Finite Element Analysis (FEA) can be used for simulation studies.

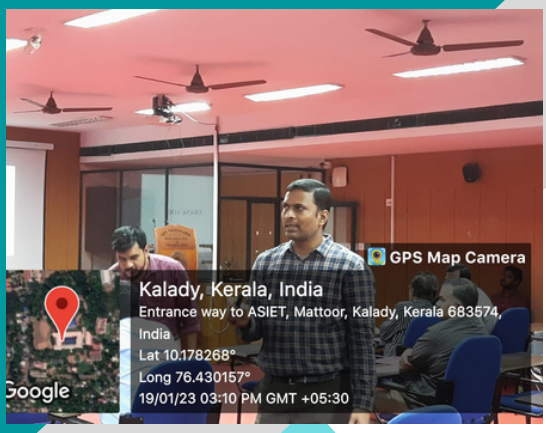
The session provided valuable insights into the latest developments in additive manufacturing and advanced material processing via DED. It also highlighted the potential of AI and ML to improve the efficiency and reliability of the manufacturing process through predictive maintenance techniques.

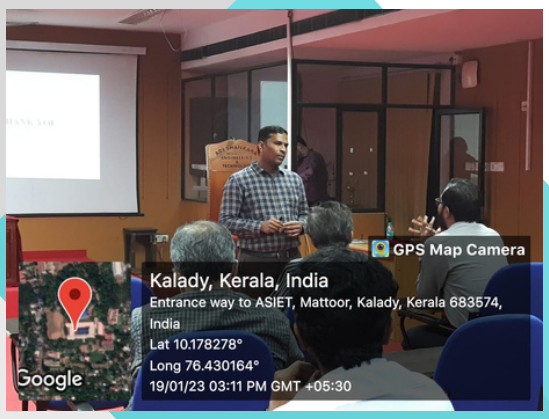


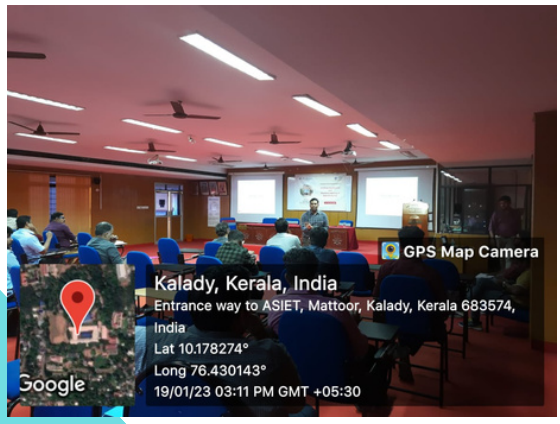


‘On the second session of second day of the FDP, Professor P V Rajaraman, Head of the Artificial Intelligence Department at ASIET, delivered a lecture on the topic of 'Interpreting DL Models with Explainable AI.' The session began with an overview of deep learning applications in fields such as computer vision, speech and audio recognition, and natural language processing. Professor Rajaraman also discussed the limitations of data enhancement in medical imaging. He then provided an in-depth look at the various steps involved in deep learning, including data fetching, processing, model training, testing, and improvement. The lecture also delved into the features of Convolutional Neural Networks (CNNs), such as striding, pooling, and padding, and compared CNNs to Recurrent Neural Networks (RNNs). Additionally, the lecture also introduced explainable machine learning algorithms.’

"In the final session of the second day of FDP, Dr. D Chakradahar, Associate Professor at IIT Palakkad, delivered a presentation on the topic of 'Fuzzy Logic Controller.' Dr. Chakradhar discussed the various AI tools used in the manufacturing industry for production planning, predictive maintenance, supply chain optimization, process automation, intelligent scheduling, robotics, and quality control. He also highlighted the significance of the fourth industrial revolution in the manufacturing sector. The session included a detailed explanation of Fuzzy Logic controllers and their potential applications in the industry. A demonstration on the use of MATLAB software for fuzzy analysis was also provided during the session."







DAY-3

On the third and final day of the KTU funded FDP, Dr. Kishore Kumar Gajrani, Assistant Professor at IIITDM-Kancheepuram, delivered an informative lecture on the importance of data in the field of manufacturing.

During his talk, Dr. Gajrani emphasized the various types of data that can be used in manufacturing, including texts, images, and videos. He highlighted the key applications of data in manufacturing, including early fault detection and prediction, maintenance, and product quality improvements.

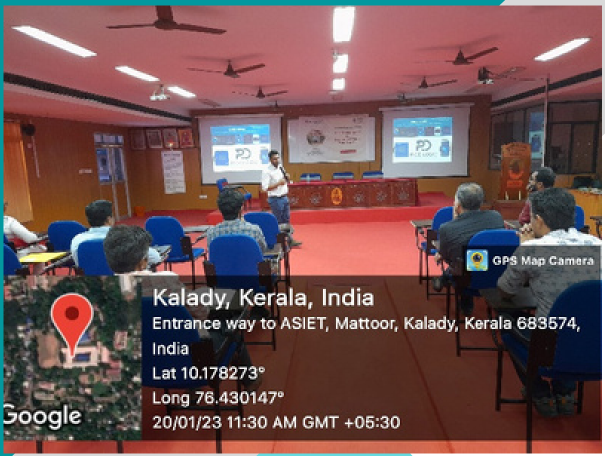
To further illustrate the practical applications of data in manufacturing, Dr. Gajrani presented two case studies that demonstrated the use of AI and ML techniques. The first case study focused on energy prediction for CNC machining, while the second case study examined tool life stage prediction in micro milling. Both studies involved collecting data from experiments, training ML models, and validating the models for accuracy.

Overall, the lecture provided valuable insights into the role of data in manufacturing and the potential of AI and ML techniques to improve the industry. The FDP participants left the session with a better understanding of the importance of data in manufacturing and its future potential.

During the second session of third day, Adi Shankara TBI's Nodal Officer, Prof. Ajay Basil, delivered a thought-provoking lecture on the potential of AI/ML in the realm of start-ups. Speaking on the various phases of business incubation and the key elements that entrepreneurs should consider while developing their venture, Prof. Basil shared his own experience and success stories. He emphasized that new business ventures should focus on highly invest-oriented AI/ML-assisted products in order to stay competitive in the market.

One example he gave was the use of AI/ML for predictive maintenance of products, which he said was crucial for satisfying customers and fostering growth. He also highlighted the importance of nurturing new businesses in order to help them reach their full potential.

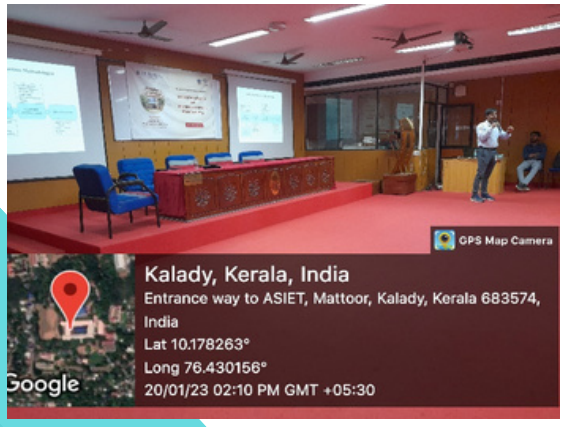
Overall, the lecture offered a hopeful outlook for the future of start-ups, with AI/ML seen as a key driver of innovation and success.



Dr. Anishin Raj, Lead, Learning and Development, IBS Kochi, manages the FDP's final session. He delivered a presentation on 'Machine Learning Techniques for Industrial Application.'

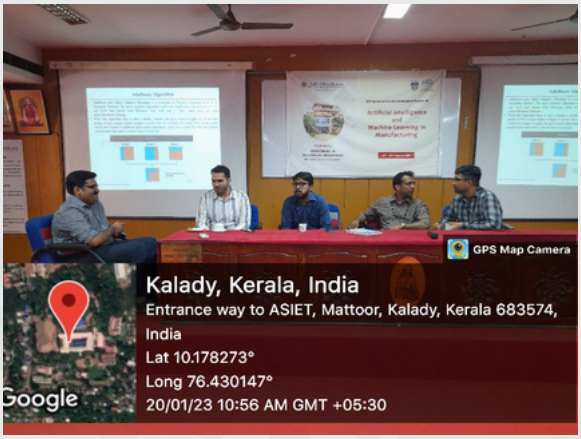
Throughout his lecture, he emphasized the importance of image processing (feature extraction) in Machine Learning. Aside from that, he has provided a detailed step-by-step explanation of image processing, starting from the initial photograph to the preprocessing, segmentation, feature extraction, and final recognition. He also discussed the support vector machine (SVM), which has a wide range of applications in image processing.

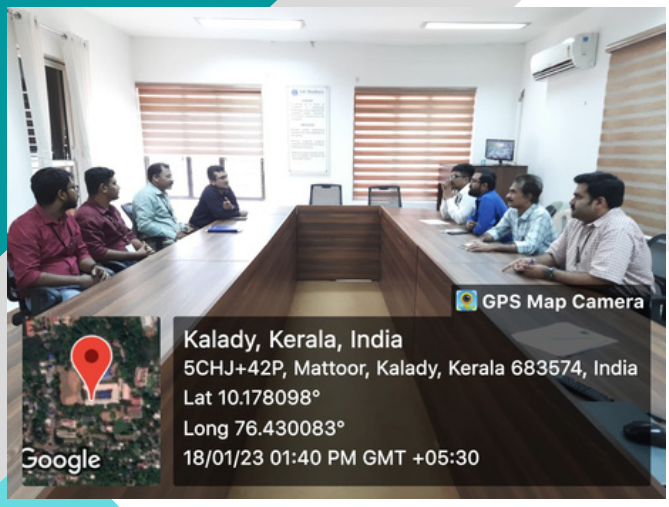
Finally, he emphasized the importance of having a strong knowledge of mathematics, particularly linear algebra, statistics, differential equations, and so on, in order to advance in the AI/ML field.



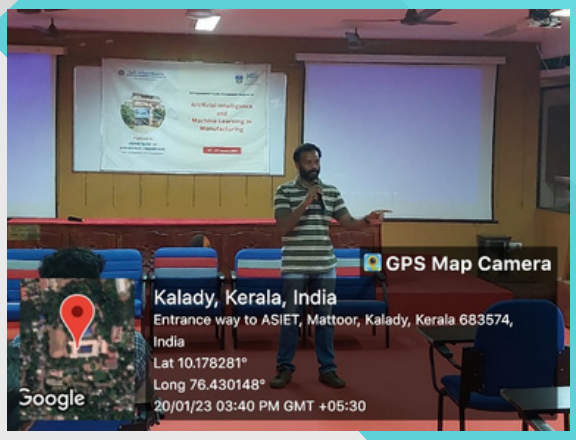
FACULTY INTERACTION WITH EXPERTS

A faculty interaction also conducted along with the FDP with experts. The aim was to understand present scenario of the core branches at premier institutes from where the experts are coming from. The discussion was also about the current curriculum, areas where the major modifications needed, faculty skills (add-on) that needed to sustain in the AI/ML era, possible MoUs with the institutes, research facilities available and their accessibility, startup fund sources, etc.





The valedictory function was held at the end of the final session. Participants shared their experience of the 3 days FDP and certificates were distributed after that.



INVITED LECTURE AT MUNNAR

Dr. Eldose K K and Prof. Eldhose K Joy delivered sessions on NBA accreditation at College of Engineering, Munnar.

MoU's SIGNED

MoU signed with P Prakash IPS, Nodal Officer Kerala Police Cyberdrome for cyber security awareness campaigns and collaborative research projects.

MOU with MG University has recognised Adi Shankara TBI ,as the incubation centre. Staff who are doing research can utilise Adishankara TBI facilities for starting their company or technology transfer

Adi Shankara TBI will provide training,mentor services to staff of MG University. Similarly ASIET team can also utilise the research output from MG University and its affiliated colleges for incubation and developing end products

at our TBI .We will have acess to all arts and science colleges under MG University for providing training services.

REPUBLIC DAY CELEBRATIONS AT ASIET

KTU WOMEN BASKETBALL WINNERS

KTU Women Basketball Team Won Their 1st Match against Saveetha institute of Technology and Science

IEDC EXECOM

IEDC EXECOM FORMULATED FOR THE YEAR 2023

Interaction with Mr. Manoj Abraham IPS, ADGP Vigilance.

Industry Institute Interaction.

FISAT CUP CRICKET TOURNAMENT

Team ASIET won the First Match(Group Match) of Professor's match against the college of Engineering Thrikkaripur, Kassargord and entered into Quater final and Won the quater final match against the Jyothi Engineering college Thrissur and entered into semis. In Semi Final the opponent was Thalessary college of Engineering. Team ASIET fought hard in the Semi final till the end , but lost.Eventhough the team lost in semifinals, every faculty who participated in the Processor's team has performed well.Faculties participated from Mechanical Department are Dr. Eldhose K K, Mr. Gautham D, Dr. Jithesh K, Mr. Aneesh V, Mr. Eldhose Mathew, Mr. Ajith M S

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