6.3.3 Number of professional development/administrative training programs organized by the institution for teaching and non-teaching staff during the year 2023-24

List of Professional Development/Administrative Training Programs, Annual Report, Brochures, Reports with Photographs, & List of Participants.

List of Professional development programs along with date and number of participants

Number of professional development /administrative training programs organized by the institution for teaching and non-teaching staff during the year 2023-24

Dates (from-to) (DD-MM-YYYY)	Title of the professional development program organised for teaching staff	Title of the administrative training program organised for non-teaching staff	No. of participants
04/03/2024 to 06/04/2024	A Short term course on Innovations & Inventions on Autonomous Vehicle	NA	79
23/12/2023 to 06/01/2024	Faculty Development Program on Critical Thinking & Problem Solving Methodologies	NA	60
15/07/2024 to 17/07/2024	Professional Development Program on ABB Robot Programming	NA	15
08/02/2024 to 10/02/2024	Faculty Development Program on Future Tech Fusion: Unleashing Innovation with MATLAB and Simulink for communication, AI, IoT and Electric Vehicle Modelling	NA	57
05/02/2024 to 07/02/2024	Faculty Development Program on MATLAB Mastery: Crafting Innovative workflows for Physical Modelling and Analysis	NA	38
29/01/2024 to 02/02/2024	Additive Manufacturing for Research & Innovation	NA	15
08/01/2024 to 13/01/2024	Energy Management & Performance optimization for sustainable E-Mobility	NA	40
12/02/2024	An interactive session on Start-up eco-system in India a Journey Through IP Awareness	NA	19
02/12/2023	A Session on Patent Search for Novelty	NA	26

24/02/2024	Faculty Enablement Program on Crafting Effective Research Proposal	NA	49
27/05/2024 to 29/05/2024	Patent Searching & Drafting	NA	35

Annual Report

Professional development /administrative training programs organized for teaching and non-teaching staff

Annual Report 2023-24

Mangalore Institute of Technology and Engineering conducted 11 Faculty Development Programs during the academic year 2023-24 across various departments, focusing on advancing knowledge and professional skills. The programs included topics such as autonomous vehicles, critical thinking, ABB robot programming, MATLAB for AI and electric vehicle modeling, additive manufacturing, energy management, and sustainable mobility. Sessions on patent drafting, IP awareness, and crafting research proposals. These initiatives demonstrated the institute's commitment to fostering innovation and academic excellence, ensuring faculty members stay updated with emerging technologies and pedagogies, ultimately benefitting the academic and research community. List of programs conducted are as below.

Sl No.	Date	Name of the Event	Number of Participants	Host Department
1	04/03/2024 to 06/04/2024	A Short term course on Innovations & Inventions on Autonomous Vehicle	79	**IQAC**
2	23/12/2023 to 06/01/2024	Faculty Development Program on Critical Thinking & Problem Solving Methodologies	60	**IQAC**
3	15/07/2024 to 17/07/2024	Professional Development Program on ABB Robot Programming	15	**MTR**
4	08/02/2024 to 10/02/2024	Faculty Development Program on Future Tech Fusion: Unleashing Innovation with MATLAB and Simulink for communication, AI, IoT and Electric Vehicle Modelling	57	**IQAC**
5	05/02/2024 to 07/02/2024	Faculty Development Program on MATLAB Mastery: Crafting Innovative workflows for Physical Modelling and Analysis	38	**IQAC**
6	29/01/2024 to 02/02/2024	Additive Manufacturing for Research & Innovation	15	**MECH**

7	08/01/2024 to 13/01/2024	Energy Management & Performance optimization for sustainable E-Mobility	40	**MECH**
8	12/02/2024	An interactive session on Start-up eco-system in India a Journey Through IP Awareness	19	**IPR Cell**
9	02/12/2023	A Session on Patent Search for Novelty	26	**IPR Cell**
10	24/02/2024	Faculty Enablement Program on Crafting Effective Research Proposal	49	**IPR Cell**
11	27/05/2024 to 29/05/2024	Patent Searching & Drafting	35	**IPR Cell**

1. Faculty Development Program on Innovations & Inventions on Autonomous Vehicles

Chief Patron

Mr. Rajesh Chouta

Chairman, MITE, Moodabidri.

Patron

Dr. Prashanth C M

Principal, MITE, Moodabidri.

Coordinator

Dr. Vinayambika S Bhat

Convener - IQAC.

Co-Coordinator

Mr. Avinash N J

Assistant Professor , Dept of ECE

Resource Person

Dr. Yong Wang, PhD
Associate Professor and Associate Department Chair
Department of Systems Science and Industrial Engineering
Thomas J. Watson College of Engineering and Applied Science
Binghamton University, New York, USA

Back to index

Dr. Yong Wang is an accomplished researcher with a dual PhD in Industrial Engineering & Operations Research from the University of Illinois at Chicago (2015) and Energy & Power Engineering from Huazhong University of Science and Technology, China (2010). His academic journey includes a significant stage as a Visiting Scholar at the Department of Mechanical Engineering, University of Michigan, Ann Arbor (2007-2009). Presently, Dr. Wang serves as Associate Professor and Associate Chair of the Systems Science and Industrial Engineering Department within the Watson College of Engineering and Applied Science at Binghamton University, USA.

His research endeavors at Binghamton University are dedicated to the design, modeling, and management of various industrial systems, spanning energy, healthcare, manufacturing, and transportation sectors. Dr. Wang boasts an impressive publication record with 1656 Google Scholar citations, consisting of 42 peer-reviewed journal papers, and 44 peer-reviewed conference papers in industrial and systems engineering. He has also contributed as an invited panelist for funding agencies and served as a reviewer for numerous prestigious journals and international conferences. At Binghamton University, Dr. Wang offers a diverse range of courses in industrial and systems engineering, computer programming, and engineering management, reflecting his multidisciplinary expertise and commitment to education.

MITE
Invent Solutions

nirf Innovation Ranking 151-300

A+ GRADE CGPA: 3.44

MANGALORE INSTITUTE OF TECHNOLOGY & ENGINEERING
(A unit of Rajalaxmi Education Trust ®, Mangalore)
Autonomous Institute Affiliated to V.T.U., Belagavi, Approved by AICTE, New Delhi
Accredited by NAAC with A+ Grade & ISO 9001:2015 Certified Institution
Badaga Mijar, Moodabidri, Mangaluru Tq, D.K. Dist., Karnataka-574225
http://www.mite.ac.in

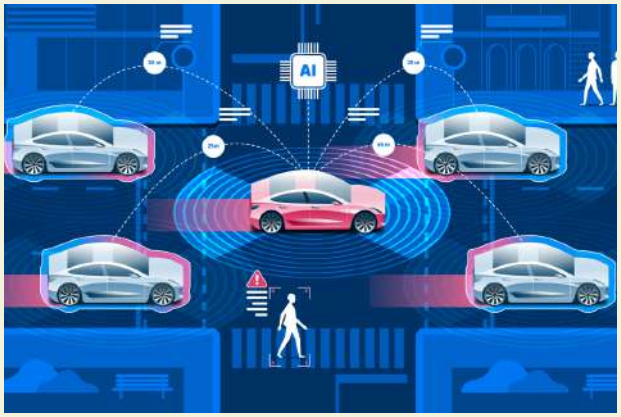
INSTITUTION'S INNOVATION COUNCIL
(Ministry of Education Initiative)

BINGHAMTON UNIVERSITY
State University of New York

Innovations & Inventions on Autonomous Vehicle

A Short-Term Course

An Initiative by
Internal Quality Assurance Cell



4th to 6th March 2024

A Short-Term Course

on

Innovation & Inventions on Autonomous Vehicle

Organised by

Internal Quality Assurance Cell (IQAC)

4th to 6th March 2024

A Short-Term Course

on

Innovation & Inventions on Autonomous Vehicle

Title: A Short-Term Course on Innovations & Inventions on Autonomous Vehicle.

Date: 04/03/2024 to 06/03/2024

Autonomous Vehicle:

Autonomous vehicles have rapidly gained popularity, showcasing the seamless integration of various artificial intelligence components through a systems approach to ensure their efficient operation. These vehicles stand as prime examples of cutting-edge AI applications, adeptly sensing their surroundings and navigating safely with minimal human intervention. The widespread adoption of autonomous vehicles across diverse transportation sectors underscores their increasing significance. This concise course provides an insight into autonomous vehicle technologies, detailing the array of smart sensors employed (including LIDAR, RADAR, Ultrasonic, Monocular, Stereo, and Infrared Cameras), and delving into the fusion techniques pivotal for autonomous driving. Participants were engaged in hands-on computer programming tutorials focused on detecting and tracking road users and objects, alongside lane detection and identification of lane lines, within a dedicated computer lab setting.

Profile of the distinguished Resource Person:

Dr. Yong Wang, PhD, Associate Professor and Associate Department Chair Department of Systems Science and Industrial Engineering, Thomas J. Watson College of Engineering and Applied Science, Binghamton University, New York, USA.

Dr. Yong Wang is an accomplished researcher with a dual PhD in Industrial Engineering & Operations Research from the University of Illinois at Chicago (2015) and Energy & Power Engineering from Huazhong University of Science and Technology, China (2010). His academic journey includes a significant stage as a Visiting Scholar at the Department of Mechanical Engineering, University of Michigan, Ann Arbor (2007-2009). Presently, Dr. Wang serves as Associate Professor and Associate Chair of the Systems Science and Industrial Engineering Department within the Watson College of Engineering and Applied Science at Binghamton University, USA. His research endeavors at Binghamton University are dedicated to the design,

modeling, and management of various industrial systems, spanning energy, healthcare, manufacturing, and transportation sectors. Dr. Wang boasts an impressive publication record with 1656 Google Scholar citations, consisting of 42 peer-reviewed journal papers, and 44 peer-reviewed conference papers in industrial and systems engineering. He has also contributed as an invited panelist for funding agencies and served as a reviewer for numerous prestigious journals and international conferences. At Binghamton University, Dr. Wang offers a diverse range of courses in industrial and systems engineering, computer programming, and engineering management, reflecting his multidisciplinary expertise and commitment to education.

Brochure of the Short Term Course:

About MITE

Mangalore Institute of Technology & Engineering, Moodbidri is a leading Engineering & Management Institution in the region, established in the year 2007 by the Rajalaxmi Education Trust under the leadership of the Visionary Mr. Rajesh Chouta. The institute is accredited by NAAC with A+ Grade, offers 9 Under-Graduate (6 NBA accredited programmes), 3 Post Graduate and 7 research programmes in its beautiful serene green campus. The institute is placed in highest category platinum ranking in AICTE-CII survey 2020 of industry linked technical institutes in India and ranked in Band - Excellent in the private institute category under ATAL Ranking of Institutions on Innovation Achievements (ARIIA) during the year 2020 and 2021 respectively. The institute known for its high academic standards, has registered 34 University Ranks over the last 6 years as a reference to the quality teaching learning pedagogy. MITE has collaborations with industries of repute.

The industry-standard Incubation Centre is supported by the Government of Karnataka and MSME, Government of India to support budding entrepreneurs. MITE was awarded as the "Best Performing College of the Year 2019-20" by KSCST & the students have received several Top Awards at National and State Level events. With an intent to shape globally competent graduates, MITE has established a campus that would aid students to manifest their true selves by promoting effective learning, and creativity, to ensure that they become formidable individuals to "INVENT SOLUTIONS".

Vision

To attain perfection in providing Globally Competitive Quality Education to all our Students and also benefit the global community by using our strength in Research and Development.

Mission

To establish world class educational institutions in their respective domains, which shall be Centre of Excellence in their stated and implied sense. To achieve this objective, we dedicate ourselves to meet the Challenges of becoming Visionary and Realistic, Sensitive and Demanding, Innovative and Practical, Theoretical and Pragmatic; ALL at the same time.

Internal Quality Assurance Cell

The institute has established IQAC as per National Assessment and Accreditation Council (NAAC) guidelines in 2013. Since quality enhancement is a continuous process, the IQAC becomes a part of the institution's system and works towards the realization of the goals of quality enhancement and sustenance. The IQAC ensures the effective implementation of quality initiatives through continuous reviews and periodic meetings. The IQAC works towards attaining excellence in all the academic activities and for continuous improvement in the teaching-learning process.

Objectives:

- To develop a system for conscious, consistent, and catalytic action to improve the academic performance of the institution.
- To promote measures for institutional functioning towards quality enhancement through internalization of quality culture and institutionalization of best practices.

Autonomous Vehicle

Autonomous vehicles have rapidly gained popularity, showcasing the seamless integration of various artificial intelligence components through a systems approach to ensure their efficient operation. These vehicles stand as prime examples of cutting-edge AI applications, adeptly sensing their surroundings and navigating safely with minimal human intervention. The widespread adoption of autonomous vehicles across diverse transportation sectors underscores their increasing significance. This concise course provides an insight into autonomous vehicle technologies, detailing the array of smart sensors employed (including LIDAR, RADAR, Ultrasonic, Monocular, Stereo, and Infrared Cameras), and delving into the fusion techniques pivotal for autonomous driving. Participants will engage in hands-on computer programming tutorials focused on detecting and tracking road users and objects, alongside lane detection and identification of lane lines, within a dedicated computer lab setting.

Agenda:

Day 1: 04/03/2024

Overview of Autonomous Vehicle Technologies

Session 1:

- **AI in Autonomous Vehicles**

Session 2:

- **Smart Sensors and Sensor Fusion for Autonomous Driving**

Day 2: 05/03/2024

Detecting and Tracking Road Users and Objects

Session 1:

- **Detecting Road Users and Objects**

Session 2:

- **Tracking Road Users and Objects**

Day 3: 06/03/2024

Road Lane Detection and Lane Line Identification

Session 1:

- **Road Lane Detection**

Session 2:

- **Lane Line Identification**

Registration

- **All participants are requested to fill the registration form.**
- **Registration Link: https://forms.gle/wuzeEnEnF6oNJv6CA**
- **Last Date for the registration: 28/02/2024**

Opening Session of Short-Term Course

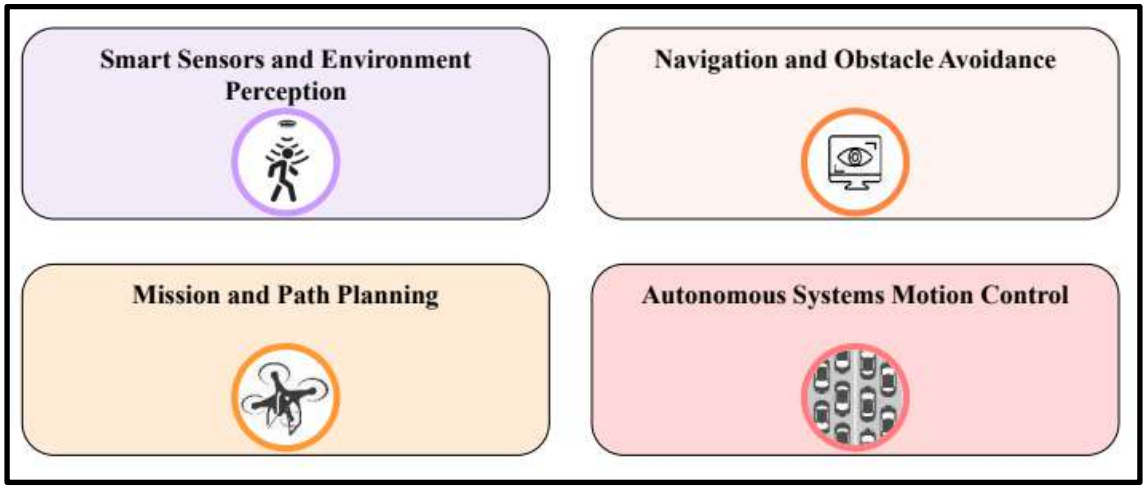
The opening session of Innovation & Inventions on Autonomous Vehicle - A Short-Term Course was held on 04/03/2024 at Innovation Center, Administrative block. Dr. Vinayambika S Bhat, Dean Quality Assurance, Convener IQAC, briefed about the MOU with Binghamton University, New York, USA. She also introduced Dr. Wang to the gathering. The resource person Dr. Yong Wang briefed about the 3 days short term course, which is an opportunity to set the tone for the learning experience ahead and to inspire participants to engage fully in the program. The Principal, Dr. Prashanth C M, welcomed Guest/Resource Person Dr. Yong Wang. Mr. Rajesh Chouta, Chairman, presided over the function. The Deans, Heads of various department's, faculties and students were present for the opening session of the short-term course.

Day 1, 04th March 2024

Session-1: AI in Autonomous Vehicle

Dr. Yong Wang briefed about overview of Autonomous Systems Research Interests, he also gave deep knowledge on various AI based project invention ideas & application on autonomous vehicles that are as follows:

- Intelligent Advice System to Prevent Overtaking Accident
- Statistics of road accidents Challenge & Research Objectives in India
- 3'D Simulation / Digital Twins applications Mail order pharmacy.
- Integration of VR and VR with 3'D simulation Model.
- Kiva Based Warehouse Operations
- Autonomous Robots for picking & Sorting objects.
- Navigation & Path Planning
- Autonomous Systems Motion Control.
- Smart Sensors & Environmental Perception
- Drone-based Parking Availability Monitoring
- Drone-based License Plate Recognition (LPR)
- Computer Vision-based Threat Detection
- Drone-based Parking Availability Monitoring
- Truck-Drone Hybrid Delivery Routing
- Drone-based Inventory Management
- Drone Inspection of Renewable Energy Equipment



Various AI Based Application on Autonomous Vehicle

Smart Sensors and Environment Perception

• LIDAR and RADAR sensors for surrounding environment perception.

• Low-cost monocular cameras for edge detection (e.g., ground markings)

• RGB-D cameras for stereo vision and 3D scene reconstruction.

• Infrared thermal cameras for night vision.

• Inertial sensors for measuring speed, turn rate, inclination, acceleration, and direction.

Navigation and Obstacle Avoidance

• AI-based image and live stream video processing.

• Static and moving objects detection using Tensor Flow, Open CV, and YOLO

• Terrain and mid-air collisions avoidance

• Indoor and outdoor human detection and congestion avoidance

• Full body gesture recognition for behavior prediction and injury prevention.

Mission and Path Planning

• Nature-inspired algorithms for fast path planning in dynamic environments

• High-resolution wind speed and direction forecasting

• Low-altitude weather service for passenger air vehicles

• Geo-fencing to avoid restricted areas.

• Optimal mission scheduling using a self-organizing map for truck-drone collaborative delivery

Autonomous Systems Motion Control

• Controlling the steering/flight angle and velocity to follow the planned waypoints

• Model-free motion control (e.g., PID)

• Vehicle model-based motion control (e.g., Pure pursuit control; Front/rear-wheel feedback control; Linear-quadratic regulator control; Model predictive speed and steering control).

Session-2

Dr. Yong Wang briefed about the overview of autonomous driving and its reliance on sensor technology & introduction to smart sensors and sensor fusion as key components in enabling autonomous vehicles to perceive and understand their environment.

Smart Sensors in Autonomous Driving

- Explanation of smart sensors and their role in providing crucial data for autonomous vehicles.

- Types of smart sensors utilized in autonomous driving:
    - LiDAR (Light Detection and Ranging): Discuss its ability to generate high-resolution 3D maps of the surroundings.
    - Radar: Explanation of radar technology and its capability to detect objects and measure their distance and speed.
    - Cameras: Overview of camera-based systems for visual perception, including object detection and recognition.
    - Ultrasonic sensors: Explanation of their use for short-range detection, particularly in parking and low-speed maneuvers.
- Advantages and limitations of each sensor type.
- Real-world examples of smart sensors and sensor fusion in autonomous driving:
    - Tesla Autopilot: Overview of Tesla's sensor suite and its integration with sensor fusion algorithms for semi-autonomous driving.
    - Waymo's self-driving technology: Discussion of Waymo's use of LiDAR, radar, and camera fusion for fully autonomous driving.
    - camera-based approach to perception and sensor fusion for advanced driver assistance systems.
- Case studies demonstrating the effectiveness and challenges of smart sensors and sensor fusion in various driving scenarios.

SAE Levels of Autonomy

Level 0 - No Automation: The human driver is responsible for all aspects of driving, including control of the vehicle, monitoring the environment, and responding to hazards.
Level 1 - Driver Assistance: The vehicle can assist the driver with specific tasks, such as steering or acceleration, but the human driver maintains overall control and responsibility for safe operation.
Level 2 - Partial Automation: The vehicle can control both steering and acceleration/deceleration under certain conditions, but the human driver must remain engaged and monitor the environment at all times.
Although the vehicle can perform some driving tasks, the driver is still responsible for supervising and intervening if necessary. Examples include systems like Tesla's Autopilot.
Level 3 - Conditional Automation: The vehicle can perform all driving tasks under certain conditions or within a defined operational domain, such as highway driving.

The human driver is not required to monitor the environment constantly, but must be prepared to take over control when prompted by the system.

Level 4 - High Automation: The vehicle is capable of performing all driving tasks within its operational design domain (ODD) without human intervention. The system can operate autonomously in specific environments or under certain conditions, such as within a geo-fenced area or on designated highways. Waymo's self-driving taxis are an example of Level 4 autonomy.

Level 5 - Full Automation: The vehicle is capable of performing all driving tasks in all conditions and environments that a human driver can handle. There is no need for human intervention or oversight; the vehicle can operate autonomously without any human input.

Sensor fusion by abstraction level happens in 3 different levels i.e,

- Low level fusion
- Mid level fusion
- High level fusion

Dr. Yong Wang briefed about LiDAR (Light Detection and Ranging), a sensor that shoots out light and use the feedback to generate a highly-detailed 3D map of its surrounding area and compared with other sensors. Finally, concluded with each sensor modality (Camera, LiDAR, RADAR) that has its advantages and limitations in autonomous driving applications. Sensor fusion plays a crucial role in combining the strengths of these sensors to enhance perception accuracy, reliability, and robustness, ultimately contributing to the safe and efficient operation of autonomous vehicles.

Day 2, 05th March 2024

Session 1: Detecting road users and objects

Autonomous driving systems involve leveraging a combination of sensor modalities, including cameras, LiDAR, RADAR and sensor fusion techniques, to achieve robust and comprehensive perception capabilities for safe and efficient navigation in complex traffic environments.

Dr. Yong Wang mainly focused on a project vehicle detection and tracking. In the first session briefed about libraries & explained how to pip with anaconda simulator & also briefed about the following project libraries.

OpenCV (Open Source Computer Vision Library): It is an open-source computer vision and machine learning software library. It provides a wide range of functions for image and video processing, including various algorithms for object detection, feature extraction, image manipulation.

Glob: In Python, the glob module provides a convenient way to search for files and directories that match specified patterns using wildcard characters. Here's an overview of how to use the glob module:

Numpy: NumPy is a fundamental package for scientific computing in Python. It provides support for large, multi-dimensional arrays and matrices, along with a collection of mathematical functions to operate on these arrays efficiently.

The **random** module in Python provides functions for generating random numbers and performing random selections.

- Image Processing: OpenCV offers a comprehensive set of functions for basic and advanced image processing tasks, including image filtering, edge detection, morphological operations, and color space transformations.
- Object Detection: OpenCV includes implementations of various object detection algorithms, such as Haar cascades, HOG (Histogram of Oriented Gradients), and deep learning-based methods like SSD (Single Shot MultiBox Detector) and YOLO (You Only Look Once).
- Feature Detection and Description: OpenCV provides algorithms for feature detection (e.g., corners, keypoints) and feature description which are essential for tasks like image matching and object recognition.
- OpenCV integrates with popular machine learning frameworks like TensorFlow and PyTorch, allowing users to leverage deep learning models for tasks such as image classification, object detection, and semantic segmentation.

Along with this content Dr. Yong Wang briefed about the data sets which have been used in the projects that have few data sets as follows.

The following Test Image-datasets has been used in the project

Test Image-Datasets Used during Hands-on Session

Session 2: Tracking Road Users and Objects

Dr. Yong Wang continued with the same project in brief **pickle** is a Python module used for serializing and deserializing Python objects. It allows us to convert Python objects into a byte stream (serialization) that can be saved to a file or transmitted over a network, and then reconstruct the original objects from the byte stream (deserialization) at a later time and to extract a color histogram from an image using Python.

To extract features from images using the **Histogram of Oriented Gradients (HOG)** method in Python, can utilize the hog() function provided by the scikit-image library.

The **sklearn.svm** module in scikit-learn provides support for Support Vector Machines (SVM), a popular supervised learning algorithm used for classification and regression tasks. SVM aims to find the optimal hyperplane that separates different classes in the feature space with the maximum margin.

Updating the Trackers:

Once the object trackers are initialized, we need to update them in each subsequent frame of the video sequence. By using the update() method of the tracker objects to update their positions based on the new frame.

Visualizing the Tracking Results: After updating the trackers in each frame, tracking results by drawing bounding boxes around the tracked objects is visualized. Then Open CV's drawing functions (cv2.rectangle()) is used to draw bounding boxes on the video frames.

Finally concluded with the results by running the python code of vehicle detection and tracking

Day 3, 06th March 2024

Session 1: Road Lane Detection

Dr. Yong Wang focused on road lane detection by taking new project called lane detection. **Road lane detection** is a critical component of modern computer vision systems, particularly in the fields of autonomous driving, advanced driver assistance systems (ADAS) and traffic management. It involves the identification and tracking of lane markings on the road surface to provide valuable information for vehicle control, navigation, and safety.

The following features has been discussed in the session,

- Image Preprocessing
- Edge Detection
- Region of Interest
- Hough Transform
- Line Filtering and Averaging
- Lane Drawing

Image Preprocessing: Convert the input image to grayscale to simplify processing and reduce computational complexity.

Edge Detection: Utilize edge detection techniques, such as the Canny edge detector, to identify abrupt changes in intensity, which typically correspond to lane markings.

Region of Interest: Defines a region of interest within the image where lane markings are expected to appear. Mask out areas outside the ROI to focus lane detection efforts on relevant image regions.

Hough Transform: Apply the Hough transform to detect lines in the edge-detected image. Hough transform is particularly useful for detecting straight lines, which are prevalent in road lane markings.

Line Filtering and Averaging: Filter and average the detected lines to distinguish between left and right lane boundaries.

Lane Drawing: Draw the detected lane boundaries on the original image to visualize the results.

Dr. Yong Wang in brief explained about Camera calibration how accurate it should be in the project & how It involves determining the intrinsic and extrinsic parameters of a camera, which are essential for accurately interpreting the images it captures.

There are two main parameters as follows

Intrinsic Parameters: These parameters characterize the internal properties of the camera, such as focal length, lens distortion, and optical center.

Extrinsic Parameters: These parameters define the camera's position and orientation **Calibration** typically involves capturing images of a calibration pattern (e.g., checkerboard or grid) from different angles and distances.

Session 2: Lane Line Identification

Dr. Yong Wang focused on lane line identification, accurate lane line identification is crucial for providing essential information to vehicle control systems, enabling tasks such as lane keeping assistance, lane departure warning, and autonomous navigation.

The resource person explained how to apply, how to represent and how to Track the lane

Lane Line Detection

- Apply lane line detection algorithms to extract lane markings from the preprocessed image.
- Hough transform, probabilistic Hough transform, and sliding window techniques are commonly used for lane line detection.

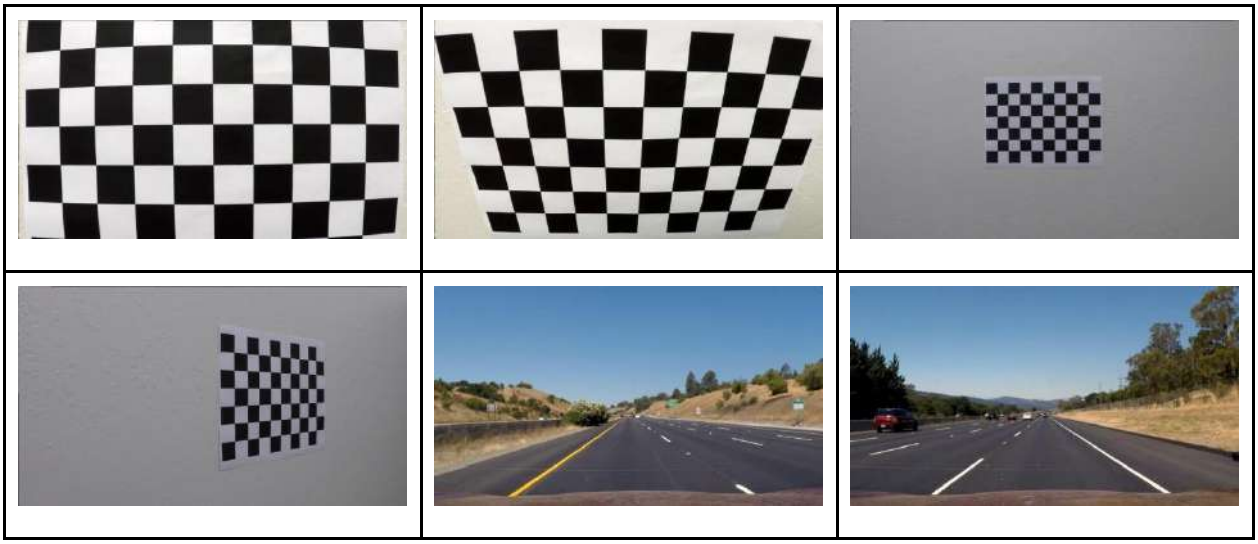
Lane Line Representation

- Fit curves to the detected lane points using regression techniques such as least squares fitting.

Lane Line Tracking

- Track lane lines across consecutive frames to account for temporal changes in lane position and orientation.

The following few Test Image-datasets has been used in the project of finding lane line (Camera Calibration & lane)



Test Image-Datasets used in the Project of Finding Lane Line

Finally concluded with the results by running the python code of lane detection successfully.

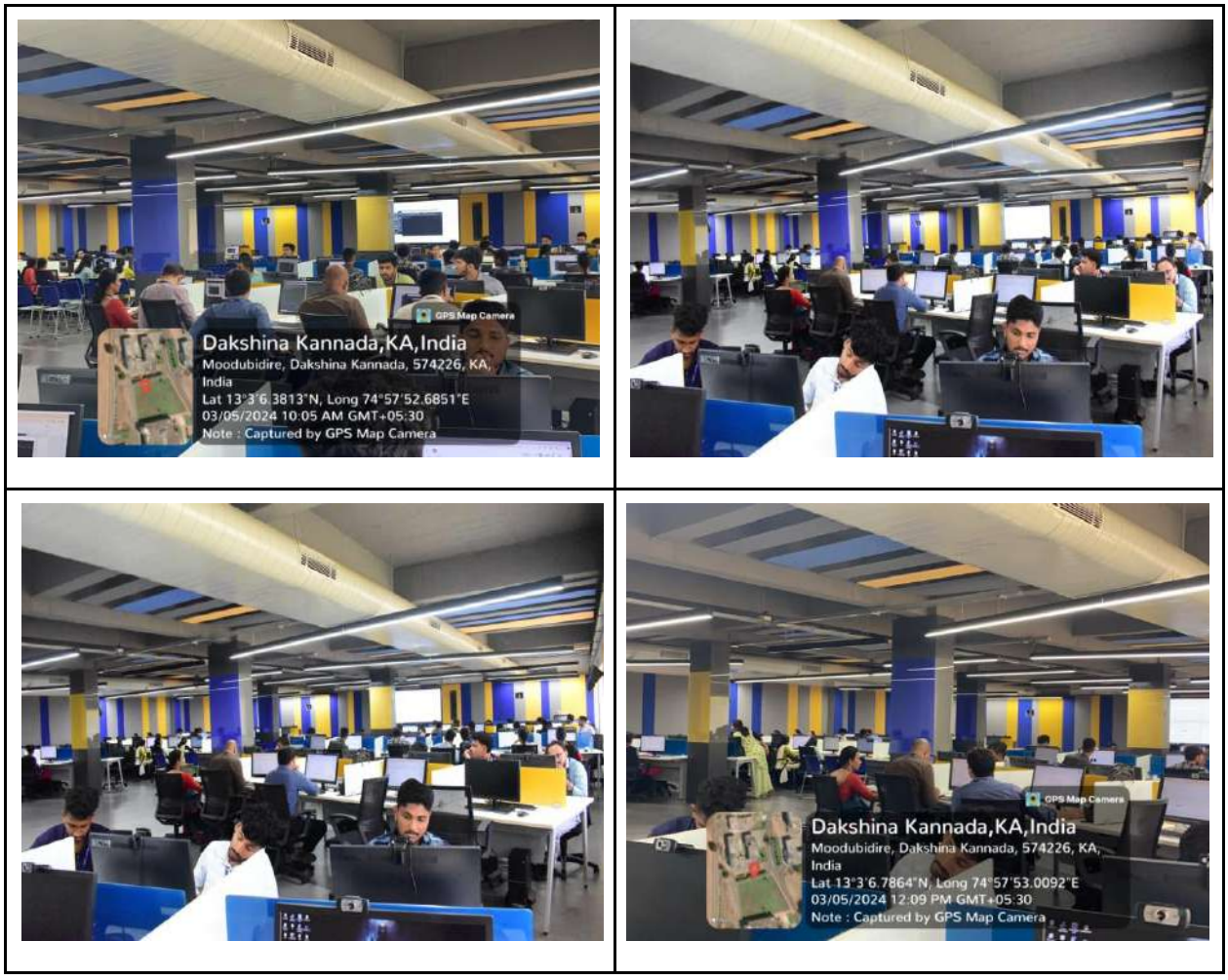
There were around 80 participants who had attended A Short-Term Course on Innovation & Inventions on Autonomous Vehicle.

Photographs

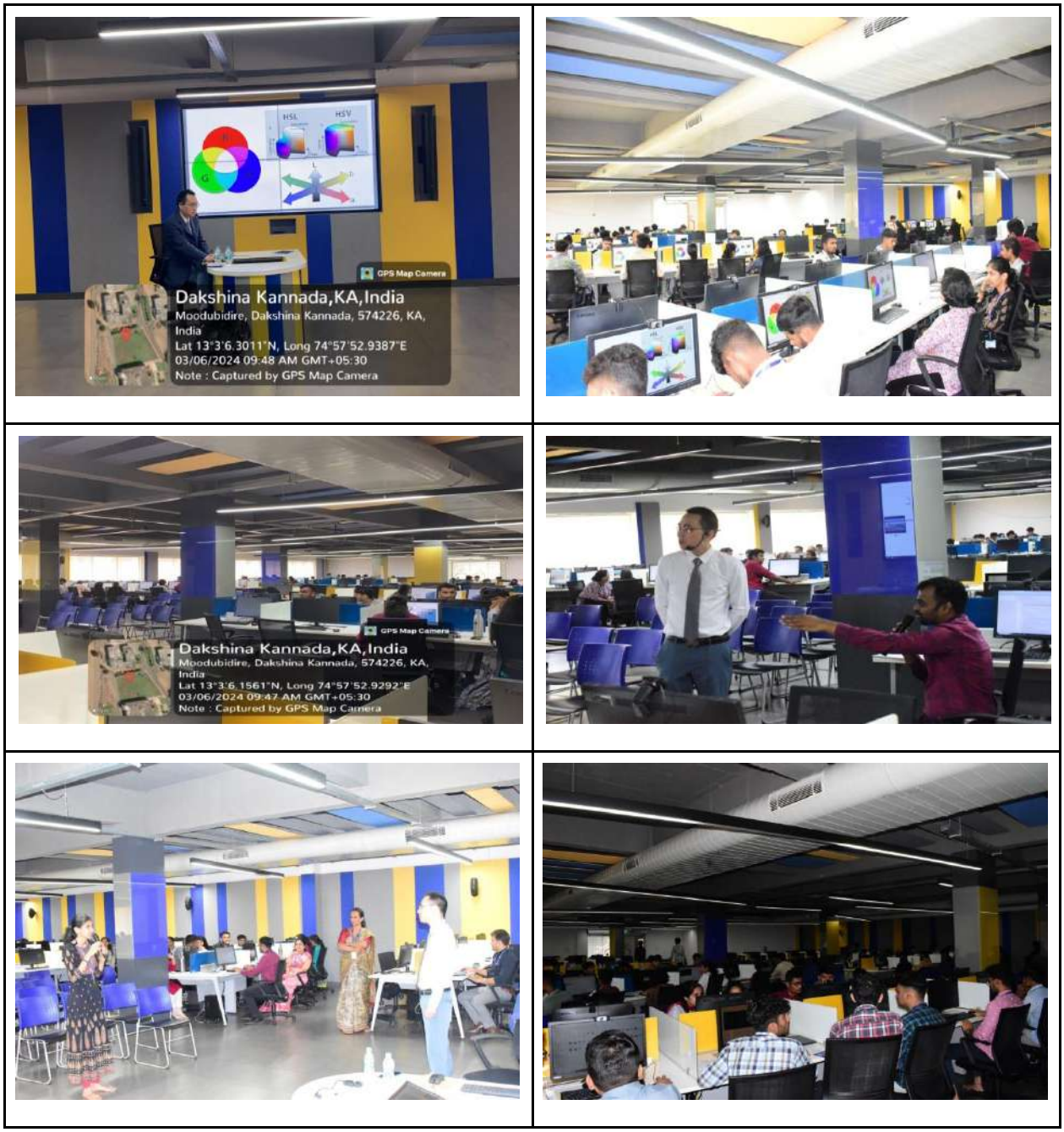
Inaugural Ceremony of Innovation & Inventions on Autonomous Vehicle - A Short-Term Course

Dr. Wang addressing on AI in Autonomous Vehicles

Dr. Wang delivering session on Smart Sensors and Sensor Fusion for Autonomous Driving



Dr. Wang conducting Hands-on session on Vehicle Detection and Tracking project using the Anaconda Software



Dr. Wang interacting with participants during Hands-on session on Lane Detection project using the Anaconda software

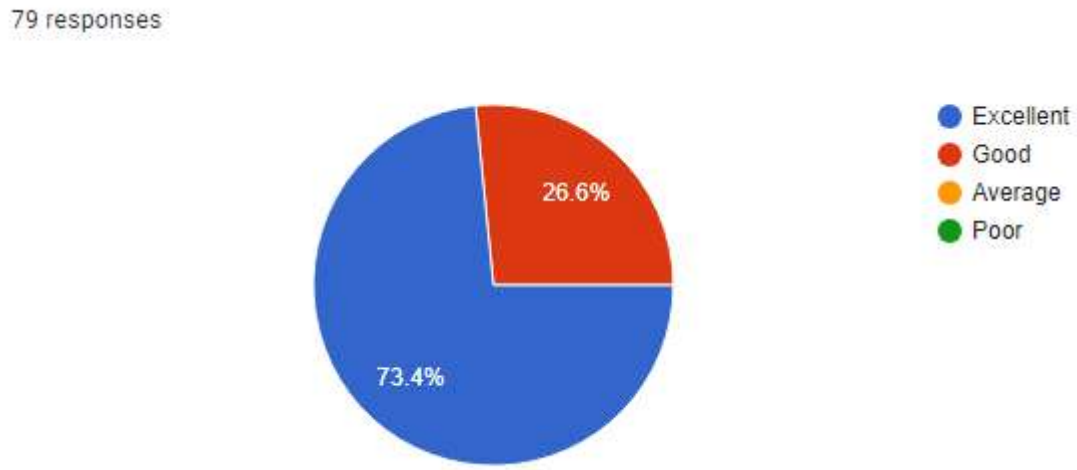
Group photograph of the Participants at Innovation & Inventions on Autonomous Vehicle a Short Term Course which was held from 4th to 6th March, 2024

A Short-Term Course on Innovation & Inventions on Autonomous Vehicle

Organised by Internal Quality Assurance Cell (IQAC), 4th to 6th March 2024

Feedback Summary

1. **The overview of latest emerging technologies on Autonomous System provides the insight into the dynamic scenario globally. Rank the level of knowledge you gained on emerging technologies embarked on autonomous system.**



2. **Demonstration of latest technologies within the campus / nearby community through the effective support system provided for transformation of ideas into technology (Innovative Projects) aiming towards the betterment of society. Provide your thought process in taking up such real-time projects towards career growth (within 50 words).**

79 responses

This real-time project initiative offers valuable hands-on experience by bridging theoretical knowledge with practical application. By contributing to projects with societal impact, I can

build a strong portfolio, hone teamwork and communication skills, and ultimately accelerate my learning and career growth in the exciting field of innovative technology

Self driving cars, autonomous drones,line follower

it would be effective if such technology is introduced in the college

It will be effective if this technology is introduced in college

To showcase the latest technologies on campus or in the community, I'd first identify relevant trends and needs. Then, I'd collaborate with students, faculty, and local organizations to develop innovative projects addressing societal challenges. Such hands-on experience fosters professional growth by honing problem-solving skills, fostering teamwork, and building a portfolio of impactful work

Foster interdisciplinary collaboration, leverage mentorship, and secure funding for impactful projects. Showcase innovations at events, gaining exposure and validation. Embracing societal challenges drives personal growth, expands networks, and positions oneself as a change-maker in tech, fostering career advancement

Taking up such projects in real time will help us understanding the world better and can contribute to the society well... Also researching on the issues currently present will help us build a better future

Getting involved in live projects with the latest tech on campus or in the community helps turn ideas into real solutions.

To initiate real-time projects showcasing cutting-edge technologies within the campus/community, establish partnerships with local industries and academic institutions. Foster an environment that nurtures creativity and collaboration, empowering individuals to transform ideas into impactful innovations. Engaging in such projects not only enhances technical skills but also fosters leadership, problem-solving, and networking abilities, essential for career growth in a rapidly evolving technological landscape.

It will be helpful for the society, occurance of accident will be very less.

It will provide a better understanding of theory parts.

To demonstrate latest technologies, I'd start by identifying societal needs and brainstorming innovative solutions. Engaging with the campus/community, I'd foster collaboration and provide

resources for idea implementation. By spearheading such projects, I'd gain practical experience, expand my network, and develop valuable skills, enhancing my career prospects.

I was not expecting i will be getting this much knowledge about Automission in vehicle. First i was thinking like how we will use programming in automission. So i cane to know how to use how it will work

I think there are lots of pros in implementing latest technology with campus as it will intern increase the efficiency in maintaining the campus

This would help students to gain more insight on different domains and can use this knowledge of theirs apply it in whichever industry that they work for.

Taking up real-time projects to demonstrate the latest technologies within the campus or nearby community can be a highly rewarding endeavor both personally and professionally.

More github projects since companies look for your experience with programming on Github

This may be help for our mini project as we are doing on lean angle detection so we can use the sensors or the cameras to work on.

Taking up real-time projects demonstrating the latest technologies not only enhances skills but also contributes to societal betterment. It showcases innovation, problem-solving, and collaboration abilities, which are crucial for career growth. It offers hands-on experience and visibility within the community, fostering professional development and networking opportunities.

More github projects

Excellent

This can help in leveraging the latest technologies to address societal needs

Implementing real-time projects showcasing the latest technologies within the campus or nearby community can be a valuable opportunity for career growth. By leveraging an effective support system to transform ideas into innovative solutions, one can demonstrate practical skills, build a strong portfolio, expand professional networks, and contribute positively to society, enhancing both personal and career development.

More work towards achieving sustainable development goals need to be carried out

To showcase the latest technologies, consider organizing workshops, hackathons, and speaker series within the campus or community. Foster collaboration with industry experts and local organizations. Engaging in real-time projects not only enhances technical skills but also cultivates leadership, problem-solving, and networking abilities, vital for career advancement.

We look forward for such projects for the betterment of humanity

We can use autonomous system concept in autonomous vehicle in agricultural field for the improvement in agriculture sector,it can be used in drones tractors or any other model for application such as harvesting pest spray ploughing etc.

Engaging in real-time projects not only benefits society but also enhances skills, networking, and visibility, accelerating career growth. It's a win-win: contributing to societal progress while advancing personal and professional development.

By participating, you gain hands-on experience, expand your skill set, network with professionals, and contribute to societal betterment, enhancing your employability and professional reputation.

It helps in growth of society in many different ways

These kinda of projects do really well in making a really interactive and productive leaning curve

Engaging in real-time projects showcasing cutting-edge technologies within the campus or local community not only fosters innovation but also demonstrates a commitment to societal betterment. This proactive approach not only enhances technical skills but also establishes a solid foundation for career growth, showcasing practical application and impact in the evolving tech landscape.

Building such projects will make is understand fundamental concepts and help us apply the theoretical knowledge to real world

Building such projects will make us understand the fundamental concepts and help us connect the theoretical knowledge to real time application.

We still need to to do some research and solve many problems related to autonomous vehicles before implementing it.

leaning about how the math is involved and many in the real time projecs

It was a well valued projects

It helped us to know the basic fundamentals used and how it can be applied in theoretical one...

If automation is the primary objective, first i would look into the ways i can perceive the inputs to the machine. Next perform various operations on theses inputs to get desired output.

The session on latest technology Automous Vehicles was good to do innovative projects in the Automotive sector.

By taking up such real time projects one can rectify the problem faced in day to day life.

Overall it should improve the Quality of life

Since there is a hike in automotive vehicles, I think that taking up these projects is going to helpful to our career as well as to promote development of the society.

Real time projects using drones could be implemented in and around the campus for detection of any fault.

To showcase the latest technologies within the campus or nearby community, consider establishing a collaborative platform that fosters innovation. Create a network for students, researchers, and local professionals to share ideas and collaborate on real-time projects. Implement a mentorship program to support the transformation of ideas into technology, ensuring a seamless exchange of knowledge.

Latest technology will help in overall development Showcase ongoing research projects on campus using interactive demos (VR/AR, robotics etc.). Highlight a designated support system for students to transform their ideas into impactful technologies.

We could implement this system for the daily busses for students and we could use object detection in class rooms for taking attendance

As ther is a project subject in our ciriculum I have opted for the embbedded sytem domain to prepare a wheel chair with a health monitoring to give a better future for the people who are not able to walk.

Taking up real-time projects involving the demonstration of latest technologies within the campus or nearby community can greatly enhance career growth. This provides hands-on experience, networking opportunities, and the chance to showcase innovative ideas, all of which are highly valued in today's job market. Such projects demonstrate initiative, problem-solving skills, and a commitment to societal betterment, making them excellent additions to a resume.

As we have final year project, we can implement some features of EV's automotive drive

Yes

YES, implementing this technolgy will be helful for the betterment of society

Very wonderful session by Mr yong wang.To showcase cutting-edge technologies on campus, foster an environment where innovative projects thrive. Encourage collaboration between students, faculty, and local communities. Pursuing such projects not only enhances technical skills but also cultivates leadership, teamwork, and problem-solving abilities, crucial for career growth in a rapidly evolving tech landscape.

Engaging in innovative projects that transform ideas into technology for societal betterment fosters a hands-on learning environment. This experience enhances problem-solving skills, fosters creativity, and strengthens teamwork capabilities. It aligns with career growth by providing practical exposure, building a professional network, and demonstrating the ability to drive impactful change.

I'm looking forward to implement this innovative projects so that it may be helpfull to many people due to improper road structure in india we cannot implement this type of cars

Initiate real-time projects showcasing cutting-edge technologies within the campus/community. Collaborate with a supportive system to translate ideas into impactful innovations. This hands-on experience not only fosters personal growth but also enhances employability, positioning you as a dynamic contributor to societal progress, crucial for career advancement

Participating in tech presentations with the local community and campus promotes creativity and teamwork. We provide solutions for the betterment of society by assisting the conversion of ideas into concrete projects. Through the actual application of knowledge in real-world circumstances, this experiential learning opportunity enhances professional progression by developing abilities in project management, problem-solving, and collaboration.

Engaging in real-time projects showcasing latest technologies within the campus or nearby community offers invaluable experiential learning.

Taking up real projects will be interesting . It would provide a good level of knowledge in this field. Also these projects will help in solving some real world problem. Looking forward to work on overcoming the limitations of these technologies.

Collaborate with tech clubs, research centers, and local industry to transform ideas into impactful projects. This hands-on approach enhances skills, builds networks, and fostering career growth by demonstrating practical expertise and societal contribution.

Taking up real-time projects showcasing the latest technologies within the campus or nearby community fosters innovation and societal impact. Collaborating with a supportive ecosystem facilitates the transformation of ideas into tangible solutions, enhancing skills and knowledge. Engaging in such projects not only contributes to personal and career growth but also serves the greater good of society.

I'm working on Jetracer AI kit, using Jetson Nano. I will use some of the technologies learnt in the STC in our project.

Due to improper road structure in India we cannot detect any lane line so it's difficult to implement the autonomous cars

As we are having final year project I have selected the Automotive embbeded system project for detecting lean angle and providing the warning and also collision Detection

PartiIt's a great way to gain practical skills, knowledge, and enhance career path

By learning all aspects of this implemented technologies,we could implement for other vehicles and for other various environments.

It would be exciting to take up a such a project because its gonna be really challenging and the scope for further research is very high.

Working on realtime projects that play a role of being the solution to modern current world problems and making lives easier is a trend and need of the hour. in such a case, technologies such as autonomous vehicles and more are indeed interesting and will also be a huge edge over in the career of each of them.

Undertaking real-time projects demonstrates initiative, problem-solving skills, and a practical understanding of emerging technologies—attributes highly valued in today's job market.

I'm working on Satellite Images, Remote sensing area. I will use some of the technologies learnt in the STC in my project.

I can implement thos in my project

Engage with campus clubs, leverage mentorship from faculty, and collaborate with local tech enthusiasts to organize tech showcases. Lead innovative projects addressing societal needs, showcasing problem-solving skills. This hands-on experience enhances your resume, fosters networking, and positions you as a proactive contributor, fueling career growth.

Engage with local tech communities to identify impactful projects. Collaborate with academia and industry to develop innovative solutions. Leverage resources like funding, mentorship, and infrastructure. Document successes for career advancement, showcasing problem-solving skills, teamwork, and societal impact, enhancing professional reputation and opportunities.

For the betterment of the society. I would try to analyse the modifications of high definition cameras and provide more safety features to it

It is absolutely ideal to deploy autonomous technology on our campus. I primarily see autonomous robots collecting trash, or what I call a'moving-trashcan' that can learn and adapt to its surroundings by evaluating trash rates at a given location.

It's good for our career because it shows our creative about making a difference in society.

To showcase latest technologies on campus or in the community, initiate collaborations with local tech firms or startups. Organize events, workshops, and hackathons to encourage innovative projects. Participating in such endeavors enhances networking, skill development, and visibility, fostering career growth in technology and societal impact.

3. **“Sensors Technology” plays a major role in designing the effective autonomous driving vehicles. A range of sensors used on autonomous driving vehicles discussed with real-time examples. What is you take-away on this session (within 50 words).**

79 responses

Spatial binning is necessary for compression or removal of undesirable data ,as large data are need more processing time.It provides more flexibility for manage computing time and memory.

It is helpful where computational power is less

In my area of interest, spatial binning can enhance feature extraction for object detection and tracking in real-time systems. By reducing dimensionality while preserving spatial information, it optimizes computational efficiency and improves accuracy, facilitating the implementation of advanced algorithms for tasks like autonomous navigation and surveillance.

By approaching any experienced technicians

spatial binning can be adapted to text data by grouping words or tokens based on their spatial proximity within sentences or documents.

This technique optimizes computational resources while maintaining spatial context crucial for accurate perception.

This is a very interesting technology and will help a lot in building autonomous vehicles and help in their path planning

Spatial binning streamlines data by grouping image pixels based on location. This simplifies complex information, aiding feature extraction.

In the future, spatial binning can be adapted for tasks like understanding written language. It could help group words based on where they are in a sentence, improving how computers understand context in text, leading to better tools for tasks like language translation or sentiment analysis.

In this the pixels are converted to image.

It will be helpful for optimization of calculations

In my area of interest, such as computer vision for environmental monitoring, spatial binning can enhance image processing efficiency by aggregating pixel information. By incorporating spatial binning techniques, I can streamline data analysis processes, extract meaningful features, and improve the accuracy of environmental assessments, fostering more effective decision-making.

Got how to process a image through programming

Since all the information must be processed in realtime and it is very much necessary to manage memory efficiently and spacial binning can be used for it

It can improve context-aware representation learning, aiding in more robust language understanding models.

Spatial binning can be highly relevant in various fields where image processing and feature extraction are crucial, including computer vision, robotics, and medical imaging. In the near future, implementing spatial binning techniques can enhance several AI applications.

Applications in face detection projects, machine learning jobs at companies, data sets for image processing, etc

Spatial binning is crucial for extracting features in computer vision tasks like object detection. Integrating it into future projects enhances feature representation, aiding in accurate object recognition. Its application ensures efficient use of computational resources while preserving spatial details for robust image

In my area of interest, spatial binning can be applied to enhance the efficiency of object detection and tracking algorithms. By grouping pixel values based on spatial location, we can reduce the complexity of processing large images, making it easier to detect and track objects in real-time applications.

To process the image of the back side of the car which cannot be easily seen

In natural language processing, spatial binning could be adapted to text data by grouping words or tokens based on their spatial position within documents or sentences. This approach could enhance text understanding and feature extraction in tasks such as document classification or sentiment analysis, improving overall model performance and interpretability.

In my area of interest, spatial binning could be applied in image processing tasks such as object detection and recognition. By grouping pixel values based on spatial location, I can enhance feature extraction algorithms for more efficient and accurate image analysis, contributing to advancements in computer vision applications relevant to my field.

Definitely it will be utilized while doing the simulation work related to my areas of interest

In the near future, spatial binning could be integrated into image processing algorithms for enhanced object detection and recognition in autonomous systems. By reducing dimensionality while retaining spatial context, it can improve efficiency and accuracy in analyzing sensor data, contributing to safer and more reliable autonomous driving technology.

Well only depends on the camera to detect the lane and other objects , it wil be helpful as we are doing project on autonomous vehicles

Spatial binning holds promise in optimizing data processing for natural language understanding. Integrating this technique with text-based spatial analysis could enhance context-aware language models, fostering more nuanced and precise understanding of spatial relationships within textual information, benefiting various applications in language processing and comprehension.

It could enhance the analysis of satellite images for tracking deforestation or urban expansion, making it possible to process vast datasets more effectively and derive actionable insights for conservation efforts.

Spatial binning can enhance image processing tasks like object detection and recognition, which are crucial in fields like computer vision and robotics. Integrating this technique into my area of interest could optimize the processing of visual data

Spatial binning is most efficient to capture image and detecting the object

In mechatronics these kinds of techniques could be used in robots that are interacting with objects for example assembly boys etc.

In natural language processing, spatial binning can find application in image captioning or sentiment analysis where preserving spatial relationships enhances context understanding. Utilizing this technique in processing visual information within text-based applications could contribute to more nuanced and context-aware language models, improving their performance and understanding of visual content.

This help us to break down the complex procedures

This helps us breakdown the complex procedure.

It can be used to memory management as large data is being dealt at real time .

by using the pixels there can be done a lot i look forward to do it myself

eachperformed on each level 2 scene (generated by each orbit tilt segment) in order to calculate level 2 data.

This helped me to break down the complex procedures

Its can be used to differentiate black and white lines

Spatial binning we can use it for data segregation in machine learning algorithm

Learned about "spatial binning" which helps compress data while keeping location info. This could be useful in my field (AI, robotics) to efficiently analyze sensor data from self-driving cars while keeping track of where things are.

Since I'm from aeronautical engineering branch it is very useful in implementing and improving the avionics part of the aircraft. The advancement helps is much safer and efficient flight.

Learned about "spatial binning" which helps compress data while keeping location info. This could be useful in my field (e.g., AI, robotics) to efficiently analyze sensor data from self-driving cars while keeping track of where things are.

the computer needs to process images around it ,hence it is necessary to add this feature to future cars.

This technique could be used in different applications as well such as in drones detection through spatial binning technique and also in robotics and AI in identifying different images and analysing then

Spatial binning could revolutionize data visualization in my interest area, enhancing the analysis of complex datasets by simplifying spatial relationships and patterns. By integrating this technique, I envision developing more intuitive and efficient analytical tools that provide clearer insights, particularly in fields like environmental monitoring or urban planning, to make informed decisions swiftly.

the geographic region which we want to analyse.This involves deciding on the size, shape, and number of bins to be used.

I would be interested in using spacial binning mostly in object detection... We could use this do identify people's faces and there facials features and that can be used to take attendance even before they get into the classes

Giving many data about our locality and the roads which will used by the autonomous vehicle.

Spatial binning can be applied to my area of interest by enhancing image processing algorithms. By grouping pixel values based on spatial location, I can extract features efficiently, preserving spatial information crucial for my projects. This technique will help me develop more effective solutions in my field.

This helps us in image prosssesing for our project

Its really good thing to add in my upcoming project

it will useful for our project

In natural language processing tasks like image captioning or sentiment analysis, spatial binning could enhance understanding by capturing spatial relationships within textual descriptions. Integrating this technique could improve model performance in tasks where spatial information is relevant, facilitating more nuanced and accurate analyses of visual data.

Spatial binning's capacity to maintain essential spatial information while reducing data complexity aligns with my interest in machine learning and computer vision. Its application in optimizing image-based models for real-time processing and analysis could significantly enhance

projects like environmental monitoring and urban planning, facilitating smarter, data-driven decision-making with improved efficiency and accuracy.

Spatial binning used to detect the image of particular location dimensionally ee can implement it in upcoming future

applying spatial binning can enhance image processing efficiency. By preserving spatial information while reducing dimensionality, it aids in optimizing tasks like object recognition and classification. Integrating this technique supports the refinement of my ideas, contributing to more robust and resource-efficient solutions in the near future.

Thank you for the detailed explanation of spatial binning. Understanding this technique will greatly aid in my image processing projects by efficiently reducing feature vector dimensionality while retaining important spatial details. This feedback has reinforced the importance of spatial binning in my future implementations.

spatial binning could be adapted to group words or tokens based on their spatial relationships within sentences or documents. By preserving spatial information,

I got to know about this concept for the first time. It looks very interesting. I will be using it in future projects for image processing.

In aeronautics engineering, spatial binning can enhance image processing for tasks like terrain mapping, object detection, and navigation and also in obstacles avoidance, autonomous flight system.

image detection is an important factor in knowing what kind of object are present in front of the camera. It gives an idea of which object is in front of the car and how to tackle it.

In our Jetracer project we are planning to use spatial binning for obstacle detection

Spatial binning is very helpful full of image by using machine learning algorithms we can do the image processing which will help to improvise to build a many more train test models using other test cases and find the accuracy of the model.

Since we are providing collision detection features in our project instead of using different sensors we can use a single camera which can able to detect multiple things and process it with above technique

It enhances image processing tasks like object detection.it can improve the accuracy and efficiency and I am to use it future project

Image detection is a non-negotiable part of autonomous vehicles. Hence spacial binning can be used in this aspect.

spatial binning is going to be reaching its peak in the near future as it could be integrated into computer vision algorithms to enhance object recognition and scene understanding. improved image processing skills, enabling them to develop more efficient and accurate solutions for various applications like autonomous driving or medical imaging can be obtained by the help of it.

Spatial binning could play a role in computer vision systems for autonomous vehicles. By reducing the dimensionality of input data from cameras or sensors, it can help in faster and more efficient processing of visual information, contributing to real-time decision-making.

Once I advance in this field I'll work on that

In Natural Language Processing, adapting spatial binning to text data could involve grouping word embeddings based on their contextual relationships. This approach might enhance semantic understanding while reducing dimensionality, enabling more efficient processing and interpretation of large text datasets, aligning with advancements in language modeling and analysis.

In natural language processing, spatial binning could be applied to text data by grouping words or phrases based on their spatial context within documents. This approach could enhance topic modeling, sentiment analysis, and document summarization techniques, improving the understanding and processing of textual information in various applications.

Integrating spatial binning could help extract relevant features and enhance the model's understanding of spatial relationships within visual data, potentially improving tasks like image recognition or scene understanding.

I see this spatial binding as assisting me in compressing data to send to distant locations, which is ideal for real-time remote access working. I may have little knowledge of spatial binding and its application in my field of interest, cybersecurity, but I am confident that it is extremely useful for real-time processing applications.

More accurate and environment prediction.

In natural language processing, spatial binning can be adapted to text data by grouping words or phrases based on their contextual proximity within documents or corpora. This technique can

enhance the efficiency of information retrieval, sentiment analysis, and document clustering, aligning with my interest in text analytics and content understanding.

4. **"Spatial binning" refers to a technique where the pixel values of an image are grouped into bins based on their spatial location. This technique is often used in feature extraction to reduce the dimensionality of the feature vector while preserving spatial information. How will it be connected to your area of interest in the near future to implement your ideas? (within 50 words)**

79 responses

Spatial binning is necessary for compression or removal of undesirable data, as large data are need more processing time.It provides more flexibility for manage computing time and memory.

It is helpful where computational power is less

In my area of interest, spatial binning can enhance feature extraction for object detection and tracking in real-time systems. By reducing dimensionality while preserving spatial information, it optimizes computational efficiency and improves accuracy, facilitating the implementation of advanced algorithms for tasks like autonomous navigation and surveillance.

By approaching any experienced technicians

spatial binning can be adapted to text data by grouping words or tokens based on their spatial proximity within sentences or documents.

This technique optimizes computational resources while maintaining spatial context crucial for accurate perception.

This is a very interesting technology and will help a lot in building autonomous vehicles and help in their path planning

Spatial binning streamlines data by grouping image pixels based on location. This simplifies complex information, aiding feature extraction.

In the future, spatial binning can be adapted for tasks like understanding written language. It could help group words based on where they are in a sentence, improving how computers understand context in text, leading to better tools for tasks like language translation or sentiment analysis.

In this the pixels are converted to image.

It will be helpful for optimization of calculations

In my area of interest, such as computer vision for environmental monitoring, spatial binning can enhance image processing efficiency by aggregating pixel information. By incorporating spatial binning techniques, I can streamline data analysis processes, extract meaningful features, and improve the accuracy of environmental assessments, fostering more effective decision-making.

Got how to process a image through programming

Since all the information must be processed in realtime and it is very much necessary to manage memory efficiently and spacial binning can be used for it

It can improve context-aware representation learning, aiding in more robust language understanding models.

Spatial binning can be highly relevant in various fields where image processing and feature extraction are crucial, including computer vision, robotics, and medical imaging. In the near future, implementing spatial binning techniques can enhance several AI applications.

Applications in face detection projects, machine learning jobs at companies, data sets for image processing, etc

Spatial binning is crucial for extracting features in computer vision tasks like object detection. Integrating it into future projects enhances feature representation, aiding in accurate object recognition. Its application ensures efficient use of computational resources while preserving spatial details for robust image

In my area of interest, spatial binning can be applied to enhance the efficiency of object detection and tracking algorithms. By grouping pixel values based on spatial location, we can reduce the complexity of processing large images, making it easier to detect and track objects in real-time applications.

To process the image of the back side of the car which cannot be easily seen

In natural language processing, spatial binning could be adapted to text data by grouping words or tokens based on their spatial position within documents or sentences. This approach could enhance text understanding and feature extraction in tasks such as document classification or sentiment analysis, improving overall model performance and interpretability.

In my area of interest, spatial binning could be applied in image processing tasks such as object detection and recognition. By grouping pixel values based on spatial location, I can enhance

feature extraction algorithms for more efficient and accurate image analysis, contributing to advancements in computer vision applications relevant to my field.

Definitely it will be utilized while doing the simulation work related to my areas of interest

In the near future, spatial binning could be integrated into image processing algorithms for enhanced object detection and recognition in autonomous systems. By reducing dimensionality while retaining spatial context, it can improve efficiency and accuracy in analyzing sensor data, contributing to safer and more reliable autonomous driving technology.

Well only depends on the camera to detect the lane and other objects , it wil be helpful as we are doing project on autonomous vehicles

Spatial binning holds promise in optimizing data processing for natural language understanding. Integrating this technique with text-based spatial analysis could enhance context-aware language models, fostering more nuanced and precise understanding of spatial relationships within textual information, benefiting various applications in language processing and comprehension.

It could enhance the analysis of satellite images for tracking deforestation or urban expansion, making it possible to process vast datasets more effectively and derive actionable insights for conservation efforts.

Spatial binning can enhance image processing tasks like object detection and recognition, which are crucial in fields like computer vision and robotics. Integrating this technique into my area of interest could optimize the processing of visual data

Spatial binning is most efficient to capture image and detecting the object

In mechatronics these kinds of techniques could be used in robots that are interacting with objects for example assembly boys etc.

In natural language processing, spatial binning can find application in image captioning or sentiment analysis where preserving spatial relationships enhances context understanding. Utilizing this technique in processing visual information within text-based applications could contribute to more nuanced and context-aware language models, improving their performance and understanding of visual content.

This help us to break down the complex procedures

This helps us breakdown the complex procedure.

It can be used to memory management as large data is being dealt at real time .

by using the pixels there can be done a lot i look forward to do it myself

eachperformed on each level 2 scene (generated by each orbit tilt segment) in order to calculate level 2 data.

This helped me to break down the complex procedures

Its can be used to differentiate black and white lines

Spatial binning we can use it for data segregation in machine learning algorithm

Learned about "spatial binning" which helps compress data while keeping location info. This could be useful in my field (AI, robotics) to efficiently analyze sensor data from self-driving cars while keeping track of where things are.

Since I'm from aeronautical engineering branch it is very useful in implementing and improving the avionics part of the aircraft. The advancement helps is much safer and efficient flight.

Learned about "spatial binning" which helps compress data while keeping location info. This could be useful in my field (e.g., AI, robotics) to efficiently analyze sensor data from self-driving cars while keeping track of where things are.

the computer needs to process images around it ,hence it is necessary to add this feature to future cars.

This technique could be used in different applications as well such as in drones detection through spatial binning technique and also in robotics and AI in identifying different images and analysing then

Spatial binning could revolutionize data visualization in my interest area, enhancing the analysis of complex datasets by simplifying spatial relationships and patterns. By integrating this technique, I envision developing more intuitive and efficient analytical tools that provide clearer insights, particularly in fields like environmental monitoring or urban planning, to make informed decisions swiftly.

the geographic region which we want to analyse.This involves deciding on the size, shape, and number of bins to be used.

I would be interested in using spacial binning mostly in object detection... We could use this do identify people's faces and there facials features and that can be used to take attendance even before they get into the classes

Giving many data about our locality and the roads which will used by the autonomous vehicle.

Spatial binning can be applied to my area of interest by enhancing image processing algorithms. By grouping pixel values based on spatial location, I can extract features efficiently, preserving spatial information crucial for my projects. This technique will help me develop more effective solutions in my field.

This helps us in image prosssesing for our project

Its really good thing to add in my upcoming project

it will useful for our project

In natural language processing tasks like image captioning or sentiment analysis, spatial binning could enhance understanding by capturing spatial relationships within textual descriptions. Integrating this technique could improve model performance in tasks where spatial information is relevant, facilitating more nuanced and accurate analyses of visual data.

Spatial binning's capacity to maintain essential spatial information while reducing data complexity aligns with my interest in machine learning and computer vision. Its application in optimizing image-based models for real-time processing and analysis could significantly enhance projects like environmental monitoring and urban planning, facilitating smarter, data-driven decision-making with improved efficiency and accuracy.

Spatial binning used to detect the image of particular location dimensionally ee can implement it in upcoming future

applying spatial binning can enhance image processing efficiency. By preserving spatial information while reducing dimensionality, it aids in optimizing tasks like object recognition and classification. Integrating this technique supports the refinement of my ideas, contributing to more robust and resource-efficient solutions in the near future.

Thank you for the detailed explanation of spatial binning. Understanding this technique will greatly aid in my image processing projects by efficiently reducing feature vector dimensionality while retaining important spatial details. This feedback has reinforced the importance of spatial binning in my future implementations.

spatial binning could be adapted to group words or tokens based on their spatial relationships within sentences or documents. By preserving spatial information,

I got to know about this concept for the first time. It looks very interesting. I will be using it in future projects for image processing.

In aeronautics engineering, spatial binning can enhance image processing for tasks like terrain mapping, object detection, and navigation and also in obstacles avoidance, autonomous flight system.

image detection is an important factor in knowing what kind of object are present in front of the camera. It gives an idea of which object is in front of the car and how to tackle it.

In our Jetracer project we are planning to use spatial binning for obstacle detection

Spatial binning is very helpful full of image by using machine learning algorithms we can do the image processing which will help to improvise to build a many more train test models using other test cases and find the accuracy of the model

Since we are providing collision detection features in our project instead of using different sensors we can use a single camera which can able to detect multiple things and process it with above technique

It enhances image processing tasks like object detection.it can improve the accuracy and efficiency and I am to use it future project

Image detection is a non-negotiable part of autonomous vehicles. Hence spacial binning can be used in this aspect.

spatial binning is going to be reaching its peak in the near future as it could be integrated into computer vision algorithms to enhance object recognition and scene understanding. improved image processing skills, enabling them to develop more efficient and accurate solutions for various applications like autonomous driving or medical imaging can be obtained by the help of it.

Spatial binning could play a role in computer vision systems for autonomous vehicles. By reducing the dimensionality of input data from cameras or sensors, it can help in faster and more efficient processing of visual information, contributing to real-time decision-making.

Once I advance in this field I'll work on that

In Natural Language Processing, adapting spatial binning to text data could involve grouping word embeddings based on their contextual relationships. This approach might enhance semantic understanding while reducing dimensionality, enabling more efficient processing and interpretation of large text datasets, aligning with advancements in language modeling and analysis.

In natural language processing, spatial binning could be applied to text data by grouping words or phrases based on their spatial context within documents. This approach could enhance topic modeling, sentiment analysis, and document summarization techniques, improving the understanding and processing of textual information in various applications.

Integrating spatial binning could help extract relevant features and enhance the model's understanding of spatial relationships within visual data, potentially improving tasks like image recognition or scene understanding.

I see this spatial binding as assisting me in compressing data to send to distant locations, which is ideal for real-time remote access working. I may have little knowledge of spatial binding and its application in my field of interest, cybersecurity, but I am confident that it is extremely useful for real-time processing applications.

5. **One of the main components of real-time operation is OpenCV, which is crucial in today's systems - a massive open-source library for computer vision, machine learning, and image processing. It may be used to process pictures and videos in order to recognize faces, objects, and even human handwriting. How well you will utilize the resources and utilize the library which was taught in the hands-on session during vehicle detection and tracking and finding lane lines (within 50 words).**

79 responses

Object detection lane detection etc

I can efficiently utilize OpenCV for real-time vehicle detection and tracking, as well as lane line detection, leveraging its powerful computer vision and image processing capabilities. With hands-on experience, I can optimize resource utilization and implement algorithms effectively to achieve accurate and reliable results.

OpenCV's capabilities for image processing, object recognition, and machine learning, enhancing accuracy and efficiency in real-time operations for these tasks.

Incorporating OpenCV in vehicle detection and tracking, as well as lane line detection, enables efficient processing of visual data for autonomous driving systems. By leveraging its extensive

functionalities, I'll optimize algorithms for real-time performance, enhancing accuracy and reliability in identifying objects and navigating lanes for safer driving experiences.

I'll leverage OpenCV's comprehensive features for real-time vehicle detection and tracking, as well as lane line identification. Applying its image processing and machine learning functionalities will enable accurate object recognition and lane detection, crucial for enhancing the capabilities of autonomous driving systems

This session helped us gain knowledge about existing libraries in OpenCV and will look forward to implement some of the libraries in the future projects.

Incorporating OpenCV in real-time operations, learned through hands-on sessions like vehicle detection and lane line finding, empowers me to efficiently process images and videos.

Incorporating OpenCV in vehicle detection and lane line tracking enhances accuracy and efficiency. Leveraging its robust features for image processing, machine learning, and computer vision, I'll implement algorithms for real-time analysis of video streams, enabling precise identification of vehicles and lane boundaries, crucial for autonomous driving systems.

These will be very helpful in recognising objects handwriting etc

This library can be used for identifying various objects in real time projects

I would fully utilize OpenCV's capabilities learned in the hands-on session for vehicle detection, tracking, and lane line detection. Leveraging its functions for image processing, feature extraction, and machine learning, I'd develop robust algorithms to enhance safety and efficiency in autonomous driving systems, ensuring accurate detection and tracking of vehicles and lane lines.

Got how it will work

I can work on machine learning model motion detection sign language translation etc

Leveraging OpenCV in hands-on sessions for vehicle detection and lane line tracking provides a solid foundation. Integrating this library into my capabilities enables efficient image processing, object recognition, and enhances the understanding of visual data. It facilitates robust applications in real-time operations, aligning with evolving demands in my domain.

OpenCV is indeed a powerful tool for computer vision tasks like vehicle detection and tracking, as well as finding lane lines in images or videos.

I will refer to dpcumentation and online resources such as Stackoverflow to shorten the learning curve

OpenCV is pivotal for real-time operations, enabling tasks like facial recognition and lane detection in vehicle tracking. Applying hands-on skills with the library optimizes resource use for effective implementation.

I will leverage the OpenCV library extensively for vehicle detection, tracking, and lane detection. By applying its image processing and machine learning capabilities, I aim to improve the accuracy and efficiency of these tasks. This hands-on experience will be invaluable in implementing real-time systems with enhanced functionality.

We will use this in our mini project

I would like to implement a system which tracks the vehicles in the backside of the car and the exact space using OpenCv

I would leverage OpenCV extensively for vehicle detection and tracking, as well as lane line detection, by applying its rich set of functions for image processing, feature extraction, and machine learning. This hands-on experience equips me with practical skills crucial for implementing real-time computer vision solutions in various applications.

it will be greatly helpful in my future work, but need to check where exactly to implement

I will fully leverage OpenCV's capabilities for vehicle detection, tracking, and lane line detection in autonomous driving projects. By applying the hands-on knowledge gained, I can efficiently implement algorithms for image processing, object recognition, and machine learning to enhance the perception and navigation systems of autonomous vehicles.

It was useful resource which u shared.

Incorporating OpenCV into vehicle detection and lane line tracking hands-on sessions enhances my ability to analyze images and videos for real-time applications. Leveraging OpenCV's rich functionalities, I can efficiently process visual data, recognize objects, and contribute to the development of robust systems for autonomous driving or similar image-based tasks.

Leveraging OpenCV's capabilities in the hands-on session provided a strong foundation for vehicle detection, tracking, and lane line identification

I would leverage OpenCV extensively for vehicle detection and tracking, as well as lane line detection, applying techniques like image segmentation, feature extraction, and machine learning algorithms for robust and efficient solutions. Go

Python content based openCv is the best key for image processing. it provoked me to work more on image or video processing

I would want to use this library for my future projects as well as my final year's paper so as to boost my knowledge and career chances.

The hands-on session equipped me with practical skills in leveraging OpenCV for real-time applications like vehicle detection, tracking, and lane line identification. This knowledge empowers me to apply computer vision techniques effectively, contributing to advancements in autonomous systems and other projects requiring image processing and analysis.

I would enhance my ability to develop robust and accurate systems for autonomous driving applications.

Would enhance my ability to develop robust and accurate systems.

It can be used for various other detection projects .

open cv its a real-time camera process application used in many ,i have learnt how to implement it and how to use its applications

can help you with OpenCV-based tasks, including vehicle detection, tracking, and lane finding. Feel free to describe your specific requirements or ask for guidance on implementing these features in your project

I will try to apply the learnt knowledge while making some projects and learn more about it in coming days..

Open cv can be used to differentiate the lines. Furthermore its can also be used to detect obstacles obstructions

Through open cv we can use software we out installation and this will be very useful.

Learned how to use OpenCV to find cars and lanes in videos! I'll practice using the library to build cool projects in the future.

It is important to upskill ourselves for the betterment of the technology and future, it is very important to know the practical application of the above mentioned topics which makes it easy to

think and implement in a proper direction. Understanding it makes us to innovate new ideas such advance technologies can be used and implemented.

OpenCV is the place where we can get most of the modules, programs for our any type of machine learning , image processing project it also play a crucial role in autonomous vehicles processing

The hands-on session with OpenCV was amazing! I'm excited to leverage the resources and library to practice vehicle detection, tracking, and lane line finding. These skills could be useful for building projects related to self-driving cars or other computer vision applications.

opencv library can be used to detecct the lanes,as well as objects near by and cars so as to avoid any accidents.

Open cv as mentioned has many inbuilt features and this can be used when detecting the objects in ML also this could he used in robots and self driving cars

Leveraging OpenCV's capabilities in the hands-on session, I plan to refine vehicle detection and lane tracking by applying advanced image processing techniques and machine learning algorithms. By optimizing object recognition and edge detection, I aim to enhance accuracy in real-world conditions, thus improving the reliability and safety of autonomous driving systems.

Image processing, video analysis, object detection, and other computer vision tasks.Facial recognition and object detection in security systems

As though in the session we can use this for academic purposes and we can identify the students in campus.. if we find any students in the campus who are bunking we could identify them in real time and send them a text to attend them

OpenCV is used to process the data which will be the input for designing the autonomous vehicle.

I will utilize OpenCV's resources extensively for image and video processing, particularly in projects involving vehicle detection, tracking, and lane finding. The hands-on session provided valuable insights into leveraging OpenCV's functionalities effectively, which will be instrumental in developing advanced computer vision applications.

It's helpful in our project activities

Since it is easy to use many people with low coding level can use this

it will play cruciasl role in project

I would fully leverage OpenCV's capabilities in vehicle detection and lane line tracking by applying its algorithms for image preprocessing, feature extraction, and object detection. This hands-on experience equips me with practical skills to develop robust and efficient computer vision systems for various applications in autonomous driving and beyond.

Leveraging OpenCV's capabilities learned in the hands-on session, I plan to enhance vehicle detection and tracking by integrating advanced image processing techniques for more accurate recognition. For lane line detection, I'll explore OpenCV's edge detection and shape analysis algorithms to improve precision. These skills will be pivotal in developing robust autonomous driving systems.

Opencv is used in many aspects such as it makes changing color space easy and many more it also used in recognition of cars in this session and also lanes it play an important role in the autonomous vehicles in real time systems

Leveraging OpenCV in real-time operations is paramount for tasks like vehicle detection, tracking, and lane line finding. The hands-on session equipped me with practical skills to efficiently utilize this powerful library. I'll apply these techniques to enhance accuracy and reliability, ensuring robust performance in computer vision applications.

I'll fully utilize OpenCV's capabilities learned in the hands-on session for vehicle detection, tracking, and lane line finding. Leveraging its robust functions for image processing and machine learning, I'll optimize algorithms for real-time applications, ensuring accuracy and efficiency in tasks like object recognition and lane detection.

OpenCV's comprehensive functionalities for vehicle detection and tracking by employing techniques such as object detection, feature extraction, and motion analysis.

OpenCV was the main component in this project. The built in functions available in this package. It helps in recognition. Looking to work on projects related to recognition of face and hand gestures.

For optimising the efficiency and accuracy

its a new library that I have learnt which I didnt knew earlier. by the help of this we worked on many images related items. with the help of open CV we can develop similar such projects in near such future

We were introduced to many functions of OpenCV that can be used in our project

We can use this opencv library for many other models train testing purpose and it will help to find the accurate accuracy of the model through the accuracy we can finally fine this model is helpful or not

knowledge gained can be valuable for understanding the technology and its potential applications in various domains, including autonomous vehicles and driver assistance systems.

Yes it can be used to merge AIML with automotive embedded electronics and provide a better outcome

By utilizing its functions for image processing, machine learning, and computer vision, I aim to develop efficient and accurate results for real-time applications in my projects.

OpenCV is an great open source platform,I would use this for integrating with microcontrollers for its best reliability.

OpenCV can be used for almost everything related to obstacle detection, we could use it to recognise pedistrians, other vehicles and animals, even detects the roads and other objects.

OpenCV leveraging its robust capabilities in computer vision and image processing, you can efficiently analyze images and videos to recognize objects and extract valuable information, making your systems smarter and more effective.

In the context of computer vision applications like vehicle detection and tracking, OpenCV provides a rich set of functions and tools.

OpenCV is the main component in this project. The built in functions available in this package. It helps in recognition. Looking to work on projects related to recognition of face and hand gestures.

I will try to that in my final year project

Leveraging OpenCV for vehicle detection and lane line tracking ensures a robust foundation for real-time operations. Applying the library's computer vision capabilities in image and video processing facilitates accurate recognition of objects and lane lines, enhancing the precision and reliability of the systems developed during hands-on sessions.

One of the main components of real-time operation is OpenCV, which is crucial in today's systems - a massive open-source library for computer vision, machine learning, and image

processing. It may be used to process pictures and videos in order to recognize faces, objects, and even human handwriting. How well you will utilize the resources and utilize the library which was taught in the hands-on session during vehicle detection and tracking and finding lane lines (within 50 words).

Understood how the vehicle detected line and other vehicle for smooth operation

OpenCV aligns with my interest in a method for analysing CC footages; as a security analyst, analysing live feeds in person may be prone to human error, which is unacceptable in situations where efficiency is not the primary goal. So, I've formed a problem statement, and the session was effective in triggering my thinking.

Edge detection, lane detection

I will leverage OpenCV extensively for vehicle detection and tracking by applying techniques such as Haar cascades and object detection algorithms like YOLO. For lane detection, I'll utilize OpenCV's image processing capabilities, including edge detection and Hough transforms, ensuring robust performance in real-time applications

6. **During the Short-term course you are engaged in hands-on computer programming tutorials focused on detecting and tracking road users and objects, alongside lane detection and identification of lane lines, within a dedicated computer lab setting. The experiential learning plays a vital role in professional advancement. Please provide your opinion on how well these learning helps you in stepping stones to accomplish your objectives (within 50 words)**
79 responses

Coding practice for road object detection feels super useful! It lets me learn by doing, which helps me reach my goals like building self-driving car features.

Excellent

The hands-on tutorials on road user and object detection, along with lane detection, in a dedicated computer lab setting, provide invaluable experiential learning. They equip me with practical skills crucial for professional advancement, serving as stepping stones toward achieving my objectives in computer programming and computer vision.

Engaging in hands-on programming tutorials for detecting and tracking road users and objects, as well as lane detection, is invaluable for professional growth. These skills are essential in fields like autonomous vehicles and smart transportation systems, providing crucial stepping stones toward achieving career objectives.

Engaging in hands-on tutorials on detecting and tracking road users, object recognition, and lane detection within a dedicated lab setting is invaluable. This experiential learning equips me with practical skills and insights essential for developing and implementing real-world solutions

Experiential learning enhances problem-solving abilities and fosters confidence in tackling real-world challenges, serving as stepping stones towards professional objectives.

Regular sessions on such topics will help us build a strong foundation and encourage us to actually work on these projects

Engaging in hands-on tutorials for road user/object detection and lane identification in a dedicated lab setting is pivotal. This experiential learning fortifies my skills, serving as stepping stones toward achieving my objectives.

Hands-on tutorials in computer programming, focusing on road user detection, object tracking, and lane identification, within a dedicated lab setting, are invaluable for professional growth. They provide practical skills essential for advancing in fields like autonomous vehicles and robotics, laying a solid foundation for achieving career objectives in technology-driven industries.

This course was very useful and with the hands-on we got to learn many things about python, laning detecting etc

Boost the understanding of python libraries

The hands-on tutorials provide invaluable practical experience in computer vision tasks crucial for my objectives. Mastering road user detection, object tracking, and lane detection equips me with essential skills for developing advanced systems, accelerating my progress towards achieving my professional goals in autonomous driving and related fields.

We got our base on automission in vehicles.

To be honest the amount of duration for these course was very less and we only had time to listen and didn't have time to work on ourselves

Engaging in hands-on tutorials for road user and object detection, along with lane identification, within a dedicated lab setting accelerates my skill development. This experiential learning is integral to my professional growth, serving as crucial stepping stones toward achieving my objectives in the dynamic field of computer programming and vision applications

Participating in hands-on computer programming tutorials focused on detecting and tracking road users and objects, as well as lane detection and identification of lane lines, within a dedicated computer lab setting can be incredibly beneficial for professional advancement.

These are steps to understanding the vast and advanced backend pf a image processing system

The hands-on tutorials in computer programming, focusing on road user detection and lane identification, within a dedicated lab setting, greatly enhance practical skills. This experiential learning is pivotal for advancing professionally, providing essential expertise for accomplishing objectives in real-world applications effectively.

Hands-on tutorials in computer programming for detecting and tracking road users and objects, and lane detection, are invaluable for professional growth. They provide practical skills applicable to real-world projects, enhancing problem-solving abilities and fostering a deeper understanding of advanced concepts. This experiential learning is a crucial stepping stone toward achieving my objectives in the field.

This course have provided insight on the sensor and ML

This session helps us to develop a project based on autonomous vehicles by various modes like back view tracking of the car which adds a potential to our resume

The hands-on tutorials in computer programming for road user detection, object tracking, and lane detection provide invaluable practical experience. This experiential learning equips me with the skills and confidence necessary to tackle real-world challenges in computer vision, paving the way for achieving my professional objectives in this field.

Hands - on was really helpful in understanding the depth of the application.

The hands-on programming tutorials on detecting and tracking road users, lane detection, and object identification are invaluable for practical skill development. Experiential learning in a dedicated lab setting equips me with the expertise needed to contribute effectively to real-world projects, accelerating my progress towards achieving professional objectives

These concepts will helpful

Engaging in hands-on session on road user detection, object tracking, and lane identification within a dedicated lab setting provides practical skills essential for my professional growth. This experiential learning equips me with the expertise needed to contribute effectively to my objectives, serving as valuable stepping stones in achieving success in my field.

This experiential learning is a cornerstone for my career in AI and computer vision, directly contributing to achieving my objectives in developing smarter, safer automotive technologies.

Engaging in hands-on tutorials focused on road user detection, object tracking, and lane detection within a dedicated computer lab setting is invaluable for my professional advancement.

These session has thought me alot about sensors and image processing. Being a E&C student it's very important for me to work on autonomous real-time-application, as out future is best defined with AI and automation.

These programming based learning sessions help us a lot on learning problem solving and efficient approach towards the given problem.

Engaging in hands-on tutorials on road user detection, object tracking, and lane identification in a dedicated lab setting is invaluable. This experiential learning enhances practical skills crucial for achieving my objectives, serving as a solid foundation for advancing in my professional journey and making meaningful contributions in the field.

It enables me to apply these concepts in further projects

It enables me to apply these concepts in further projects.

We learnt about different functions and their practical uses which can be implemented in our future projects. All the functions and libraries were explained clearly and was very helpful

the code was explained step by step ,got a brief how the coding was done and the real time implementation was also very interesting

experiential learning plays a vital role in professional advancement. Please provide your opinion on how well these learning helps you in stepping stones to accomplish)

Applying ML technology into it was indeed a very good approach and knowing about it how to do and the way sir explained was very good .we got to know many things such as video processing etc....

This has helped me a lot in gaining insights of opencv

This hands on session was very informative and useful.

The experiential learning plays a vital role in professional advancement.these learning helped me in stepping stones to accomplish objectives .

This one is one of the best session where I got to do programming based on the real world application

We usually study the theoretical part of the subject in the class and have no contact towards the practical approach ,hence this learning was very helpful as it showed us the practical implementation of the procedure.

This will very informative as this will help in robotics and ai as well

These hands-on programming tutorials in detecting, tracking road users, and identifying lane lines are invaluable, laying a strong foundation in practical skills critical for advancing in fields like autonomous driving and traffic management systems. They serve as crucial stepping stones, enabling me to bridge theoretical knowledge with real-world applications, thus accelerating my career objectives in tech innovation.

This session given us both theoretical as well as practical knowledge

Hands-on tutorials in computer vision skills like object detection and lane identification are directly applicable to self-driving car development, making them valuable stepping stones for your career goals in this field.

This 3 day session a brief about the innovative technology which will make our future better.

The hands-on tutorials on detecting and tracking road users and objects, along with lane detection, are invaluable for my professional advancement. They provide practical skills and knowledge crucial for achieving my objectives, serving as stepping stones towards developing advanced solutions in my field.

Tracking lane on roads is done by Lidar sensors, so we come to know about that, which might help in project activities

It good

The hands-on tutorials provide invaluable practical experience in developing computer vision algorithms for real-world applications like road user detection, object tracking, and lane detection. This experiential learning equips me with the skills and confidence needed to tackle challenges and innovate in the field, accelerating my professional growth and helping me achieve my objectives.

The hands-on programming experience with detecting and tracking road users, alongside lane detection, solidifies my theoretical knowledge through practical application. It boosts my

analytical and problem-solving skills, making it a cornerstone for my career in autonomous driving technologies. Such practical exposure is invaluable for achieving my objectives in innovative automotive solutions.

It was my honour to be a part of Mr.yong wang's session such a kind hearted person and well explained it was very interesting and informative session thankyou for providing sich a session

Engaging in hands-on tutorials for road user and object detection, along with lane identification, within a dedicated lab setting is instrumental. This experiential learning cultivates practical skills, serving as stepping stones toward achieving my objectives. It bridges theory with application, enhancing my capability to contribute effectively in my professional endeavors.

Engaging in hands-on tutorials for detecting and tracking road users, object recognition, and lane detection in a dedicated lab setting is invaluable for professional growth. These experiential learning opportunities provide practical skills and insights crucial for achieving my objectives in the field of computer vision and autonomous systems development.

The hands-on tutorials in computer programming, focusing on road user detection, object tracking, and lane detection, provide invaluable experiential learning. These skills are essential stepping stones toward achieving my objectives by enhancing my proficiency in computer vision and paving the way for meaningful contributions to autonomous driving and related fields.

These concepts will definitely help in my future projects and makes things easier.

It helps to know the practical knowledge about the course

we just learnt all those things in theory but with this short term course it helped us to understand the real time application of it and uses along with the futer implication for the project development.

It helped me to understand the flow in which we need to build our program

As I'm interested in machine learning it is so much helpful for my next level education it was very informative session that I learned how to use the models and algorithms in order to get accuracy in the model

Like we are from electronics & Communication background, and we are having very least knowledge on python and openCV so it was bit difficult to understand the codes but it was very helpful to understand about the process and it could be used in future projects

We learnt about road and lane detection although to understand the code was difficult I am going to use it for future project

I could know about the resources used for implementations

It was nice to have a hands on experience, making it interactive made it more exciting and fun. It also helped understand the concept and working even better.

Learning to detect and track road users and objects, as well as identifying lane lines, in a hands-on computer lab is super important! It helps us become better at our jobs by giving us practical skills we can use right away to make roads safer and improve transportation systems.

Engaging in hands-on computer programming tutorials focused on detecting and tracking road users and objects, as well as lane detection and identification of lane lines, within a dedicated computer lab setting is a valuable and practical approach to learning. Experiential learning, especially in a specialized field like computer vision and object detection in the context of road traffic, can provide several benefits that contribute to professional advancement

It was very good platform to understand about so many packages in the projects.This experiential learning cultivates practical skills, serving as stepping stones

Its good

Participating in hands-on programming tutorials for road user detection and lane identification is invaluable for practical skill development. This experiential learning equips me with the expertise needed for real-world applications, serving as crucial stepping stones toward achieving professional objectives in the dynamic field of computer vision and autonomous systems.

Engaging in hands-on tutorials on road user and object detection, lane detection, and tracking in a dedicated lab setting enhances practical skills crucial for real-world applications. This experiential learning approach accelerates my progress, equipping me with the necessary expertise to contribute effectively to projects and advance professionally.

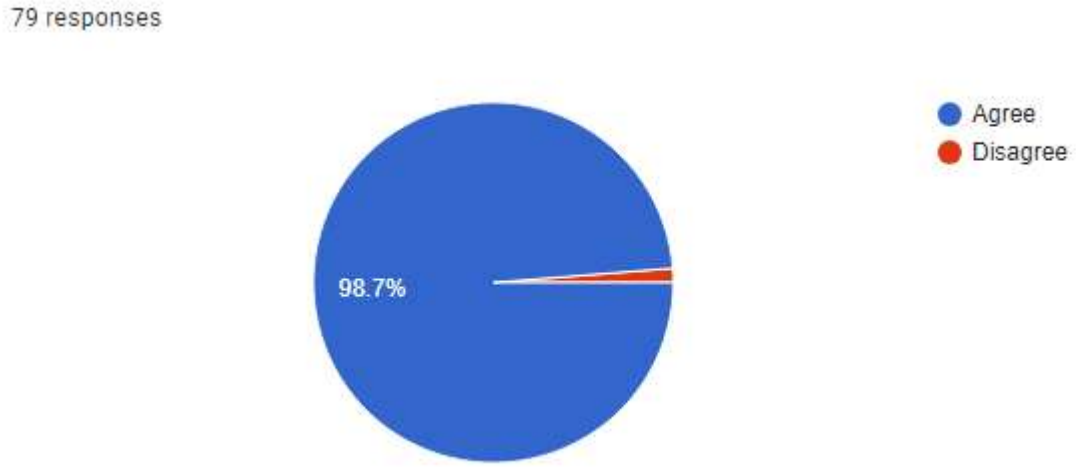
Learnt how the code looks like for operation of sensors cameras etc.

It's true that practical knowledge is essential, but in this case—possibly because of time constraints—the approach involved running pre-written code, which was fascinating but not really engaging. I agree that Dr. Wang has provided all the feedback on the code and how it functions, but I think it would be even better if the knowledge of how he wrote from the beginning was taught.

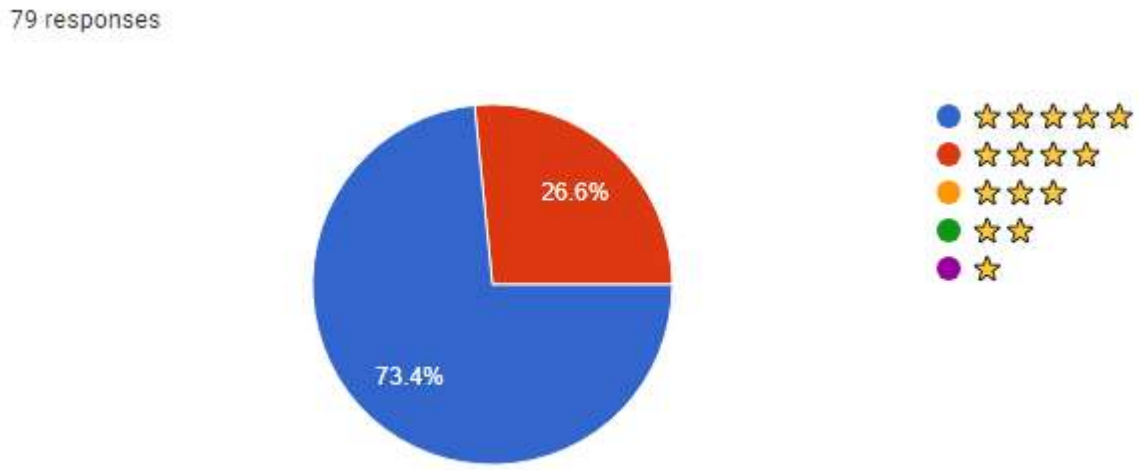
Saftey

OpenCV offers a wide range of tools and algorithms that are well-suited for tasks like vehicle detection, tracking, and lane detection. By leveraging these techniques effectively, you can ensure accurate and efficient performance in real-time applications

7. **A multidisciplinary approach in education is a way of learning which gives a major focus on diverse perspectives and different disciplines of learning to illustrate a theme, concept, or any issue. It is the one in which the same concept is learned through multiple viewpoints of more than one discipline. It helps to gain perspectives and knowledge in different ways. The Autonomous system is multidisciplinary domain which attracts the learners to take-up the challenges faced in sectors such as Transportation, Agricultural etc in providing sustainable solution. Do you agree / disagree.**



8. **Rate your overall opinion on short term course delivered in taking up the new challenges to be globally competitive.**



9. **Comments / Suggestion (if any - within 50 words)**

79 responses

No

None

Require more session on this topic

Require more sessions on this tipic

It was a very informative session with lots to learn about self driving cars and also the challenges of implementing self driving cars in India

Overall it was a great experience, that fostered, nourished all the faculty's and students with the practical experience of python programming, open cv, pipelines. Overall good experience

Make these sessions regular and more hands on experience required

Lot more about how the vehicle can cross the road and when there is any fault in the road how it can be detected.

More hands on sessions needed

Make more sessions like these and provide more hands-on sessions.

Should provide some prerequisite before the STC that helps in smooth understanding

Got somuch of knowledge about Automission in vehicles

The course duration should be more

We need more informative sessions like this for deeper understanding of the concept.

It was wonderful session..

A longer course with a certification is preferred

It was a nice session. We really learnt a lot of real time application concepts and uses of many fields in autonomous vehicles. I request you to kindly conduct these kind of sessions for better learning and industry experience

Overall it was good session

Overall the session was very intresting and presented well and I am very happy to be a part of it

This was indeed a very informative session.

expecting more such events to be organized in future days too

The session was good, please Conduct more sessions and for long term courses more and more regarding this topic

It was a wonderful session.I look forward for such sessions in future

It was a good session really helpful for taking up this topic as project.

No suggestions.

It was very interesting and productive session

Wanted it to be longer with well spaced breaks in between. Next time i would love to have a professor from a Japanese University like Waseda etc

Overall the session was good and informative. We came to know about autonomous vehicles and we also learned certain techniques which will be useful in our future so that we can implement it. Conduct more sessions like this short term course in future which will be useful to us.

Please provide more hands on sessions on new emerging technologies in future.

should train the model more in situation like if there is snow or heavy rain and any crash

It was good and gained skills knowledge on this session

I wish to have more of these sessions.

Nil

Very informative ,looking forward to such practical sessions in the coming days.

Very good and informative session

Excellent

Want more program like this in future

I wish the session was a bit longer

It was a good session.

This is a wonderful session about a invention and autonomous vehicles it is useful my future projects.Thank you for given this session.

No suggestions

Excellent

no

Ensure tutorials cover a range of scenarios and challenges to deepen understanding and problem-solving skills. Encourage peer collaboration and discussions to foster diverse perspectives. Incorporate feedback loops for continual improvement and adaptation to emerging technologies.

The best session i ever attended it was very interesting and informative and also it was fun and i personally liked this session and I'm looking forward for such session in future

Thank you for your insightful feedback on automotive vehicle detection.

Thank you for your insightful feedback on automotive vehicle detection. Your input is greatly appreciated, and I look forward to applying these learnings in future endeavors.

Overall it was a good and informative session. Getting to know about the things working practically and the algorithms used in it was very helpful.

It's good course. lot of things are yet to learn

it was a wonderful session. wish to attend s=such more session in future

Overall it was an excellent short course to introduce ourselves to autonomous vehicles

It was very good informative session and very helpful session

It was excellent initiative and we would expect more hands on session and workshop in future Thank you

More of this

It was a great session

It was an amazing experience, would love to attend many more sessions like this and i hope we have more workshops like this about emerging technologies in the future.

none

It was very good informative session and very helpful session to understand about 2 projects and about the research aspect too.

Your exploration of autonomous systems and hands-on programming in computer vision is commendable. Consider extending practical applications beyond road user detection, perhaps into environmental monitoring or healthcare. Diversifying project scopes enhances skills and widens the impact of your multidisciplinary expertise.

It was a great experience

Excellent short term course

already mentioned all my thoughts in all the above fields, i guess i have no discomfort to share here.

Interesting Session

It was interesting

2. Faculty Development Program on Critical Thinking & Problem Solving Methodologies

MANGALORE INSTITUTE OF TECHNOLOGY & ENGINEERING

(A unit of Rajalaxmi Education Trust ®, Mangalore)
Autonomous Institute Affiliated to V.T.U., Belagavi, Approved by AICTE, New Delhi
Accredited by NAAC with A+ Grade & ISO 9001:2015 Certified Institution

ABOUT MITE

Mangalore Institute of Technology & Engineering (MITE) was established in the year 2007 by Rajalaxmi Education Trust® to promote quality education and with an intent to serve the society. MITE is an Autonomous Institute affiliated to Visvesvaraya Technological University, Belagavi, Karnataka, and is recognized by AICTE, New Delhi. The institute, Accredited by NAAC with A+ Grade (3.44 CGPA), offers 9 UG Programs in Engineering (NBA accredited), Post-Graduate Programs in Engineering, Computer Applications & MBA and 7 research programmes in Basic Science and Engineering in its beautiful serene green campus.

The institute is Ranked in the ***Band 151-300*** in the ***NIRF Innovation Ranking*** 2023 by MoE, Govt of India. The Institute is placed in the "Highest category of **Platinum ranking in AICTE CII survey** of industry-linked technical institutes" in India.

The Siemens Centres of Excellence, Bosch Rexroth Centre of Competence, Innovation & Incubation Centres and collaborations with industries of repute such as Carl Zeiss, Toyota Industries Engine India, KPIT, Infosys, Salesforce & UiPath complement in manifesting innovation. The institute has MoU with Binghamton University, USA, Kumamoto University Japan, MDIS Singapore, & ITE West Singapore to provide global exposure. The institute, known for its high academic standards, has received 29 University Ranks over the last 5 years as a reference to the quality teaching-learning pedagogy.

VISION :: "*To attain perfection in providing Globally Competitive Quality Education to all our Students and also benefit the global community by using our strength in Research and Development*"

MITE MANGALORE

nirf Innovation Ranking 151-300

NAAC A+ GRADE CGPA: 3.44

MANGALORE INSTITUTE OF TECHNOLOGY & ENGINEERING
(A Unit of Rajalaxmi Education Trust®, Mangalore)
Autonomous Institute affiliated to VTU, Belagavi , Approved by AICTE, New Delhi

THREE DAY FACULTY DEVELOPMENT PROGRAM
on

Critical Thinking and Problem-Solving Methodologies

DATE : December 23rd 2023 - January 6th, 2024

An Initiative By

INSTITUTION'S INNOVATION COUNCIL

IQAC

ABOUT FDP

The institution recognizes the need to enhance the quality of programming language education by placing a strong emphasis on critical thinking and problem-solving skills. To align with industry expectations and ensure that students are well-equipped for real-world challenges, a faculty development program is essential. This program aims to train faculty members in critical thinking and problem-solving methodologies, with a focus on improving the teaching of programming languages.

Objectives:

The primary objectives of the Faculty Development Program are as follows:

- To equip faculty members with the skills and knowledge required to emphasize critical thinking and problem solving in programming language education.
- To enable faculty members to design curriculum and teaching methodologies that prioritize problem‐solving abilities over syntax.
- To enhance faculty members' understanding of industry-relevant thinking and practices in programming education.

ABOUT RESOURCE PERSON

Mr. Girish Aithal
Co Founder and Partner
4Edge IT Solutions
Mangaluru

CONVENER

Dr. Narendra U P
Director
(T&P and Industry Relations)

Dr. Vinayambika Bhat
Dean (Quality Assurance)

Dr. Terence K. Johnson
Associate Dean (Academics)

PROGRAM SCHEDULE

The faculty development program shall cover the following key areas:

- Critical Thinking Skills: FDP shall focus on developing critical thinking skills among faculty members, including techniques for analyzing problems, evaluating solutions, and fostering creativity.
- Problem-Solving Strategies: Faculty members shall be trained in various problem-solving methodologies applicable to programming, emphasizing practical application and real-world scenarios.
- Curriculum Design: Participants shall learn to design curricula that emphasize critical thinking and problem-solving, with a reduced emphasis on syntax.
- Industry Alignment: The program shall provide insights into industry-relevant thinking and practices in programming language education.

The Faculty Development Program shall enhance the faculty's ability to teach programming languages with a strong emphasis on critical thinking and problem-solving, ultimately benefiting the students and aligning with industry demands.

Coverage of the FDP
Critical Thinking Skills
Problem‐Solving Strategies
Programming Techniques
Object-Oriented Programming Techniques
Curriculum Design
Industry Alignment

Web: https://mite.ac.in/

MITEedu

MANGALORE INSTITUTE OF TECHNOLOGY & ENGINEERING
(A unit of Rajalaxmi Education Trust ®, Mangalore)
Autonomous Institute Affiliated to V.T.U., Belagavi, Approved by AICTE, New Delhi
Accredited by NAAC with A+ Grade & ISO 9001:2015 Certified Institution

Date:09/01/2024
Prepared by: Dr. Terence K. Johnson, Associate Dean (Academics)

FACULTY DEVELOPMENT PROGRAM (FDP) ON

CRITICAL THINKING AND PROBLEM-SOLVING STRATEGIES

(Conducted on 23rd Dec. 2023, 30th Dec. 2023 & 6th Jan. 2024)
Venue – Training Room, Placement Centre, 3rd Floor, Main Block, MITE Campus

REPORT

The 3-day MITE - Faculty Development Program (FDP) on "Critical Thinking and Problem-Solving Strategies" aimed to equip our young faculty members with comprehensive tools and methodologies essential for enhancing teaching methodologies and problem-solving skills. The Expert Resource Faculty for the FDP was Mr. Girish Aithal, Co-founder and Learning Solutions Head at 4Edge IT Solutions.

Inaugural Session:

The MITE-FDP commenced with an insightful welcome address by our Principal, Dr. Prashanth C. M. His emphasis on the necessity of this program to provide faculty members with new perspectives in critical thinking and problem-solving was instrumental. Dr. Prashanth anticipated the FDP to serve as a catalyst for empowering our faculty in embracing innovative teaching methodologies. Dr. Terence K. Johnson, Associate Dean (Academics), then introduced the Resource Faculty Mr. Girish Aithal.

Day 1:

Session 1: The day began with an exploration of the fundamental steps involved in critical thinking, emphasizing strategies to foster student interest in developing reading habits.

Session 2: Participants engaged in practical application through Algorithm Design for real-time scenarios, where they formulated solutions for stated problems.

Session 3: Continuation of Algorithm Design followed by an introduction to Code Optimization, emphasizing the reduction of code length without compromising efficiency. Participants undertook both group and individual tasks, focusing on SRS, module identification, functional requirements, and programming assignments.

Day 2:

Sessions 1 and 2: Both these sessions were dedicated to discussions on the previous day's tasks, where participants were encouraged to adopt programming methodologies involving the use of dynamic memory allocation as opposed to the conventional static programming approach often followed. With this, the participants were then introduced to dynamic memory allocation and the benefits of programming using pointers.

Session 3: This session delved into the concepts of the Object-Oriented Programming paradigm. The participants were further introduced to entity identification and relationships among the entities identified in the group tasks undertaken in an earlier session.

Day 3:

Session 1: This session included thorough discussions on Class Diagrams, Sequence Diagrams, and Activity Diagrams, applying them to real-time scenarios.

Session 2: In this session, the participants were taught about Code Debugging techniques.

Session 3: This was an insightful session on Curriculum Design. It also highlighted the need for preparing effective PowerPoint presentations as per departmental and institute formats.

The FDP concluded with a Post Training Assessment, conducted by the Expert Resource Faculty Mr. Girish Aithal, reaffirming acquired concepts. Noteworthy was the engaging exchange during the participant feedback session, where Mrs. M. Amrithavalli and Mr. Aneesh Kumar K. shared their enriching experiences. Dr. Prashanth C. M. acknowledged Mr. Girish Aithal's invaluable contributions with a memento, followed by the closing remarks and vote of thanks by Dr. Terence K. Johnson.

The FDP has undoubtedly enriched our faculty members with advanced problem-solving strategies and critical thinking approaches, enhancing their pedagogical prowess. We anticipate a ripple effect, positively influencing our academic ecosystem.

Dr. Terence K. Johnson,
Associate Dean (Academics)
Professor-ISE

Dr. Prashanth C. M.,
Principal - MITE

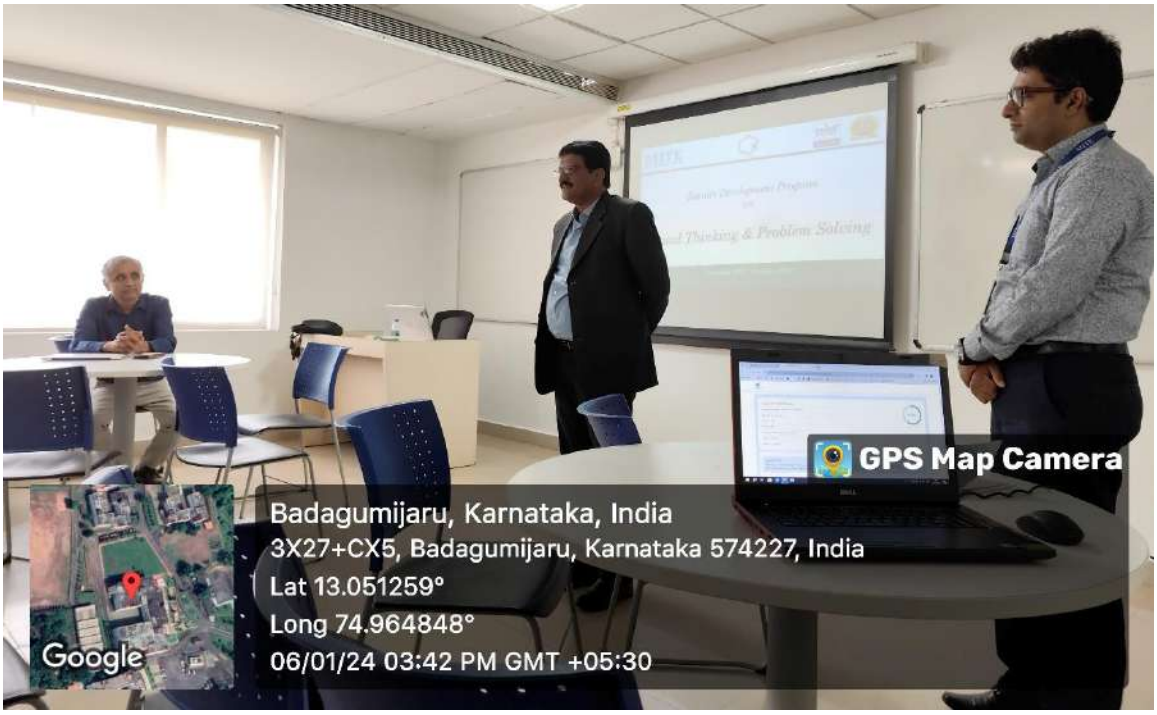
Principal
Mangalore Institute of Technology & Engineering
Badaga Miijar, MOODBIDRI - 574 225

Principal Dr. Prashanth C.M. & Associate Dean Academics Dr. Terence during the inaugural session

Participants attending the MITE-FDP

Resource faculty Mr. Girish Aithal after the completion of MITE-FDP the inaugural session

Participants sharing their experiences after the completion of MITE-FDP



Closing Remarks by the Principal Dr. Prashanth C.M.

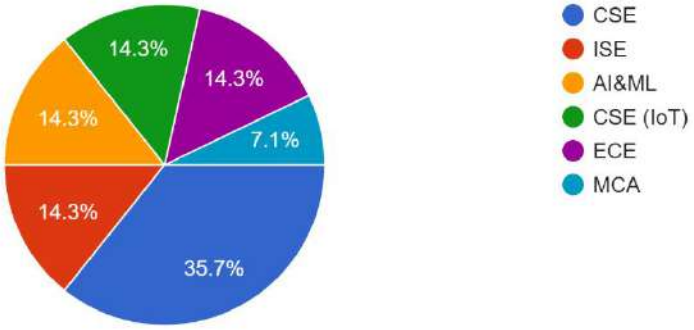
Vote of Thanks by Associate Dean (Academics) Dr. Terence K. Johnson

Participants & Dignitaries

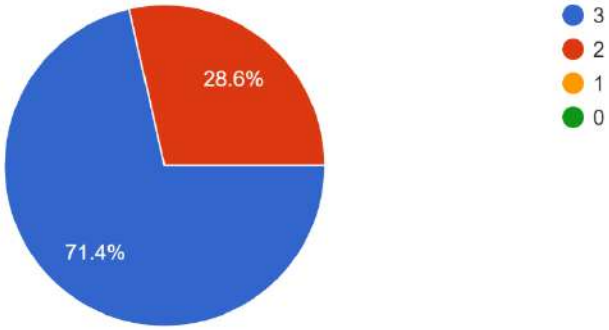
FEEDBACK FOR MITE-FDP

Evaluation Metrics:
3 - Very High / Very Good Rating
2 - High / Good Rating
1- Fair Rating
0 - Poor Rating

The Department you belong to
14 responses

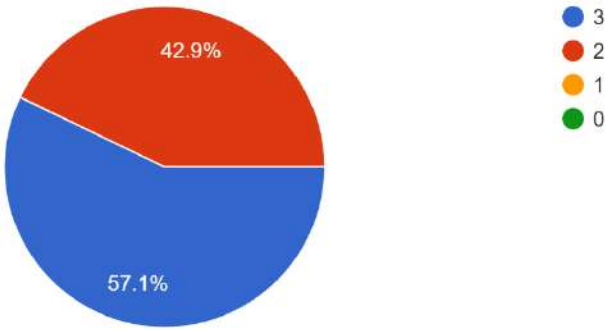


You rating of the overall organization and structure of the Critical Thinking and Problem Solving FDP.
14 responses



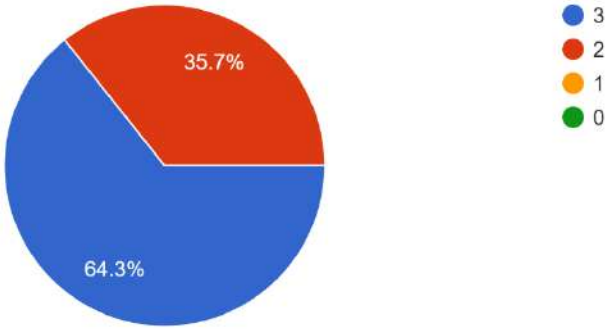
The extent to which the program enhanced your understanding and application of critical thinking and problem-solving strategies in the context of Computer Programming.

14 responses



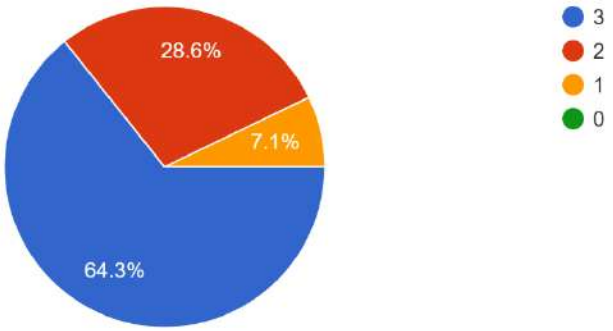
The extent of effectiveness of the practical exercises and case studies used during the FDP in facilitating the development of critical thinking skills.

14 responses



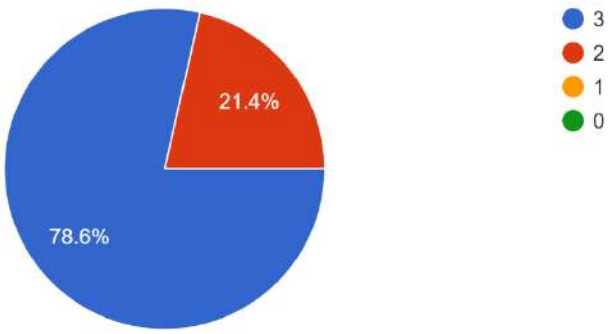
The extent to which the program adequately addressed the specific needs and challenges faced by the faculty members of CSE allied branches in fost...inking and problem-solving skills among students.

14 responses



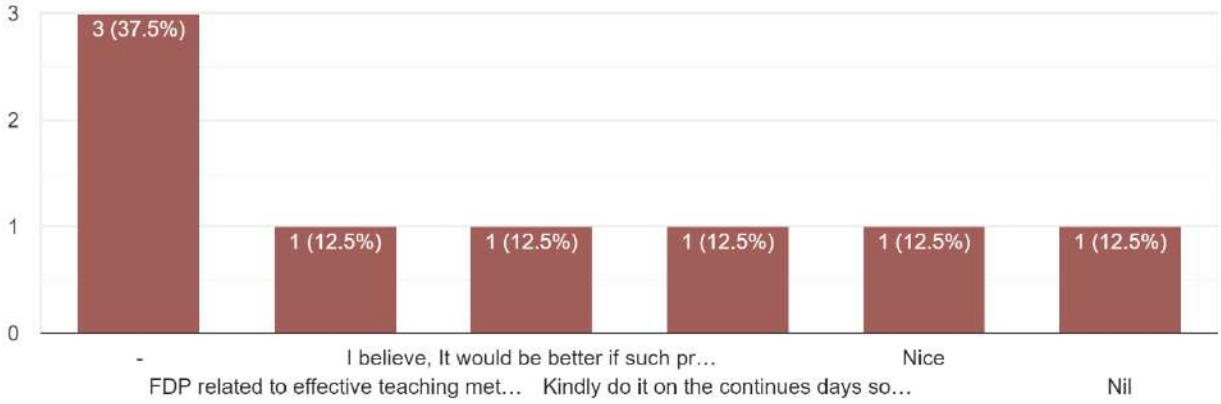
The likelihood that you will incorporate the concepts and strategies learned in the FDP into your teaching practices of Programming Subjects.

14 responses



Would you like to suggest any improvement for future Programs, if any

8 responses



Principal
Mangalore Institute of Technology & Engineering
Badaga Mijar, MOODBIDRI - 574 225

MITE – FDP

SESSION I ATTENDANCE (23rd Dec 9.15 am – 11.15 am)

Sr. No	Employee Name	Designation	Department	Signature
1.	Radha E. G.	Assistant Professor	AIML	
2.	Dr. Maryjo M. George	Assistant Professor	AIML	
3.	Vasudha G. Rao	Assistant Professor	AIML	
4.	M. Anburajam	Assistant Professor	AIML	
5.	M. Amrithavalli	Assistant Professor	AIML	
6.	Dr. Rejeesh Rayaroth	Assistant Professor	CSE	
7.	Shivaprasad T. K.	Assistant Professor	CSE	
8.	Sunitha N. V.	Assistant Professor	CSE	
9.	Amrutha	Assistant Professor	CSE	
10.	Shivraj B. G.	Assistant Professor	CSE	
11.	Jyothi Prasad	Assistant Professor	CSE	
12.	Vijayananda V. Madlur	Assistant Professor	CSE	
13.	Sandeep Seetaram Naik	Assistant Professor	IOT	
14.	Aneesh Kumar K.	Assistant Professor	IOT	
15.	Renita Pinto	Assistant Professor	ISE	
16.	Sharath Kumar	Assistant Professor	ISE	
17.	Shwetha V. Bhat	Assistant Professor	MCA	
18.	Prakash L. S.	Assistant Professor	ECE	
19.	Jayaprasad	Assistant Professor	ECE	
20.	Vishwitha A.	Assistant Professor	ECE	

To
Dr. Texcile
Asst. Dean - Academics.
23/12/23

23/12/23
Principal
Mangalore Institute of Technology & Engineering
Badaga Mijar MOODBIDRI - 574 225

MITE – FDP

SESSION I ATTENDANCE (30th Dec 9.15 am – 11.15 am)

Sr. No	Employee Name	Designation	Department	Signature
1.	Radha E. G.	Assistant Professor	AIML	
2.	Dr. Maryjo M. George	Assistant Professor	AIML	Medical Leave
3.	Vasudha G. Rao	Assistant Professor	AIML	
4.	M. Anburajam	Assistant Professor	AIML	
5.	M. Amrithavalli	Assistant Professor	AIML	
6.	Dr. Rejeesh Rayaroth	Assistant Professor	CSE	Leave
7.	Shivaprasad T. K.	Assistant Professor	CSE	
8.	Sunitha N. V.	Assistant Professor	CSE	
9.	Amrutha	Assistant Professor	CSE	ABSENT
10.	Shivraj B. G.	Assistant Professor	CSE	
11.	Jyothi Prasad	Assistant Professor	CSE	
12.	Vijayananda V. Madlur	Assistant Professor	CSE	
13.	Sandeep Seetaram Naik	Assistant Professor	IOT	
14.	Aneesh Kumar K.	Assistant Professor	IOT	
15.	Renita Pinto	Assistant Professor	ISE	
16.	Sharath Kumar	Assistant Professor	ISE	
17.	Shwetha V. Bhat	Assistant Professor	MCA	
18.	Prakash L. S.	Assistant Professor	ECE	
19.	Jayaprasad	Assistant Professor	ECE	
20.	Vishwitha A.	Assistant Professor	ECE	

Assoc. Dean & Hod

30/12/23

Mangalore Institute of Technology & Engineering
Badaga Mijar, MOODBIDRI - 574 225

MITE – FDP

SESSION I ATTENDANCE (6th Jan 2024 9.15 am – 11.15 am)

Sr. No	Employee Name	Designation	Department	Signature
1.	Radha E. G.	Assistant Professor	AIML	
2.	Dr. Maryjo M. George	Assistant Professor	AIML	
3.	Vasudha G. Rao	Assistant Professor	AIML	Medical Emerg
4.	M. Anburajam	Assistant Professor	AIML	
5.	M. Amrithavalli	Assistant Professor	AIML	
6.	Dr. Rejeesh Rayaroth	Assistant Professor	CSE	
7.	Shivaprasad T. K.	Assistant Professor	CSE	
8.	Sunitha N. V.	Assistant Professor	CSE	
9.	Amrutha	Assistant Professor	CSE	
10.	Shivraj B. G.	Assistant Professor	CSE	
11.	Jyothi Prasad	Assistant Professor	CSE	
12.	Vijayananda V. Madlur	Assistant Professor	CSE	
13.	Sandeep Seetaram Naik	Assistant Professor	IOT	
14.	Aneesh Kumar K.	Assistant Professor	IOT	
15.	Renita Pinto	Assistant Professor	ISE	
16.	Sharath Kumar	Assistant Professor	ISE	
17.	Shwetha V. Bhat	Assistant Professor	MCA	
18.	Prakash L. S.	Assistant Professor	ECE	
19.	Jayaprasad	Assistant Professor	ECE	
20.	Vishwitha A.	Assistant Professor	ECE	

Dr. Terence. Assoc. dean

6/1/24

Principal
Bangalore Institute of Technology & Engineering
Badaga Mijar, MOODBIDRI - 574 225

3. Professional Development Program on ABB Robot Programming

ABOUT THE INSTITUTION

Mangalore Institute of Technology & Engineering (MITE) was established in the year 2007, by Shri. Rajesh Chowta under the Rajalaxmi Education Trust® with perseverance for excellence, to foster innovation, and to prepare the students for a global career. Here at MITE, we believe that education is the manifestation of perfection in a human being and we instill the most needed human values and ethics in our students. MITE is an Autonomous Institution affiliated with Visvesvaraya Technological University, Belagavi and is accredited by NAAC with an A+ grade to promote research-oriented advanced courses in the field of technology and engineering. MITE is located amidst nature's bliss, the lush green, serene campus, spread over 74 acres, houses the best-in-class infrastructure offering 9 Undergraduate, one Postgraduate program in Engineering, Master of Business Administration (MBA), Master of Computer Applications (MCA) and 7 Intensive Research Programs. MITE has collaborations with Binghamton University, the State University of New York, USA, ITE West Singapore, MDIS Singapore and Kumamoto University, Japan. Center of Excellence is established by BOSCH & SIEMENS, MoU with UiPath, Infosys, KPIT, Carl Zeiss & Toyota.

ABOUT THE DEPARTMENT

The Department of Mechatronics at MITE aims not only at providing quality technical education but also strives to imbibe employability skills, build leaders of tomorrow and prepare graduates for the world at large. Mechatronics is a multidisciplinary branch of engineering that not many have traversed. Hence the joy of unraveling the unexplored is impeccable.

The Department focuses on the engineering of both electrical and mechanical systems, and also includes a combination of robotics, electronics, computer, telecommunication systems, control, and product engineering. The state-of-the-art modern classrooms, well equipped laboratories, Siemens Center of Excellence, Bosch Rexroth Center of Competence, Robotics Laboratory sets the Department apart. Dedicated faculty and innovative teaching-learning process caters to the diverse student base. While academic excellence is a priority, students are provided with best sports and cultural facilities to nurture their inherent talents.

Back to Index

Mangalore Institute of Technology & Engineering

(A unit of Rajalaxmi Education Trust ®, Mangalore)

Autonomous Institute Affiliated to V.T.U., Belagavi, Approved by AICTE, New Delhi

Accredited by NAAC with A+ Grade & ISO 9001:2015 Certified Institution

NIRF Innovation Ranking 151-300 | A+ GRADE CGPA: 3.44

Department of Mechatronics Engineering

(Accredited by NBA)

INSTITUTION'S INNOVATION COUNCIL (Ministry of Education Initiative)

in association with

MITE - Research Council

&

Madox Technologies Pvt. Ltd., Bangalore

is Organizing

A

Faculty Development Program

on

ABB ROBOT PROGRAMMING

15th to 17th July, 2024

Chief Patron

Shri. RAJESH CHOUTA
Chairman, MITE

Patron

Dr. PRASHANTH C M
Principal, MITE

Program Convener

Dr. B MOHAN KUMAR NAIK
Prof. & Head
Dept. of Mechatronics, MITE

Dr. PRADEEP B S
Dean (R&D)
Prof., Dept. of CSE, MITE

Program Co-ordinators

Dr. SANDESH NAYAK
Assistant Professor
Dept. of Mechatronics, MITE

Ms. NISHMITHA
Assistant Professor
Dept. of Mechatronics, MITE

Organizing Committee

Dr. KIRANKUMAR M V, Sr. Asst. Prof.
Mrs. RAJESHWARI, Sr. Asst. Prof.
Dr. BINDU MADHAVI J, Asst. Prof.
Mr. SANTHOSH S, Asst. Prof.
Mrs. PAVITRA KUMARI, Asst. Prof.

Back to index

OBJECTIVES OF THE PROGRAM

The Faculty Development Program on ABB Robot Programming is designed to offer participants a comprehensive understanding on Robot Basics and Concepts of Programming. Through a series of sessions, attendees will delve into the fundamentals of ABB Robots, gaining insight into the robot operation and basic robot handling. Additionally, participants will explore the RAPID programming language and different modes of robot operation. Through hands-on experience, attendees will have the opportunity to program the ABB robot and see the program being executed in different modes of operation.

COURSE CONTENT

- Introduction to the ABB IRB 1520ID robot
- Introduction to robot controller
- Hands on experience of programming ABB robot
- Experience of executing the programming in different modes of robot operation.
- Auto mode operation and advanced programming.

SESSION DETAILS

Day1:
Session 1: Introduction to the ABB IRB 1520ID robot, robot configuration, hardware, Introduction to IRC5 single cabinet controller, Teach Pendant and Robot Studio Software.
Session 2: Introduction to the RAPID programming language and steps to program the robot through robot studio software and Teach Pendant.
Day 2:
Session 3: Hands-on session of programming the robot in manual mode.
Session 4: Hands-on session of programming the robot in Auto Mode.
Day 3:
Session 5: Hands-on session of advanced robot programming

TARGET AUDIENCE

Research Scholars and Faculty Members.

PROGRAM CERTIFICATE

Candidates who attend the entire Faculty Development Program will be issued with a participation certificate.

RESOURCE PERSON

Mr. Somu K
Senior Engineer - IA Robotics
Madox Technologies Pvt. Ltd., Bangalore

REGISTRATION

https://forms.gle/XVFxDwVhki8WJrV28

CONTACT

Dr. Sandesh Nayak
Email: sandeshnayak@mite.ac.in; Phone: 9901129035

Ms. Nishmitha
Email: nishmithad@mite.ac.in; Phone: 9743825940

A

Report

on

Faculty Development Program on

ABB Robot Programming

In association with

MITE – Research Council
&
Madox Technologies Pvt. Ltd., Bangalore

Provided by

Mr. Somu K

Senior Engineer – IA Robotics

Madox Technologies Pvt. Ltd., Bangalore

15th to 17th July, 2024

at

Department of Mechatronics Engineering
(Accredited by NBA)

Mangalore Institute of Technology & Engineering,

Moodbidri, Mangalore

Date: 15th to 17th July, 2024 **Venue: Robotics Laboratory**

A Faculty Development Program on "ABB Robot Programming" was inaugurated at the Robotics Laboratory on 15/07/2024. Dignitaries Dr. B Mohan Kumar Naik, HOD of Mechatronics Engineering, Dr. Pradeep B S, Dean (R&D), the Resource person Mr. Somu K, Senior Engineer – IA Robotics, Madox Technologies Pvt. Ltd., Bangalore and Coordinators of the FDP were present. The FDP aims to provide faculty members and staff opportunities to enrich their teaching skills and research in Industrial Robots.

Topics Covered During the Training:

Day 1 (15/07/2024)

Session 1

The basics of the ABB Robot Training Cell, by providing technical information about the axes and rotational capabilities of IRB 1520ID robot. To jog the robot through flex pendant and to familiarize themselves with the human-machine interface.

Session 2

The different modes through which the robot can be operated and also the axes through which the user can jog it for teaching targets and hands-on experience in defining targets and interpolating motion through flex-pendant.

Day 2 (16/07/2024)

Session 3

Hands-on session of programming the robot in manual mode.

Session 4

Hands-on session of programming the robot in Auto Mode.

Day 3 (17/07/2024)

Session 5

Hands-on session of advanced robot programming.

Photos during the FDP on
ABB Robot Programming

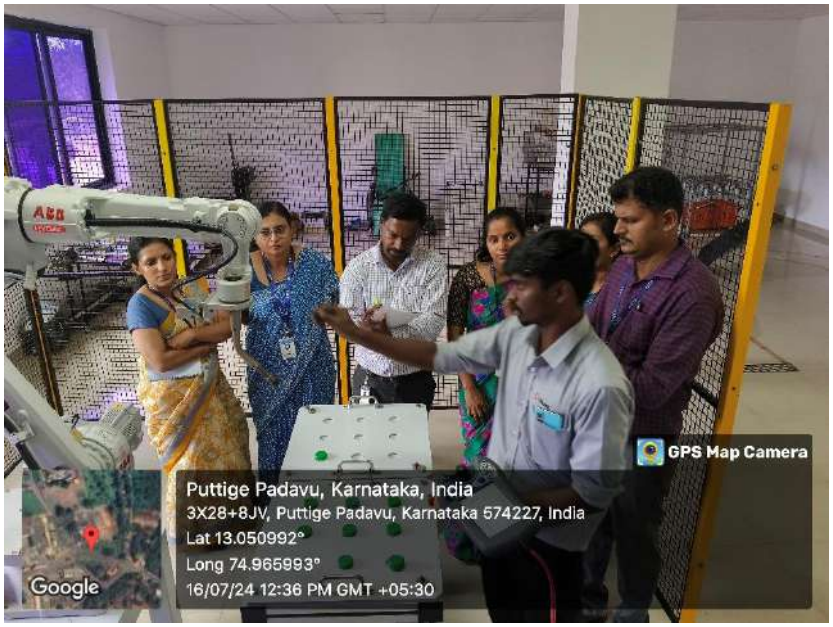


Photo while delivering session by resource person

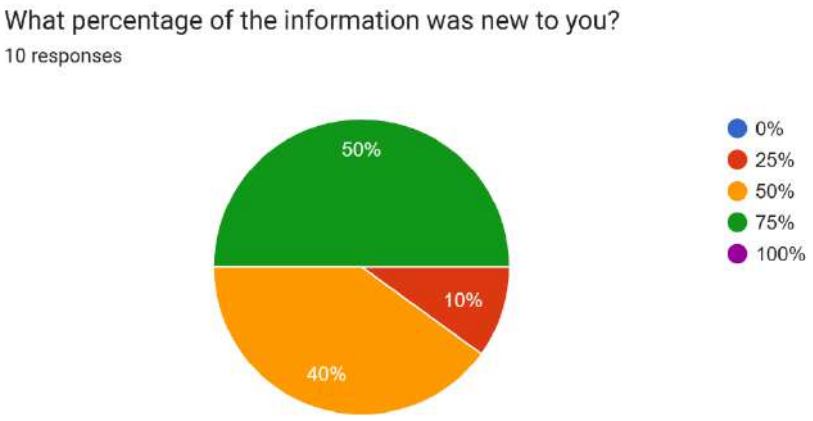
Photo during a practice session by participants

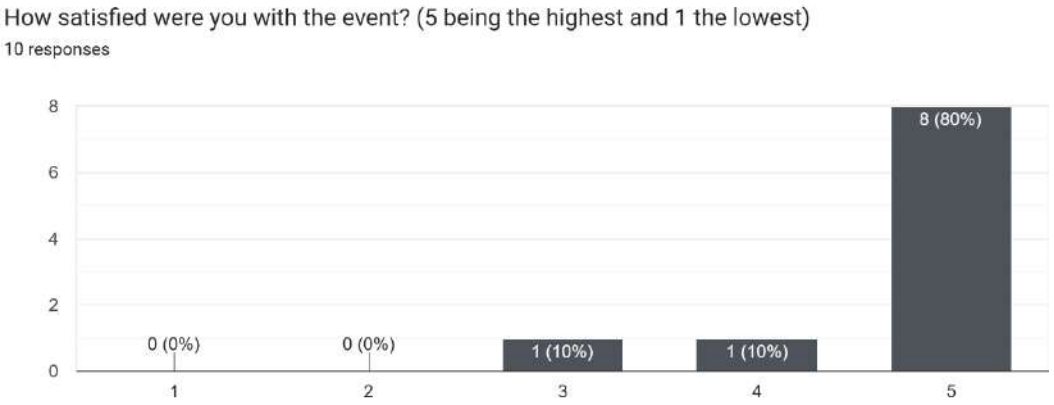
Group photo with Resource Person

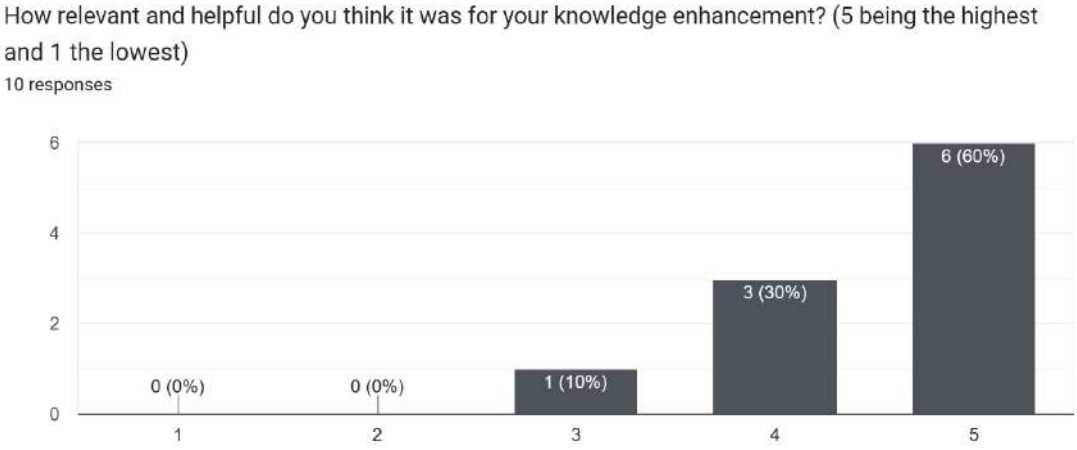
Feedback Analysis of

FDP on

ABB Robot Programming

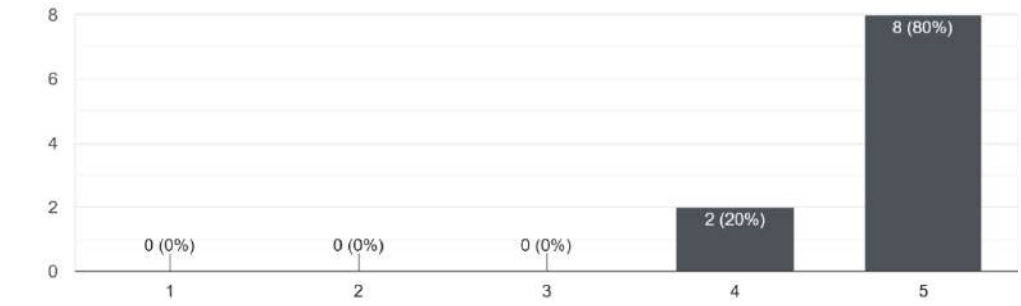






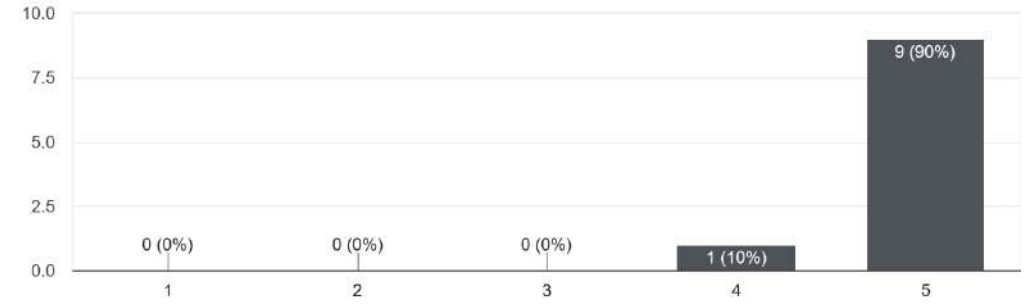
Instructor was an effective Trainer/demonstrator

10 responses



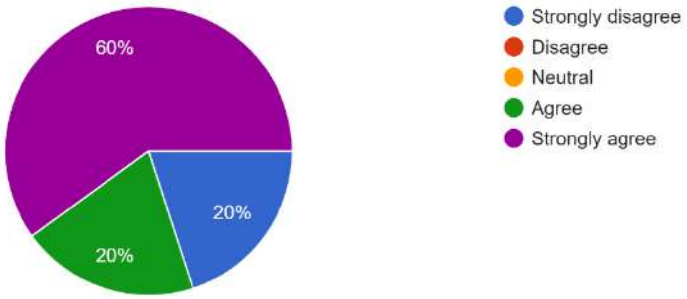
Instructor stimulated participants interest

10 responses



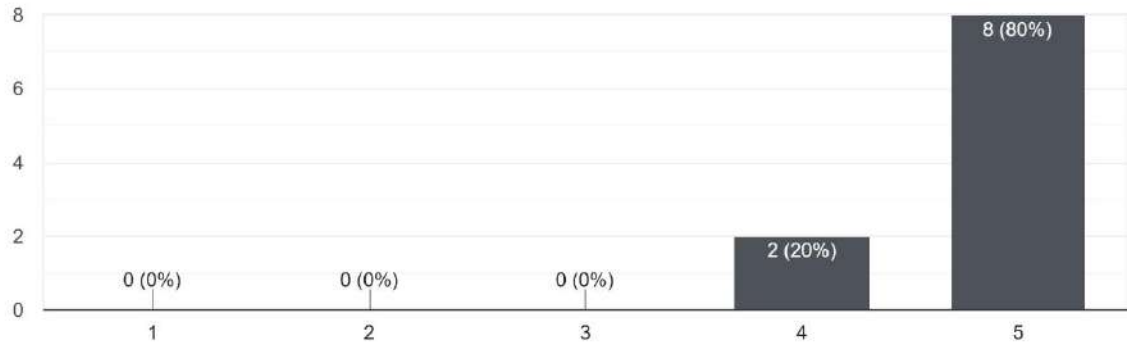
Instructor was available and helpful

10 responses



How satisfied were you with the session content?

10 responses



What were your key take away from this event?

10 responses

- Enhanced my knowledge in ABB robot programming for effective classroom delivery
- Hands-on session
- Robot Programming
- Hands on experience of programming the robot.
- Robot Demo,Programming
- Practical skills in programming and operating robots
- Basic Robot operation and programming Understood
- Technical knowledge
- Different Operation of Robot

Overall feedback for the event/ Suggestions for improvement

10 responses

Good
Good
-
Provide time in correlation to class/lab timing (which I know is difficult)
NA
Nil
Session was good

****

List of Participants Registered and Attended the FDP

MANGALORE INSTITUTE OF TECHNOLOGY & ENGINEERING

(A unit of Rajalaxmi Education Trust ®, Mangalore)
Autonomous Institute Affiliated to V.T.U., Belagavi, Approved by AICTE, New Delhi
Accredited by NAAC with A+ Grade & ISO 9001:2015 Certified Institution

DEPARTMENT OF MECHATRONICS ENGINEERING
(Accredited by NBA)

A Faculty Development Program on
"ABB ROBOT PROGRAMMING"

15th to 17th July, 2024

Attendance List

Sl. No	Name	Designation	Department	Signature				
				15/07/2024		16/07/2024		17/07/2024
				FN	AN	FN	AN	FN
1	Dr. Sandesh Nayak	Asst Prof.	Mechatronics					
2	Pavitha Kamari	Asst. Prof	Mechatronics					
3	Dr. BINDU. J.	Asst. Prof.	mechatronics					
4	Dr. B. Mohankar Naik	Prof. Coord	MT					
5	Dr. Kiran Kumar M V	Sr Asst Prof	Mechatronics	-	-			
6	Mrs. Rajeshwari	Sr. Asst Prof	Mechatronics					
7	Mr. Santhosh S	Asst. Prof	Mechatronics					
8	Ms Nishmitha	Asst. Prof	Mechatronics					
9	Ms. Deekshita	Lab Instructor	Mechatronics					
10	Mrs. Deekshitha	Lab Foreman	Mechatronics					
11	Mr. Yogisha	lab Instructor	Mechatronics					
12	Mr. Ezhilmaran	Asst. Prof.	AERO					
13	Dr. Madhavaraj V	Sr. Asst. Prof	AERO					
14	MR. B Shankar Bhoor	Asst Prof	ME					
15	Dr. Aveen K. P	Sr. Asst. Prof	ME					
16								
17								
18								
19								
20								
21								
22								

Dr. Sandesh Nayak
Ms. Nishmitha
Co-ordinators

Dr. Pradeep B S
Dean (R&D)
Prof., Dept of CSE

Dr. Pradeep B S
Dean (Research)
Professor, Dept. of Computer S.C & Engg
Mangalore Institute of Technology & Engineering
Moodabidri - 574225

Dr. Mohan Kumar Naik
HOD
Mechatronics Dept
Head of the Dept. of Mechatronics Engg
Mangalore Institute of Technology & Engineering
Badaga Mijar MOODBIDRI 574225

4. Faculty Development Program on Future Tech Fusion: Unleashing Innovation with MATLAB and Simulink for communication, AI, IoT and Electric Vehicle Modelling

Agenda

- Modeling and Analyzing Communication System in MATLAB
- MATLAB features for EV, AI & IoT
- Modeling & Analyzing in MATLAB
- Development Planning
- Q&A

Registration

https://forms.gle/D5oGb34AHKk5PbNM9

Registration Closes by 25th January, 2024

Chief Patron

Mr. Rajesh Chouta
Chairman, MITE

Patron

Dr. Prashanth C M
Principal, MITE

Program Coordinator

Dr. Vinayambika S Bhat
Convener - IQAC

Program Co-coordinator

Mr. Avinash N J
Asst. Professor, Dept. of ECE

Resource Person (s)

Mr. Rakshith B S
Senior Application Engineer
MathWorks Products, Bengaluru

&

Mr. Avinash Vulasa
Application Engineer
MathWorks Products, Bengaluru

INSTITUTION'S INNOVATION COUNCIL

nirf 151-300

A+ GRADE CGPA: 3.44

MANGALORE INSTITUTE OF TECHNOLOGY & ENGINEERING
(A unit of Rajalaxmi Education Trust ®, Mangalore)
Autonomous Institute Affiliated to V.T.U., Belagavi, Approved by AICTE, New Delhi
Accredited by NAAC with A+ Grade & an ISO 9001:2015 Certified Institution
Badaga Mijar, Moodabidri, Mangaluru Tq, D.K. Dist., Karnataka-574225
http://www.mite.ac.in

Faculty Development Program
on

"Future Tech Fusion: Unleashing Innovation with MATLAB and Simulink for Communication, AI, IoT, and Electric Vehicles Modeling"

8th to 10th February, 2024

Organized by

Internal Quality Assurance Cell (IQAC)
MITE

In association with

MathWorks

CoreEL Technologies
Enabling Excellence

About MITE

Mangalore Institute of Technology & Engineering, Moodbidri is a leading Engineering & Management Institution in the region, established in the year 2007 by the Rajalaxmi Education Trust under the leadership of the Visionary Mr. Rajesh Chouta. The institute is accredited by NAAC with A+ Grade, offers 9 Under-Graduate (6 NBA accredited programmes), 3 Post Graduate and 7 research programmes in its beautiful serene green campus. The institute is placed in highest category platinum ranking in AICTE-CII survey 2020 of industry linked technical institutes in India and ranked in Band - Excellent in the private institute category under ATAL Ranking of Institutions on Innovation Achievements (ARIIA) during the year 2020 and 2021 respectively. The institute known for its high academic standards, has registered 34 University Ranks over the last 6 years as a reference to the quality teaching learning pedagogy. MITE has collaborations with industries of repute.

The industry-standard Incubation Centre is supported by the Government of Karnataka and MSME, Government of India to support budding entrepreneurs. MITE was awarded as the "Best Performing College of the Year 2019-20" by KSCST & the students have received several Top Awards at National and State Level events. With an intent to shape globally competent graduates, MITE has established a campus that would aid students to manifest their true selves by promoting effective learning, and creativity, to ensure that they become formidable individuals to "INVENT SOLUTIONS".

Vision

To attain perfection in providing **Globally Competitive Quality Education** to all our Students and also benefit the global community by using our strength in **Research and Development**.

Mission

To establish world class educational institutions in their respective domains, which shall be **Centre of Excellence** in their stated and implied sense. To achieve this objective, we dedicate ourselves to meet the Challenges of becoming **Visionary and Realistic, Sensitive and Demanding, Innovative and Practical, Theoretical and Pragmatic**; ALL at the same time.

About Internal Quality Assurance Cell

The institute has established IQAC as per National Assessment and Accreditation Council (NAAC) guidelines in 2013. Since quality enhancement is a continuous process, the IQAC becomes a part of the institution's system and works towards the realization of the goals of quality enhancement and sustenance. The IQAC ensures the effective implementation of quality initiatives through continuous reviews and periodic meetings. The IQAC works towards attaining excellence in all the academic activities and for continuous improvement in teaching-learning process.

Objectives:

- To develop a system for conscious, consistent and catalytic action to improve the academic performance of the institution.
- To promote measures for institutional functioning towards quality enhancement through internalization of quality culture and institutionalization of best practices.

About MathWorks & CoreEL Technologies

MathWorks is the developer of mathematical computing software for Engineers and Scientists. MathWorks is leading worldwide supplier of technical computing software. The business activities are characterized by quality, innovation, and timeliness; competitive awareness; ethical business practices; and outstanding service to the customers. MathWorks actively support local and professional communities through initiatives that advance STEM education, foster staff volunteerism, build environmental sustainability, and aid global relief efforts.

CoreEL Technologies is driven by innovation and a multi-disciplinary approach towards technology. CoreEL offer innovative solutions ranging from Intellectual Property (IP) cores, Design and Development, System Design and Prototype Development, Next-Gen Digital products, Integrated solutions, Low Volume Manufacturing, System Upgrades, Obsolescence management, EDA tools, COTS products, to Semiconductor solutions, and Technology Training.

SCHEDULE OF FDP

DAY-1
08/02/2024 (Thursday)
Signal Processing and Wireless Communications

Time	Topic
10:00 am-12:30 pm	➢ **Signal Processing** ▪ Introduction to Signal Processing ▪ Signal Generation and Measurement ▪ Acquiring Real World Signals ▪ Signal Analysis and Visualization ▪ Signal preprocessing ▪ Signal Filter Design and Analysis
2:00 pm-4:00 pm	➢ **Wireless Communications** ▪ Communication System Design Paradigms ▪ Modeling and Analyzing Communication System in MATLAB ▪ Model Based Design, Modeling and Analyzing Communication System in Simulink ▪ Wireless Waveform Generation ▪ Wireless System Modeling

DAY-2
09/02/2024 (Friday)
Electric Vehicle Modeling

Time	Topic
10:00 am-12:30 pm	▪ Overview of Model Based Design ▪ System Modeling Paradigms: ▪ Introduction to Simulink ▪ Introduction to Simscape ▪ Modeling and Analyzing Dynamic Systems ▪ Control System Design
2:00 pm-4:00 pm	▪ Modeling Electric Motor ▪ Battery Modeling and Battery Management System (BMS) ▪ Electric Vehicle Architecture ▪ Vehicle Modeling and Simulation

DAY-3
10/02/2024 (Saturday)
IoT and Artificial Intelligence

Time	Topic
10:00 am-12:30 pm	➢ **IoT using with MATLAB and ThingSpeak** ▪ Importing and Exporting Data in MATLAB ▪ IoT Workflows using MATLAB ▪ Introduction to ThingSpeak ▪ Reading and Writing Data in ThingSpeak ▪ Analysis and Visualization in ThingSpeak ▪ Act on Data in ThingSpeak
2:00 pm-4:00 pm	➢ **Artificial Intelligence using MATLAB** ▪ Introduction to Artificial Intelligence ▪ Unsupervised and Supervised Learning ▪ Using Pretrained Neural Networks for Image Classification ▪ Feature Extraction for Machine Learning ▪ AI for Signal Data ▪ AI for Image Data

MANGALORE INSTITUTE OF TECHNOLOGY & ENGINEERING

(A unit of Rajalaxmi Education Trust ®, Mangalore)

Autonomous Institute Affiliated to V.T.U., Belagavi, Approved by AICTE, New Delhi

Accredited by NAAC with A+ Grade & an ISO 9001:2015 Certified Institution

Badaga Mijar, Moodabidri, Mangaluru Tq, D.K. Dist., Karnataka-574225

MITE

Invent Solutions

INSTITUTION'S INNOVATION COUNCIL

(Ministry of Education Initiative)

nirf Innovation Ranking 151-300

NAAC A+ GRADE CGPA: 3.44

Report

Faculty Development Program (FDP)

on

"Future Tech Fusion: Unleashing Innovation with MATLAB and Simulink for Communication, AI, IoT, and Electric Vehicles Modeling"

Date: 08.02.2024 to 10.02.2024

Organized by

Internal Quality Assurance Cell (IQAC)

In association with

MathWorks

CoreEL Technologies

Enabling Excellence

Faculty Development Program
on
"Future Tech Fusion: Unleashing Innovation with MATLAB and Simulink for Communication, AI, IoT, and Electric Vehicles Modeling"

Internal Quality Assurance Cell (IQAC), MITE organized a Faculty Development Program (FDP) on **"MATLAB Mastery: Crafting Innovative Workflows for Physical Modeling and Analysis Future Tech Fusion: Unleashing Innovation with MATLAB and Simulink for Communication, AI, IoT, and Electric Vehicles Modeling"** from 8th February 2024 to 10th February 2024 in association with **MathWorks & CoreEL** Technologies, Bangalore.

About MathWorks & CoreEL Technologies:

MathWorks is the developer of mathematical computing software for Engineers and Scientists. MathWorks is a leading worldwide supplier of technical computing software. The business activities are characterized by quality, innovation, and timeliness; competitive awareness; ethical business practices; and outstanding service to the customers. MathWorks actively supports local and professional communities through initiatives that advance STEM education, foster staff volunteerism, build environmental sustainability, and aid global relief efforts.

CoreEL Technologies is driven by innovation and a multi-disciplinary approach towards technology. CoreEL offers innovative solutions ranging from Intellectual Property (IP) cores, Design and Development, System Design and Prototype Development, Next-Gen Digital products, Integrated solutions, Low Volume Manufacturing, System Upgrades, Obsolescence management, EDA tools, COTS products, to Semiconductor solutions, and Technology Training.

The resource person of the Faculty development Program:

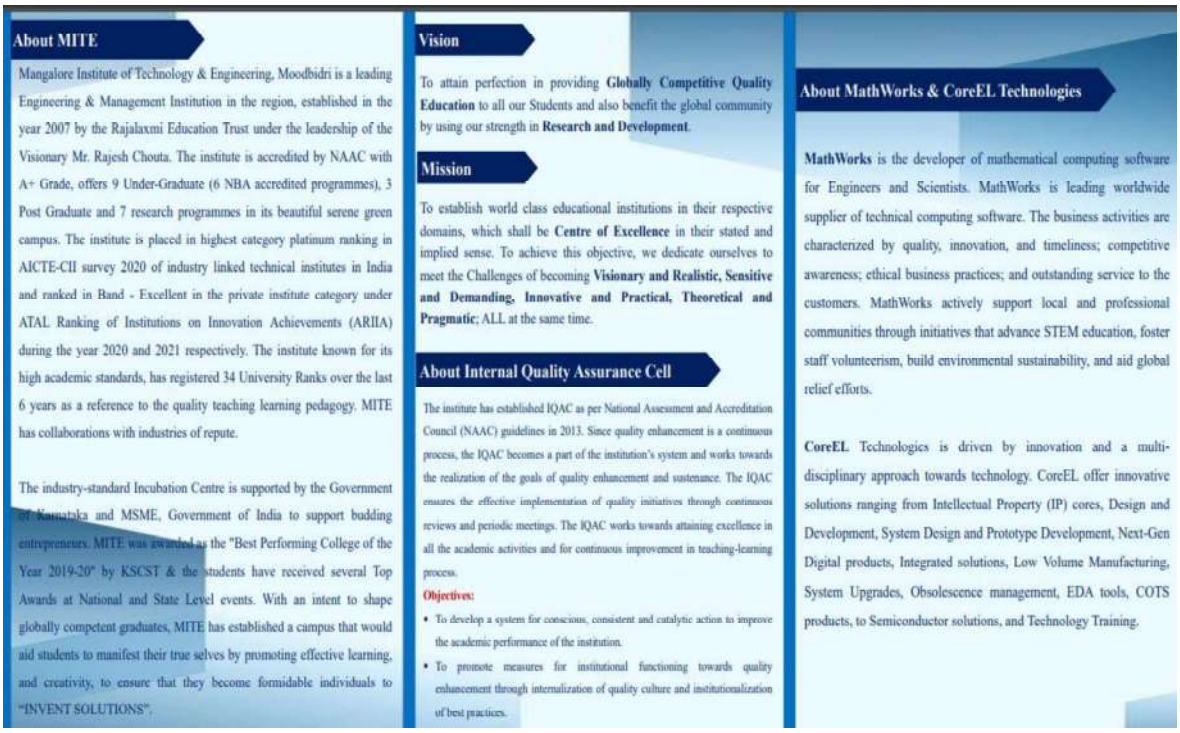
Mr. Avinash Vulasa, Application Engineer, MathWorks Products, Bengaluru

Resource Person Profile:

Mr. Avinash Vulasa is the Application Engineer for Mathworks products at CoreEL Technologies, Bengaluru. He holds a B.E degree from JNNIT. He has 5 years of extensive experience in Technical Education. He is currently providing technical engagement and solutions to educational institutions as a part of the CoreEL University Program for the past 2.5 years.

Mr. Rakshith B S, Senior Application Engineer, MathWorks Products, Bengaluru

Mr. Rakshith B S is the Senior Application Engineer for Mathworks products at CoreEL Technologies, Bengaluru. He holds a B.E degree from GSSIT, Karnataka. He has 10 years of extensive experience in Technical Education. He is currently providing technical engagement and solutions to educational institutions as a part of the CoreEL University Program.



DAY – 1 || 8th February 2024

Brief about the event:

SESSION-1

Signal Processing

Resource person have focused on how to enhance the knowledge of signal processing basics like analysis, manipulation, and interpretation of signals. He explained signals can be any form of data that varies over time, such as audio, video, images, or sensor readings. Signal processing techniques are crucial in various industries, including telecommunications, medical imaging, radar, sonar, and more. Participants mainly deal with the following topics during the session

Signal Generation and Measurement:

Signal generation involves creating artificial signals for testing or simulation purposes. This can include synthesizing audio waveforms, generating test patterns for electronic circuits, or creating simulated sensor data. Signal measurement involves capturing real-world signals using various devices such as sensors, microphones, cameras, or antennas.

Acquiring Real-World Signals:

Acquiring real-world signals involves the process of capturing data from physical phenomena. This can be done through sensors, transducers, or other data acquisition systems. The acquired signals may be analog or digital and can vary widely in terms of frequency, amplitude, and complexity.

Signal Analysis and Visualization:

Signal analysis involves extracting meaningful information from raw data. This can include identifying patterns, trends, or anomalies within the signal. Visualization techniques are used to represent the data in a way that is understandable and interpretable, often through graphs, spectrograms, or other visualizations.

Signal Preprocessing:

Signal preprocessing is the initial stage of signal processing where the raw data is cleaned, filtered, and transformed to improve its quality or prepare it for further analysis. Preprocessing techniques may include noise removal, signal normalization, feature extraction, or data resampling.

Signal Filter Design and Analysis:

Signal filters are used to modify or enhance signals by selectively passing certain frequencies while attenuating others. Filter design involves selecting appropriate filter types (e.g., low-pass, high-pass, band-pass) and designing their parameters to achieve the desired filtering characteristics. Filter analysis evaluates the performance of the filter in terms of frequency response, phase response, and other criteria.

The resource person concluded session 1 by saying, that signal processing plays a fundamental role in modern technology and scientific research, enabling us to extract valuable information from raw data and improve our understanding of the world around us. From telecommunications to medical diagnostics, signal processing techniques continue to advance, driving innovation and progress in numerous fields.

SESSION-2

Wireless Communications

Resource person has focused on Wireless communications, and how wireless communication has become ubiquitous in modern society, enabling connectivity and data exchange across various devices without the constraints of physical wires. This report delves into the

intricacies of wireless communication system design paradigms, modeling, analysis, and simulation techniques using MATLAB and Simulink. Additionally, it examines wireless waveform generation and system modeling for comprehensive understanding and optimization.

Communication System Design Paradigms:

Wireless communication system design encompasses various paradigms tailored to specific requirements and constraints. These paradigms include frequency division multiple access (FDMA), time division multiple access (TDMA), and code division multiple access (CDMA).

Modeling and Analyzing Communication Systems in MATLAB:

MATLAB serves as a powerful platform for modeling and analyzing communication systems due to its extensive library of functions, simulation capabilities, and user-friendly interface. MATLAB's versatility allows for rapid prototyping and iterative refinement of communication system designs, facilitating efficient development processes.

Model-Based Design, Modeling, and Analyzing Communication Systems in Simulink:

Simulink complements MATLAB by providing a graphical environment for model-based design and simulation of communication systems. With Simulink, designers can construct block diagrams representing system components and their interactions, facilitating intuitive visualization and analysis. Simulink's simulation capabilities enable dynamic system simulation, allowing designers to validate system functionality, assess performance, and optimize parameters. Integration with MATLAB enables a seamless transition between modeling, simulation, and implementation stages, streamlining the design workflow and enhancing productivity.

Wireless Waveform Generation:

Wireless waveform generation involves the creation of electromagnetic signals carrying information for transmission over wireless channels. This process entails modulation techniques such as amplitude modulation (AM), frequency modulation (FM), and phase modulation (PM). The choice of waveform and modulation scheme depends on factors such as bandwidth efficiency, robustness to noise, and compatibility with transmission medium and receiver hardware.

Wireless System Modeling:

Wireless system modeling encompasses the representation and analysis of various system components, including transmitters, receivers, antennas, propagation channels, and signal processing algorithms. Through modeling, designers can evaluate system performance, predict behavior under different operating conditions, and identify potential bottlenecks or vulnerabilities.

Designing an App

- Define UI layout
- Drag & Drop UI elements
- Develop code for auto-generated callbacks
- MATLAB App Designer | MATLAB Web App Server
- Sharing Apps
- Package apps for use on MATLAB Desktop & Online
- Create standalone apps using MATLAB & Simulink Compilers
- Deploy as interactive web apps and share using MATLAB
- Web App Server

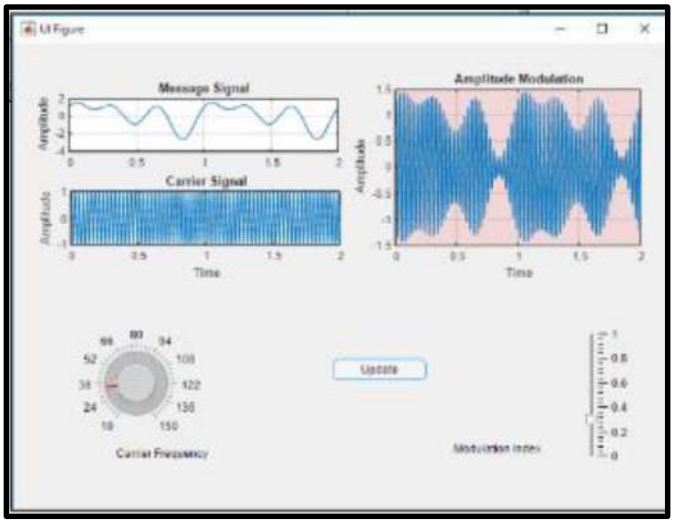


Fig: Designed Amplitude Modulation App using MATLAB

Finally, the resource person concluded the session by explaining Wireless communications continue to evolve, driven by technological advancements and growing demands for connectivity and mobility. Effective design, modeling, and analysis are essential for developing robust and efficient wireless communication systems that meet the requirements of diverse applications. MATLAB and Simulink serve as indispensable tools for communication

system designers, providing versatile platforms for innovation, experimentation, and optimization in the dynamic field of wireless communications

DAY – 2 || 9th February 2024

SESSION-3

The Resource person has focused on the following topics

Model-Based Design (MBD) is a methodology utilized in engineering and software development for designing and analyzing systems. It involves creating models of systems under consideration to simulate, analyze, and optimize their behavior before implementation. This report provides an overview of key aspects of Model-Based Design, including system modeling paradigms, tools like Simulink and Simscape, and the process of modeling and analyzing dynamic systems and control system design.

System Modeling Paradigms

System modeling paradigms form the foundation of Model-Based Design. These paradigms provide structured approaches for representing various aspects of a system. Common paradigms include

- **Continuous-Time Modeling**: Which involves representing systems where changes occur continuously over time, such as physical systems governed by differential equations.
- **Discrete-Time Modeling**: Deals with systems that evolve in discrete steps, often used in digital signal processing and control systems.
- **Hybrid Systems Modeling:** Combines aspects of continuous and discrete-time modeling to capture systems with both continuous and discrete dynamics.

Introduction to Simulink

Simulink is a widely used graphical modeling environment developed by MathWorks for Model-Based Design. It provides a block diagram interface for modeling, simulating, and analyzing dynamic systems. Key features of Simulink include:

- **Graphical Interface:** Allows users to construct models using blocks representing various system components and connect them to define system behavior.

- **Simulation Capabilities:** Enables simulation of models to predict system behavior under different conditions and inputs.
- **Integration with MATLAB:** Seamlessly integrates with MATLAB for data analysis, algorithm development, and custom script integration.
- **Automatic Code Generation:** Facilitates automatic generation of code from models for implementation in embedded systems and hardware.

Introduction to Simscape

Simscape is an extension of Simulink that focuses on physical modeling and simulation of multidomain systems. It enables engineers to model and simulate the behavior of physical systems by representing components such as electrical circuits, mechanical systems, and hydraulic systems. Key features of Simscape include

- **Component Libraries:** Provides libraries of pre-built components representing physical elements such as resistors, motors, valves, etc.
- **Multidomain Simulation:** Allows modeling and simulation of systems involving interactions between multiple physical domains, such as electrical, mechanical, and thermal.
- **Custom Component Creation:** This enables users to create custom components to represent unique system elements not covered by built-in libraries.

Modeling and Analyzing Dynamic Systems

Modeling and analyzing dynamic systems are fundamental tasks in Model-Based Design. This involves

- **System Identification:** Determining mathematical models that describe the behavior of the system based on experimental data or theoretical analysis.
- **Model Validation:** Verifying the accuracy of models by comparing simulation results with experimental data or known analytical solutions.
- **Simulation and Analysis:** Performing simulations to understand system behavior under different conditions, analyze performance metrics, and optimize system design parameters.

Control System Design is a crucial aspect of Model-Based Design, especially for systems requiring regulation or manipulation of outputs to achieve desired behavior. This involves:

- **Controller Design:** Designing control algorithms to regulate system behavior based on desired performance criteria.

- **Closed-Loop Simulation:** Simulating closed-loop control systems to evaluate controller performance and stability.
- **Tuning and Optimization:** Adjusting controller parameters to optimize system performance, stability, and robustness.

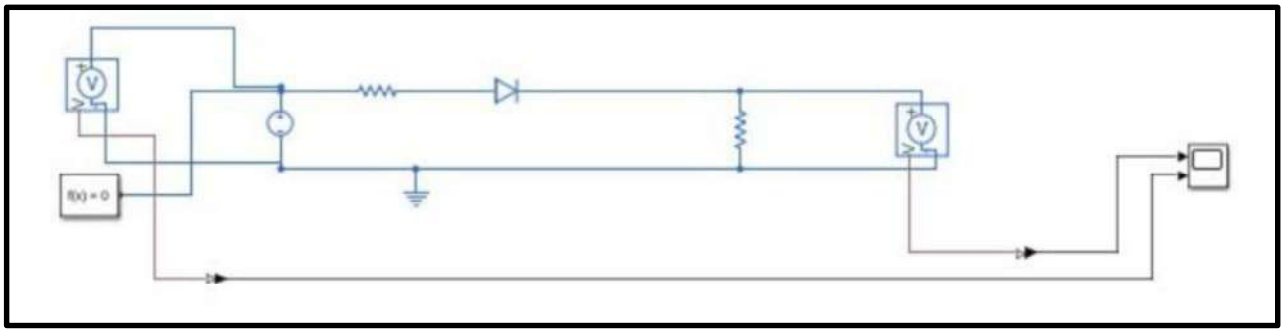


Fig: AC-DC converter designed using Simulink

Session1 concluded with Simulink tool and Simscape library which provide powerful environments for building, simulating, and analyzing models, making the design process more efficient and effective.

SESSION-4

The Resource person has focused on the following topics

Introduction

Modeling electric motors and electric vehicle (EV) systems are crucial for the design, analysis, and optimization of electric propulsion systems. This report provides an overview of key aspects of modeling electric motors, battery systems, electric vehicle architecture, and vehicle simulation.

Battery Modeling and Battery Management System (BMS)

- **Battery Modeling:** Modeling batteries involves capturing their electrical characteristics, such as voltage, current, and state of charge (SoC), as well as their thermal behavior. Various battery models exist, ranging from simple empirical models to complex electrochemical models.
- **Battery Management System (BMS):** The BMS is responsible for monitoring and managing the battery pack's health, performance, and safety. It includes functions such as SoC estimation, cell balancing, thermal management, and fault detection. Modeling the BMS involves simulating these functions to ensure optimal battery operation.

Electric Vehicle Architecture

- **Powertrain Architecture:** Electric vehicles have different powertrain architectures, including battery electric vehicles (BEVs), plug-in hybrid electric vehicles (PHEVs), and hybrid electric vehicles (HEVs).
- **Vehicle Dynamics:** Modeling vehicle dynamics involves capturing the interactions between the electric propulsion system, vehicle body, suspension, and tires. This includes modeling acceleration, braking, steering, and stability control systems.

Electric Motor Modeling

- **Motor Characteristics:** Electric motors exhibit nonlinear behavior influenced by factors such as torque-speed curves, efficiency maps, and thermal limits. Modeling electric motors requires representing these characteristics accurately to predict performance and optimize control strategies.
- **Drive Systems:** Modeling electric motor drive systems involves simulating components such as inverters, converters, and controllers. This includes modeling power electronics, pulse-width modulation (PWM) techniques, and control algorithms to regulate motor operation.

Vehicle Modeling and Simulation

- **Energy Consumption and Range Estimation**: Simulating vehicle dynamics and powertrain operation allows for accurate estimation of energy consumption and driving range under different driving conditions. This information is critical for vehicle design and optimization.

Modeling electric motors and electric vehicle systems is essential for designing efficient, reliable, and high-performance electric propulsion systems. By accurately capturing the behavior of batteries, motors, power electronics, and vehicle dynamics, engineers can optimize system design, improve energy efficiency, and enhance overall vehicle performance. Advanced simulation tools and modeling techniques play a key role in the development of electric vehicles, enabling rapid prototyping, virtual testing, and system optimization.

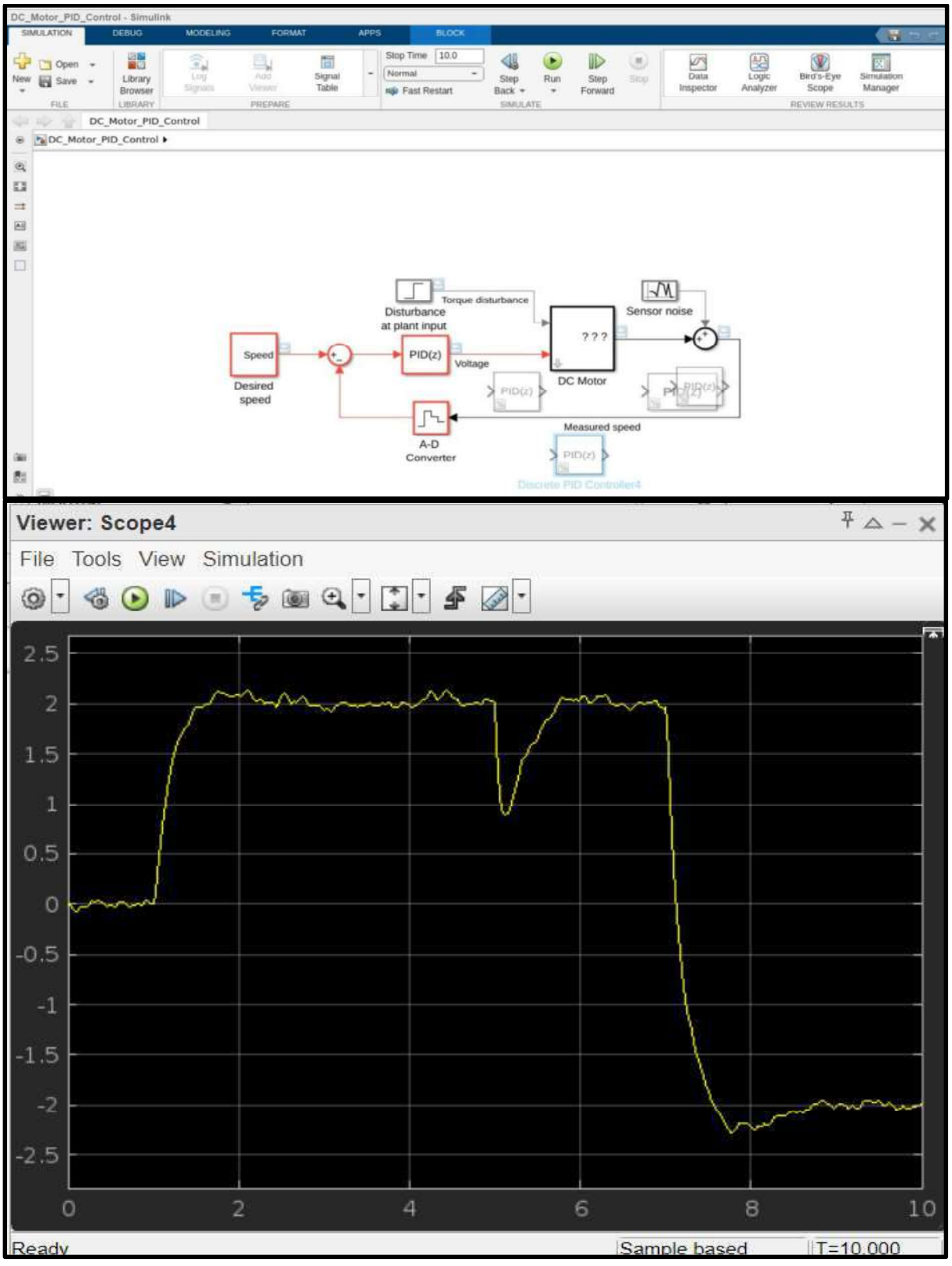


Fig: Designed DC Motor PID Controller

DAY – 3 || 10th February 2024

SESSION-5

Session 1 IoT using with MATLAB and ThingSpeak

The resource person briefed the following topics

Introduction to IoT

The Internet of Things (IoT) has revolutionized the way we interact with the physical world by connecting devices and sensors to the internet. MATLAB, a powerful computational tool, can be seamlessly integrated with IoT platforms like ThingSpeak to analyze and visualize data collected from connected devices. This report explores the integration of IoT with MATLAB, focusing on data import/export, IoT workflows, and utilizing ThingSpeak for data management, analysis, and visualization.

Importing and Exporting Data in MATLAB

MATLAB provides various functions and tools for importing and exporting data from different sources, including IoT devices and platforms. These include:

- **Data Import:** MATLAB supports importing data from files, databases, web services, and IoT platforms. For IoT applications, data can be imported from sensors connected to microcontrollers or directly from IoT platforms like Thing Speak.
- **Data Export:** MATLAB enables exporting processed data to various formats, databases, or IoT platforms for further analysis, visualization, or sharing. This facilitates the integration of MATLAB with IoT workflows.

IoT Workflows using MATLAB

MATLAB offers comprehensive support for building IoT workflows, including:

- **Data Acquisition:** MATLAB provides tools for collecting data from IoT devices and sensors, either directly or through IoT platforms. This data can be processed and analyzed using MATLAB's powerful computational capabilities.
- **Data Processing and Analysis:** MATLAB allows for advanced data processing and analysis, including filtering, feature extraction, machine learning, and statistical analysis. These capabilities enable the extraction of valuable insights from IoT data.

.

- **Decision Making and Control:** MATLAB can be used to develop algorithms for decision-making and control based on IoT data. This includes predictive maintenance, anomaly detection, optimization, and control strategies for IoT-enabled systems.

Introduction to ThingSpeak

ThingSpeak is an IoT platform developed by MathWorks that enables users to collect, analyze, and visualize data from IoT devices in real time. Key features of ThingSpeak include:

- **Channel-based Architecture:** ThingSpeak organizes data into channels, where each channel represents a stream of data from a specific source or sensor. Users can create multiple channels to collect data from different sources.
- **Data Logging:** ThingSpeak logs and stores incoming data in a cloud-based database, making it accessible from anywhere with an internet connection. This enables historical analysis and trend monitoring.

Reading and Writing Data in ThingSpeak

- **Data Acquisition:** ThingSpeak provides APIs and interfaces for reading data from sensors and devices connected to the platform. Data can be sent to ThingSpeak using HTTP requests, MQTT, or other protocols supported by IoT devices.
- **Data Visualization:** ThingSpeak offers built-in visualization tools for creating custom plots, charts, and gauges to visualize real-time and historical data. This enables users to monitor trends, detect patterns, and identify anomalies in IoT data.

Analysis and Visualization in ThingSpeak

- **Data Analysis:** ThingSpeak supports MATLAB Analytics, allowing users to perform advanced data analysis and processing using MATLAB scripts directly within the platform. This enables the implementation of custom algorithms for real-time data processing.
- **Visualization:** ThingSpeak provides interactive visualizations, including time series plots, histograms, and scatter plots, for exploring and interpreting IoT data. Users can customize visualization settings to suit their specific needs.

Act on Data in ThingSpeak

- **React to Data:** ThingSpeak allows users to define custom rules and triggers based on incoming data. These rules can trigger actions such as sending notifications, controlling actuators, or initiating other IoT workflows based on specified conditions.

- **Integration with External Systems:** ThingSpeak supports integration with external systems and services through webhooks and APIs. This enables seamless interaction between ThingSpeak and other IoT platforms, cloud services, or enterprise systems.

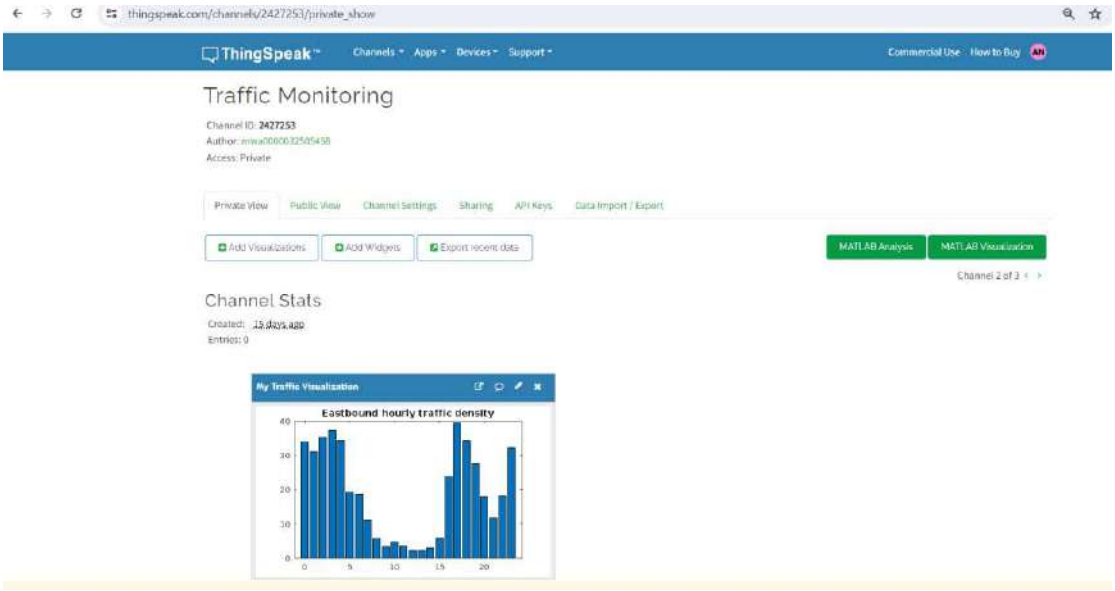


Fig: Thing Speak Cloud Channel to view Traffic Monitoring via Public Channel

SESSION-6

Session-2 Artificial Intelligence using MATLAB

The resource person had briefed the following topics

Artificial Intelligence (AI) is a field of computer science that aims to create systems capable of performing tasks that typically require human intelligence. MATLAB, a widely-used computational tool, provides comprehensive support for developing AI algorithms and applications. This report provides an overview of AI using MATLAB, covering topics such as supervised and unsupervised learning, image classification using pre-trained neural networks, feature extraction, and AI for signal and image data.

Introduction to Artificial Intelligence

Artificial Intelligence encompasses a broad range of techniques and methodologies aimed at simulating human intelligence in machines. This includes problem-solving, reasoning, learning, perception, and decision-making. In MATLAB, AI algorithms are implemented using various toolboxes such as the Statistics and Machine Learning Toolbox, Deep Learning Toolbox, and Computer Vision Toolbox.

Unsupervised and Supervised Learning

- **Supervised Learning**: In supervised learning, the algorithm learns from labeled data, where input-output pairs are provided. MATLAB offers algorithms for classification, regression, and clustering tasks, including support vector machines, decision trees, and k-nearest neighbors.
- **Unsupervised Learning:** Unsupervised learning involves training algorithms on unlabeled data to uncover hidden patterns or structures. MATLAB provides algorithms for clustering (e.g., k-means clustering) and dimensionality reduction (e.g., principal component analysis) for unsupervised learning tasks.

Using Pretrained Neural Networks for Image Classification

MATLAB's Deep Learning Toolbox allows users to leverage pre-trained neural networks for image classification tasks. These networks, such as AlexNet, VGG, and ResNet, have been trained on large datasets and can be fine-tuned or used directly for classifying images. MATLAB provides functions for loading pre-trained networks, performing classification, and evaluating model performance.

Feature Extraction for Machine Learning

Feature extraction is a crucial step in machine learning, where relevant information is extracted from raw data to improve model performance. MATLAB offers feature extraction techniques for various types of data, including signal processing techniques (e.g., Fourier transform, wavelet transform) for time-series data and image processing techniques (e.g., edge detection, texture analysis) for image data.

AI for Signal Data

MATLAB provides extensive support for AI applications in signal processing. This includes algorithms for signal denoising, filtering, feature extraction, and classification. Users can implement AI-based signal processing techniques to analyze data from sensors, communication systems, medical devices, and other sources.

AI for Image Data

In addition to image classification using pre-trained neural networks, MATLAB offers a wide range of tools and algorithms for AI applications in image processing and computer vision. This includes object detection, semantic segmentation, image enhancement, and feature

extraction. MATLAB's Computer Vision Toolbox provides functions for implementing these algorithms and integrating them into AI workflows.

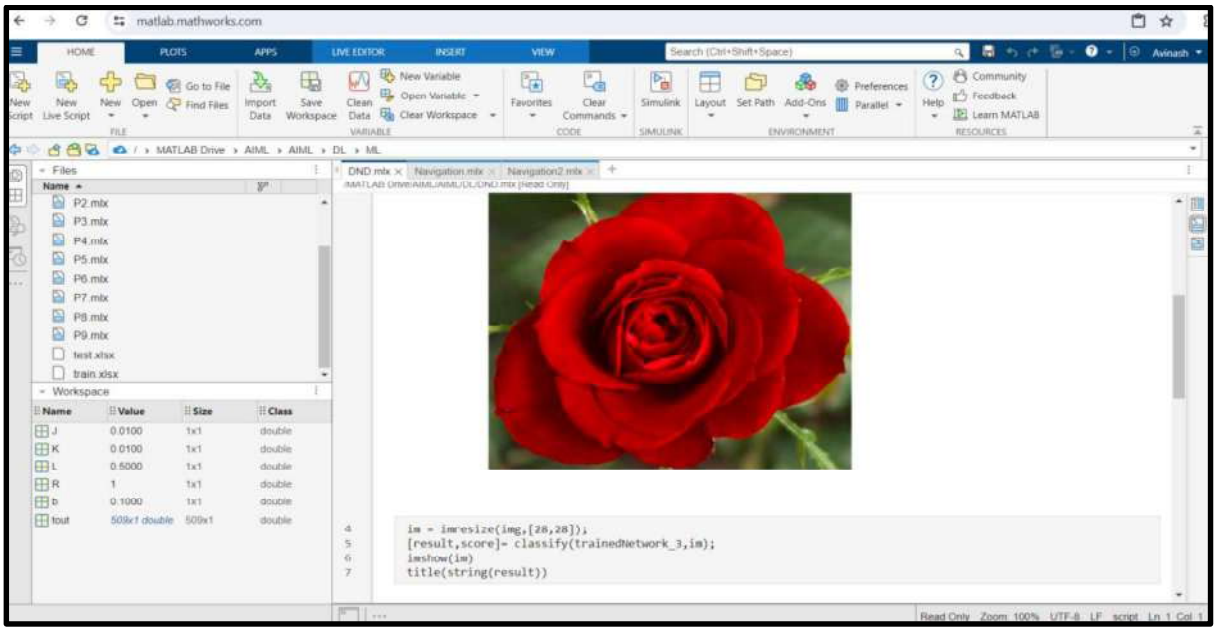
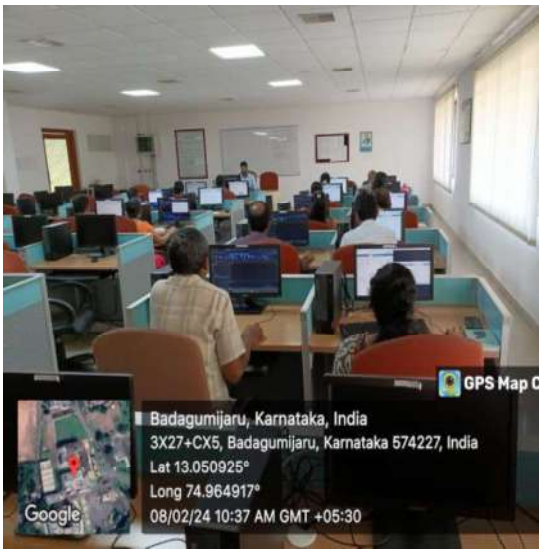
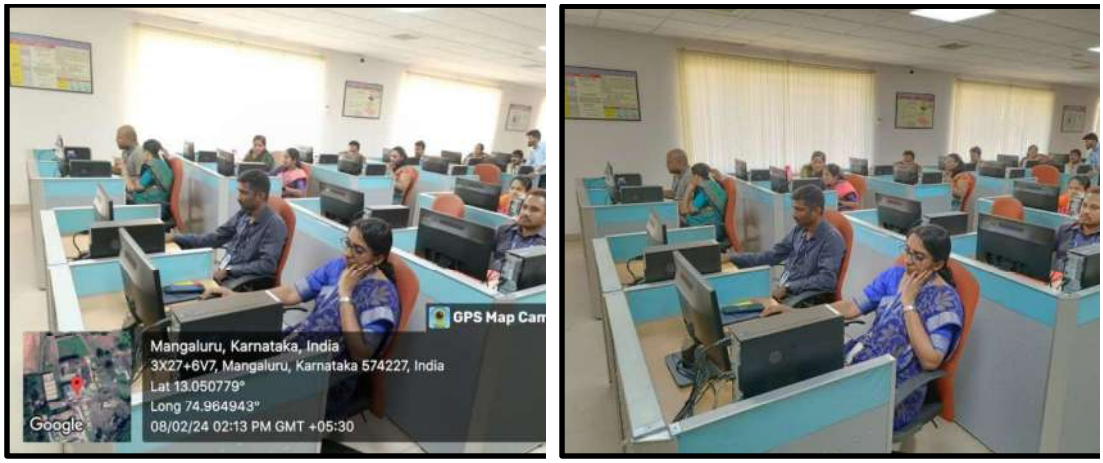


Fig: Created a simple database to predict the flowers

Photographs



Participants are learning Signal Processing using the MATLAB software in Session 1 of Day 1



Participants are learning Wireless Communication using the MATLAB software in Session 2 of Day 1

Participants are learning Modeling and Analyzing Dynamic Systems using the MATLAB software in Session 1 of Day 2

Participants are learning Modeling Electric Vehicle using the MATLAB software in Session 2 of Day 2

Participants are learning IoT using with MATLAB and Thing Speak in Session 1 of Day 3

Participants are learning Artificial Intelligence using MATLAB in Session 2 of Day 3

Group photo of the Faculty Development Program on "Future Tech Fusion: Unleashing Innovation with MATLAB and Simulink for Communication, AI, IoT, and Electric Vehicles Modeling" which is held from 8th to 10th February, 2024

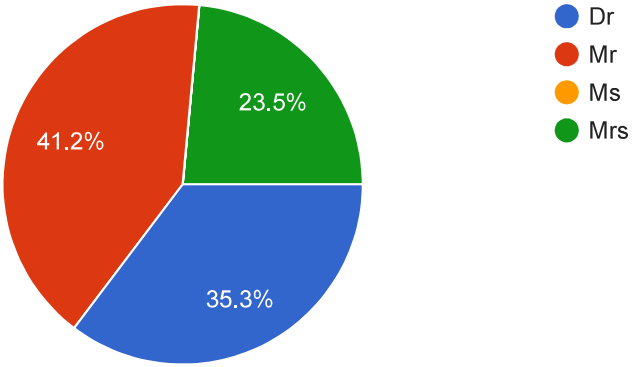
Feedback-Faculty Development Program on "Future Tech Fusion: Unleashing Innovation with MATLAB and Simulink for Communication, AI, IoT, and Electric Vehicles Modeling" Feb 8-10

17 responses

Salutation

Copy

17 responses



Name

17 responses

Aveen k p

Vineetha Telma D'Souza

Sangeetha D N

Raghavendra

JAYAPRASAD K M

Yuvaraj K B

Sharath Kumar

Deepthi Shetty

Arun Krishnan

Renita Pinto

PRAKASH L S

Pavitra Kumari

Ramalingam H M

Guruprasad A M

Deepthi Kotian

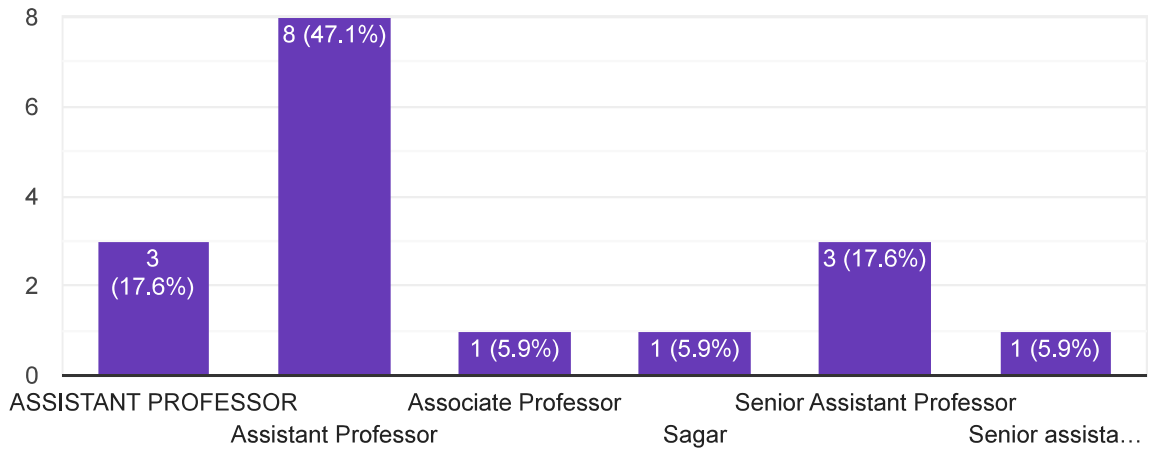
Avinash N J

MARYJO M GEORGE

Designation

Copy

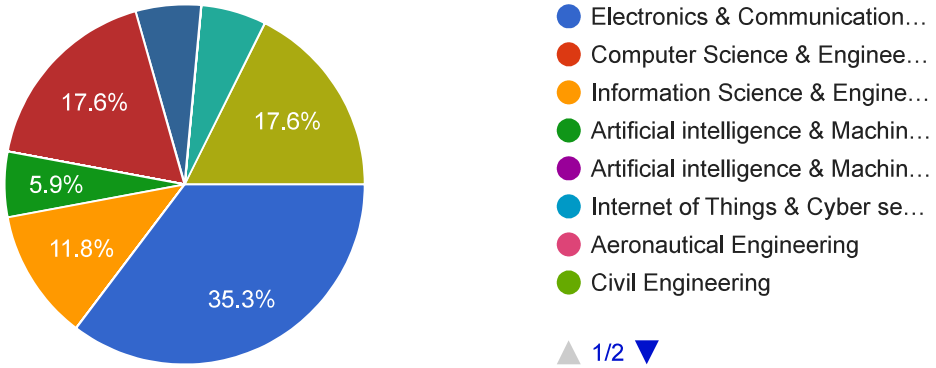
17 responses



Department

Copy

17 responses



Emp Code

17 responses

Mec498

BCSCH009

BCSCH941

BCSPH465

ECE1003

MEC921

ISE 984

ECE855

MEC940

ISE967

ECE-936

MTR867

ECE226

BCSCH644

ECE916

ECE980

AIML968

Mobile Number

17 responses

9483982466

9945420621

9448700968

8073858832

9916265172

9108097189

9964426640

9611277172

9945082873

9632347213

9844625723

9611645528

8722223876

9481583502

7204232300

9164497594

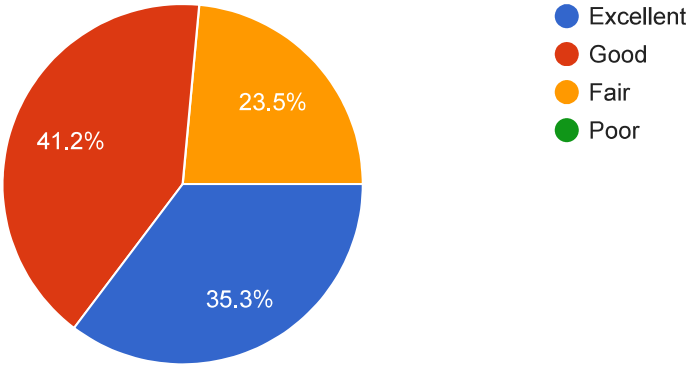
8830992387

Feedback on Faculty Development Program

1. Was the content on signal generation and measurement clear and comprehensive?

Copy

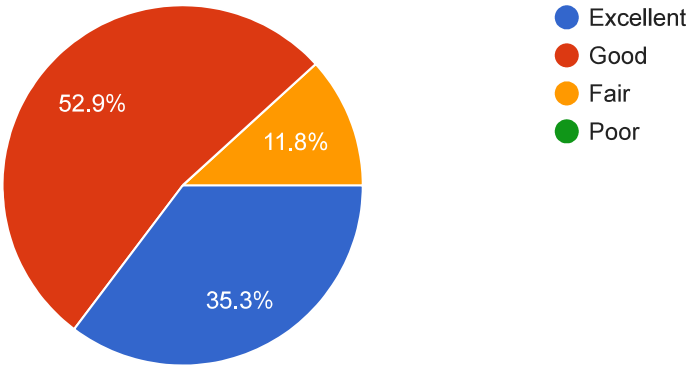
17 responses



2. How did you find the section on acquiring real-world signals helpful in understanding practical applications?

Copy

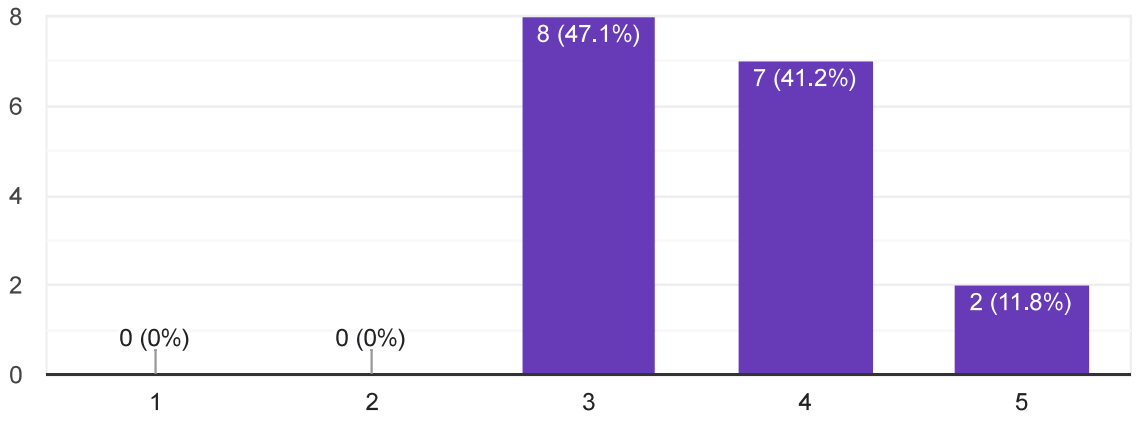
17 responses



3.Were you satisfied with the depth of coverage on signal filter design and analysis?

Copy

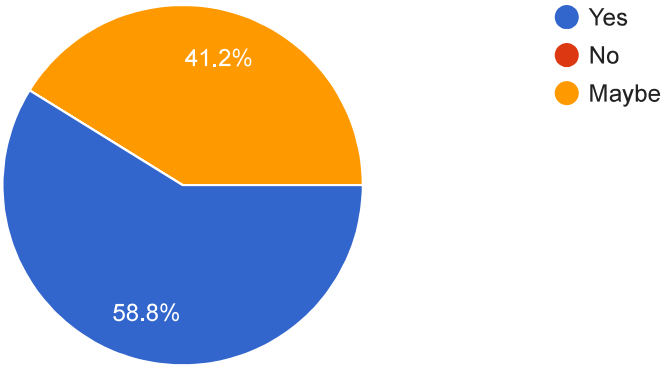
17 responses



4. Did the section on signal preprocessing adequately prepare you for further study or application?

Copy

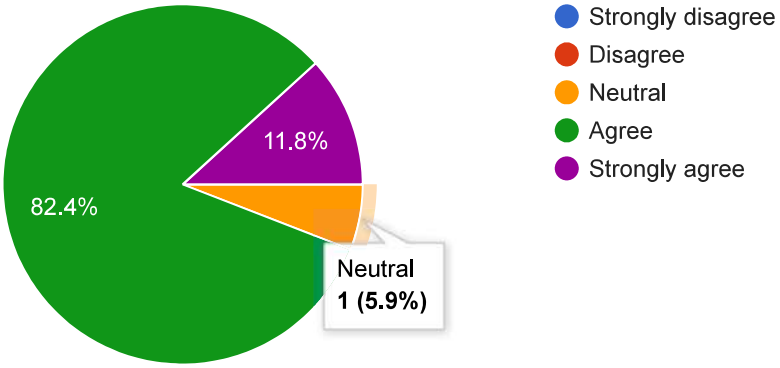
17 responses



5. Were the paradigms of communication system design effectively introduced and explained?

Copy

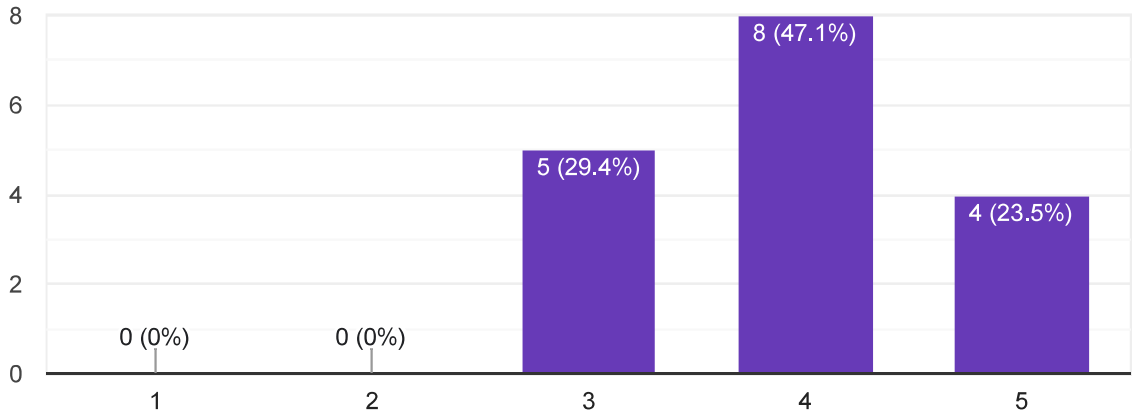
17 responses



6. How would you rate the coverage of model-based design, including modeling and analyzing communication systems in Simulink?

Copy

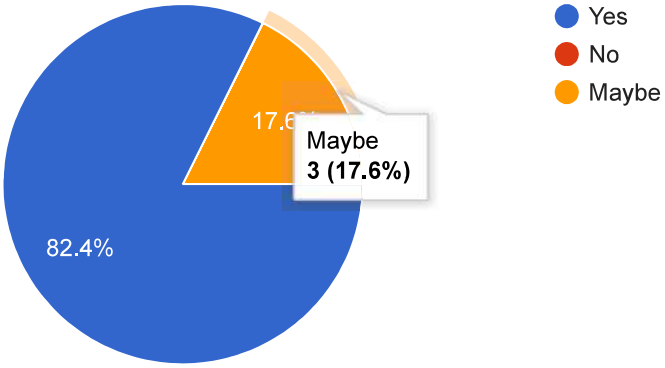
17 responses



7. Did you find the section on wireless waveform generation informative and applicable?

Copy

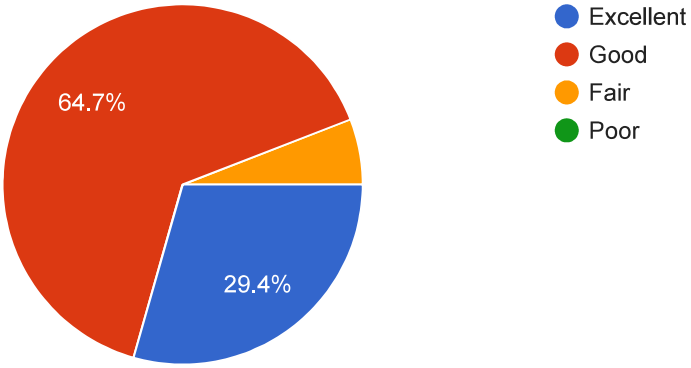
17 responses



8. How did you find the session on introduction to ThingSpeak and how good was the session to provide a solid foundation for understanding its functionalities?

Copy

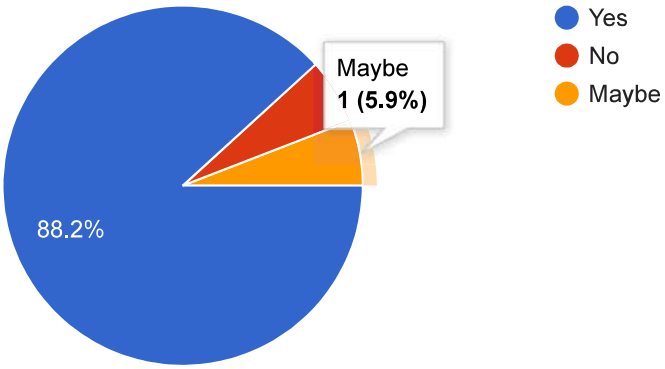
17 responses



9. Did the section on analysis and visualization in ThingSpeak meet your expectations?

Copy

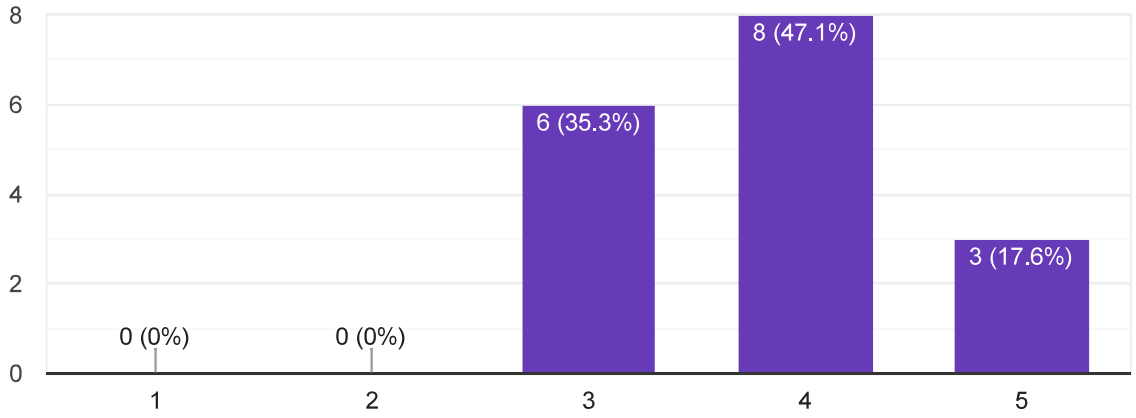
17 responses



10. Were you satisfied with the content on acting on data within ThingSpeak? How would you rate the coverage of reading and writing data in ThingSpeak?

Copy

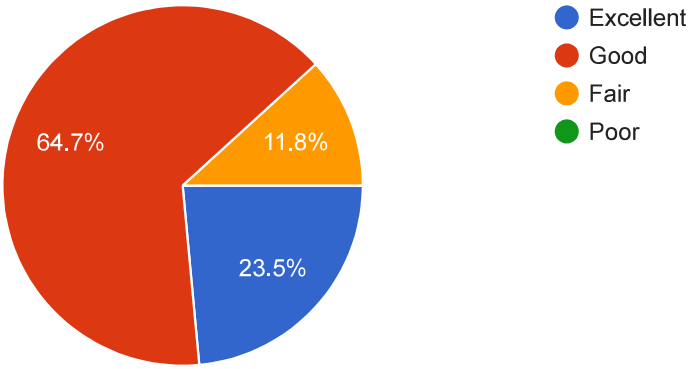
17 responses



11. Was the introduction to artificial intelligence comprehensive and clear? Did the sections on unsupervised and supervised learning provide a solid understanding of these concepts? How would you express the view on the topics covered during the session

Copy

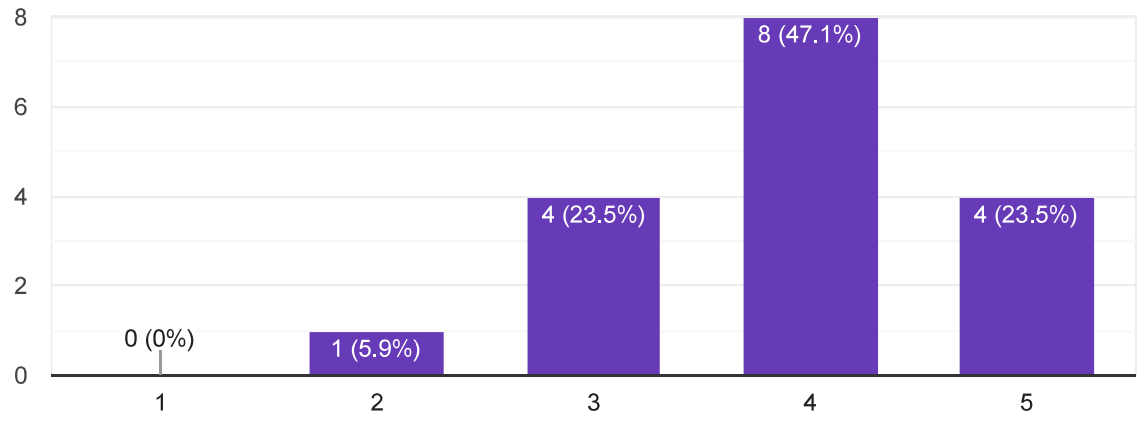
17 responses



12. Were the techniques for feature extraction in machine learning well-explained and applicable? How would you rate the coverage of using pretrained neural networks for image classification?

Copy

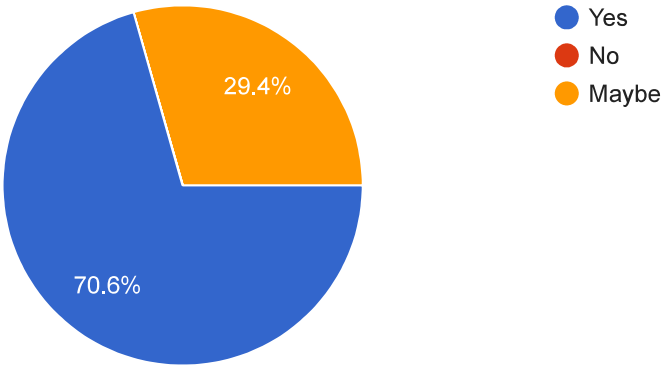
17 responses



13. Did the sections on AI for signal and image data meet your expectations?

Copy

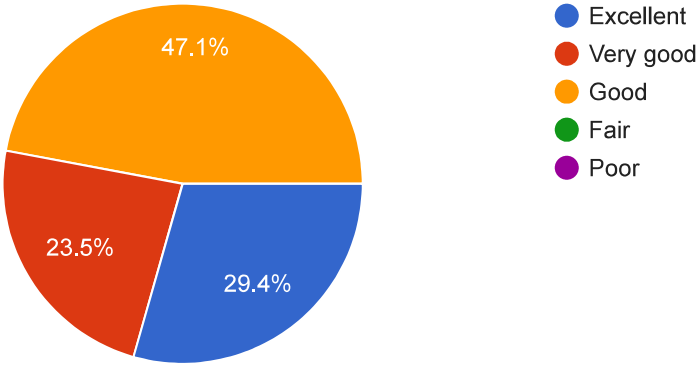
17 responses



14. Did the introduction to Simscape adequately prepare you for utilizing it in modeling tasks?Were the techniques for modeling and analyzing dynamic systems explained effectively? How would you rate the topics covered during the sessions.

Copy

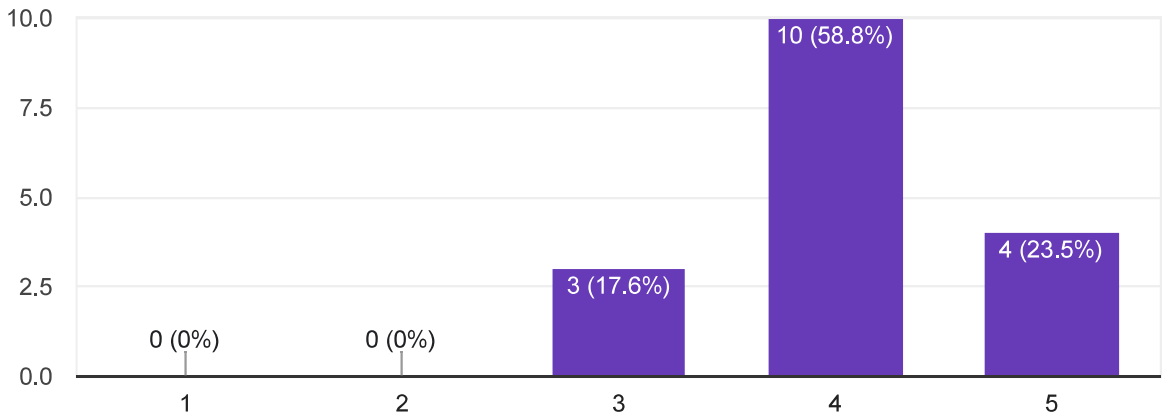
17 responses



15. How satisfied were you with the coverage of control system design principles and techniques?

Copy

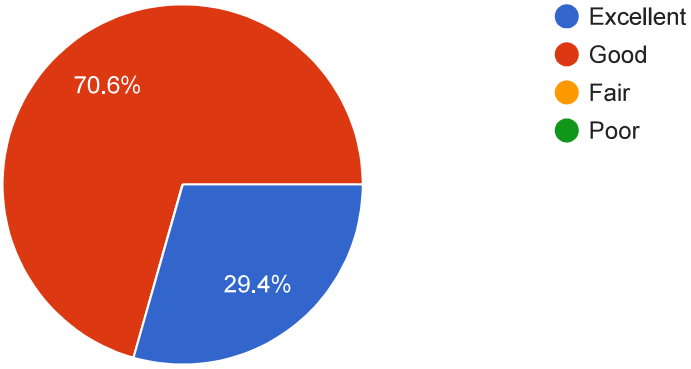
17 responses



16. How would you rate the introduction to Simulink in terms of clarity and usefulness?

Copy

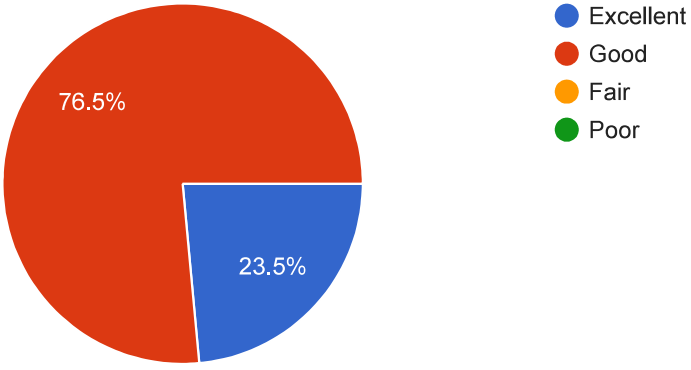
17 responses



17. Was the modeling of electric motors effectively explained and demonstrated?Did the course cover a comprehensive range of electric motor models? how would you rate the topics explained during the session

Copy

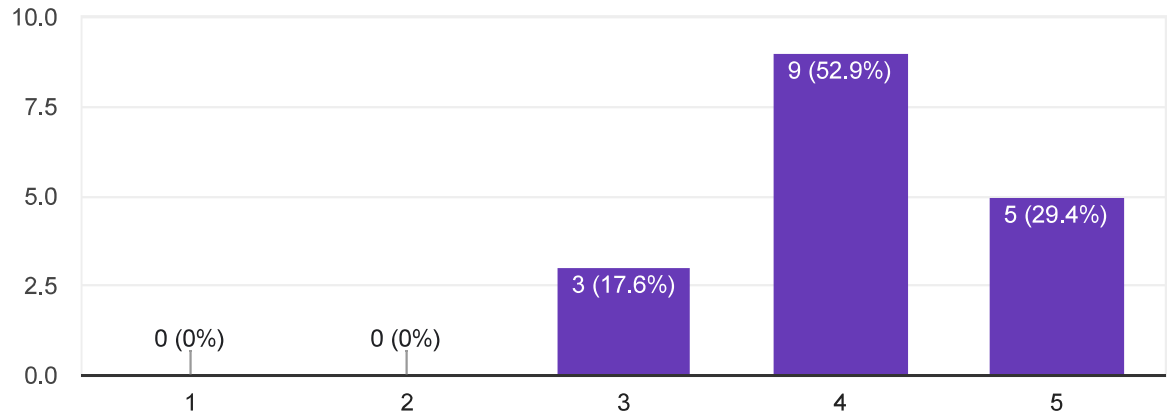
17 responses



18. Did the course provide a clear understanding of electric vehicle architecture? How would you rate the coverage of battery modeling and BMS? Were the techniques for vehicle simulation effectively demonstrated?

Copy

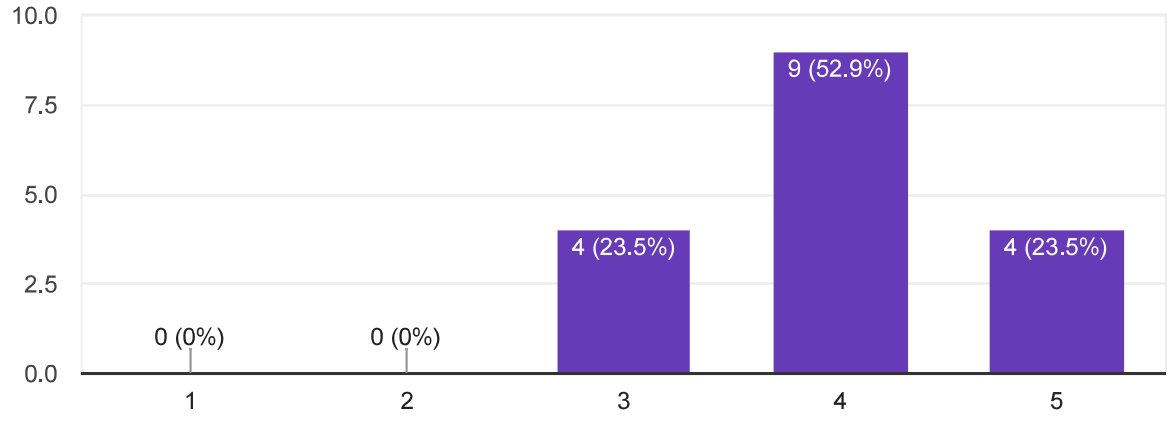
17 responses



19. How did you find the course engaging and interactive in all 3 days ? Were there opportunities for hands-on practice or exercises to reinforce your learning? how would you rate the overall engagement and Interaction:

Copy

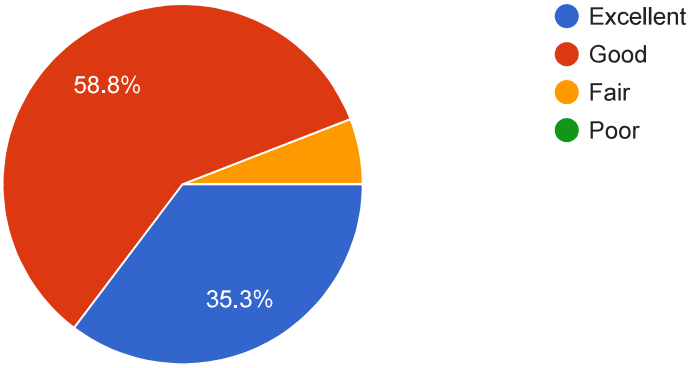
17 responses



20. Were the instructors responsive to questions and feedback? Did you find the feedback provided on assignments or assessments helpful in improving your understanding? How would you rate the Instructor .

Copy

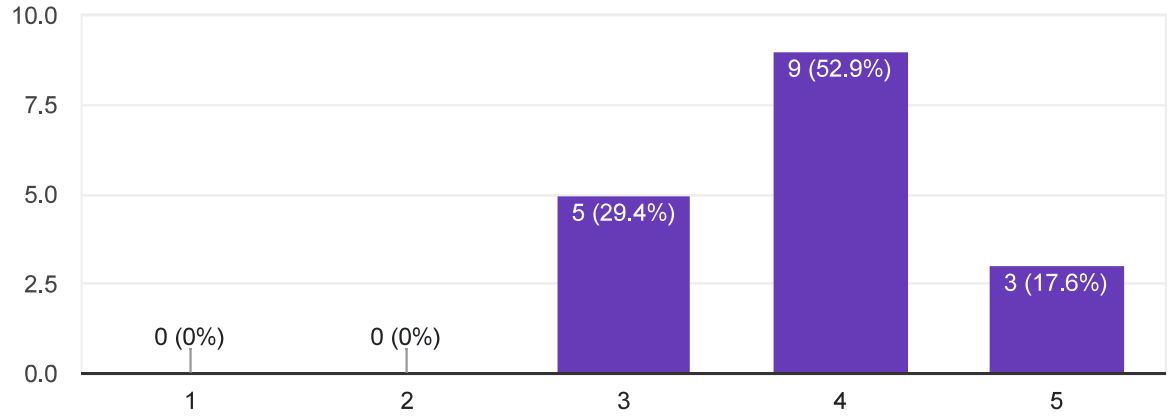
17 responses



21. On a scale of 1 to 5, how would you rate your overall experience with the Faculty Development Program?

Copy

17 responses



22. Do you have any additional comments or suggestions for the better improvement ?

17 responses

No

No comment

Include practical examples and case studies relevant to each topic to enhance understanding and application.

No

Needs more such sessions

Need more sessions to understand certain topics

Nil

Hands-on session on simulink for EV application, battery Management and performance analysis much in detail is needed. A dedicated session/workshop addressing only these application (domain specific) would be appreciated.

No suggestions.

None

NA

nil

Workshop on MATLAB for chemical modelling could be conducted.

More sessions on the usage of different libraries of AIML in the future will be required to implement the different case studies.

NIL

MANGALORE INSTITUTE OF TECHNOLOGY & ENGINEERING

(A unit of Rajalaxmi Education Trust ®, Mangalore)
Autonomous Institute Affiliated to V.T.U., Belagavi, Approved by AICTE, New Delhi
Accredited by NAAC with A+ Grade & ISO 9001:2015 Certified Institution.

Internal Quality Assurance Cell (IQAC)

Faculty Development Program (FDP)
on
"Future Tech Fusion: Unleashing Innovation with MATLAB and Simulink for Communication, AI, IoT, and Electric Vehicles Modeling"

8th to 10th February, 2024

Attendance Sheet

Sl. No.	Name	Department	08/02/2024	
			FN	AN
1	Mr. Avinash N J	Electronics & Communication Engineering		
2	Mr. Jayaprasad K M	Electronics & Communication Engineering		
3	Mr. Prakash L S	Electronics & Communication Engineering		
4	Ms. Deepthi Shetty	Electronics & Communication Engineering		
5	Dr. Ramalingam H M	Electronics & Communication Engineering		
6	Ms. Deepthi Kotian	Electronics & Communication Engineering		
7	Ms. Renita Pinto	Information Science & Engineering		
8	Mr. Sharath Kumar	Information Science & Engineering		
9	Dr. Maryjo M George	Artificial Intelligence & Machine Learning		
10	Mr. Yuvaraj K B	Mechanical Engineering		
11	Mr. Arun Krishnan	Mechanical Engineering		
12	Mr. Aveen K P	Mechanical Engineering		
13	Dr. Vignesh Nayak Ullal	Mechanical Engineering		
14	Dr. Raghavendra Sagar	Department of Physics		
15	Ms. Pavitra Kumari	Mechatronics Engineering		
16	Dr. Jyothi S	Department of Mathematics		
17	Dr. Guruprasad A.M.	Department of Chemistry		
18	Dr. Sangeetha D N	Department of Chemistry		
19	Dr. Vineetha Telma D'Souza	Department of Chemistry		

Convener-IQAC

Mangalore Institute of Technology & Engineering

MANGALORE INSTITUTE OF TECHNOLOGY & ENGINEERING

(A unit of Rajalaxmi Education Trust ®, Mangalore)

Autonomous Institute Affiliated to V.T.U., Belagavi, Approved by AICTE, New Delhi

Accredited by NAAC with A+ Grade & ISO 9001:2015 Certified Institution.

Internal Quality Assurance Cell (IQAC)

Faculty Development Program (FDP)

on

"Future Tech Fusion: Unleashing Innovation with MATLAB and Simulink for Communication, AI, IoT, and Electric Vehicles Modeling"

8th to 10th February, 2024

Attendance Sheet

Sl. No.	Name	Department	09/02/2024	
			FN	AN
1	Mr. Avinash N J	Electronics & Communication Engineering		
2	Mr. Jayaprasad K M	Electronics & Communication Engineering		
3	Mr. Prakash L S	Electronics & Communication Engineering		
4	Ms. Deepthi Shetty	Electronics & Communication Engineering		
5	Dr. Ramalingam H M	Electronics & Communication Engineering		
6	Ms. Deepthi Kotian	Electronics & Communication Engineering		
7	Ms. Renita Pinto	Information Science & Engineering		
8	Mr. Sharath Kumar	Information Science & Engineering		
9	Dr. Maryjo M George	Artificial Intelligence & Machine Learning		
10	Mr. Yuvaraj K B	Mechanical Engineering		
11	Mr. Arun Krishnan	Mechanical Engineering		
12	Mr. Aveen K P	Mechanical Engineering		
13	Dr. Vignesh Nayak Ullal	Mechanical Engineering	—	—
14	Dr. Raghavendra Sagar	Department of Physics		
15	Ms. Pavitra Kumari	Mechatronics Engineering		
16	Dr. Jyothi S	Department of Mathematics		
17	Dr. Guruprasad A.M.	Department of Chemistry		
18	Dr. Sangeetha D N	Department of Chemistry		
19	Dr. Vineetha Telma D'Souza	Department of Chemistry		

Convener-IQAC

Dean, QA & Convener IQAC

Mangalore Institute of Technology & Engineering

MANGALORE INSTITUTE OF TECHNOLOGY & ENGINEERING

(A unit of Rajalaxmi Education Trust ®, Mangalore)
Autonomous Institute Affiliated to V.T.U., Belagavi, Approved by AICTE, New Delhi
Accredited by NAAC with A+ Grade & ISO 9001:2015 Certified Institution.

Internal Quality Assurance Cell (IQAC)

Faculty Development Program (FDP)
on
"Future Tech Fusion: Unleashing Innovation with MATLAB and Simulink for Communication, AI, IoT, and Electric Vehicles Modeling"

8th to 10th February, 2024

Attendance Sheet

Sl. No.	Name	Department	10/02/2024	
			FN	AN
1	Mr. Avinash N J	Electronics & Communication Engineering		
2	Mr. Jayaprasad K M	Electronics & Communication Engineering		
3	Mr. Prakash L S	Electronics & Communication Engineering		
4	Ms. Deepthi Shetty	Electronics & Communication Engineering		
5	Dr. Ramalingam H M	Electronics & Communication Engineering		
6	Ms. Deepthi Kotian	Electronics & Communication Engineering		
7	Ms. Renita Pinto	Information Science & Engineering		
8	Mr. Sharath Kumar	Information Science & Engineering		
9	Dr. Maryjo M George	Artificial Intelligence & Machine Learning		
10	Mr. Yuvaraj K B	Mechanical Engineering		
11	Mr. Arun Krishnan	Mechanical Engineering		
12	Mr. Aveen K P	Mechanical Engineering		
13	Dr. Vignesh Nayak Ullal	Mechanical Engineering	—	—
14	Dr. Raghavendra Sagar	Department of Physics		
15	Ms. Pavitra Kumari	Mechatronics Engineering		
16	Dr. Jyothi S	Department of Mathematics	—	—
17	Dr. Guruprasad A.M.	Department of Chemistry		
18	Dr. Sangeetha D N	Department of Chemistry		
19	Dr. Vineetha Telma D'Souza	Department of Chemistry		

Convener-IQAC

Mangalore Institute of Technology & Engineering

5. Faculty Development Program on MATLAB Mastery: Crafting Innovative workflows for Physical Modelling and Analysis

Agenda

- Overview of Robotic System Modeling
- Image Processing and Computer Vision in MATLAB
- Modelling & Analyzing in MATLAB
- Development Planning
- Ground Vehicle and Mobile Robotics
- Q&A

Registration

https://forms.gle/bLjYYMfPpHiAHLbk9

Registration Closes by 25st January, 2024

Chief Patron

Mr. Rajesh Chouta
Chairman, MITE

Patron

Dr. Prashanth C M
Principal, MITE

Program Coordinator

Dr. Vinayambika S Bhat
Convener - IQAC

Program Co-coordinator

Dr. Jayaprakash M C
Sr. Asst. Professor, Dept. of Civil Engg.

Resource Person (s)

Mr. Rakshith B S
Senior Application Engineer
MathWorks Products, Bengaluru

&

Mr. Avinash Vulasa
Application Engineer
MathWorks Products, Bengaluru

INSTITUTION'S INNOVATION COUNCIL

nirf 151-300

A+ GRADE CGPA 3.44

MANGALORE INSTITUTE OF TECHNOLOGY & ENGINEERING
(A unit of Rajalaxmi Education Trust ®, Mangalore)
Autonomous Institute Affiliated to V.T.U., Belagavi, Approved by AICTE, New Delhi
Accredited by NAAC with A+ Grade & an ISO 9001:2015 Certified Institution
Badaga Mijar, Moodabidri, Mangaluru Tq, D.K. Dist., Karnataka-574225
http://www.mite.ac.in

Faculty Development Program
on

"MATLAB Mastery: Crafting Innovative Workflows for Physical Modeling and Analysis"

5th to 7th February, 2024

Organized by

Internal Quality Assurance Cell (IQAC)
MITE

In association with

MathWorks

CoreEL technologies

About MITE

Mangalore Institute of Technology & Engineering, Moodbidri is a leading Engineering & Management Institution in the region, established in the year 2007 by the Rajalaxmi Education Trust under the leadership of the Visionary Mr. Rajesh Chouta. The institute is accredited by NAAC with A+ Grade, offers 9 Under-Graduate (6 NBA accredited programmes), 3 Post Graduate and 7 research programmes in its beautiful serene green campus. The institute is placed in highest category platinum ranking in AICTE-CII survey 2020 of industry linked technical institutes in India and ranked in Band - Excellent in the private institute category under Atal Ranking of Institutions on Innovation Achievements (ARIIA) during the year 2020 and 2021 respectively. The institute known for its high academic standards, has registered 34 University Ranks over the last 6 years as a reference to the quality teaching learning pedagogy. MITE has collaborations with industries of repute.

The industry-standard Incubation Centre is supported by the Government of Karnataka and MSME, Government of India to support budding entrepreneurs. MITE was awarded as the "Best Performing College of the Year 2019-20" by KSCST & the students have received several Top Awards at National and State Level events. With an intent to shape globally competent graduates, MITE has established a campus that would aid students to manifest their true selves by promoting effective learning, and creativity, to ensure that they become formidable individuals to "INVENT SOLUTIONS".

Vision

To attain perfection in providing **Globally Competitive Quality Education** to all our Students and also benefit the global community by using our strength in **Research and Development**.

Mission

To establish world class educational institutions in their respective domains, which shall be **Centre of Excellence** in their stated and implied sense. To achieve this objective, we dedicate ourselves to meet the Challenges of becoming **Visionary and Realistic, Sensitive and Demanding, Innovative and Practical, Theoretical and Pragmatic**; ALL at the same time.

About Internal Quality Assurance Cell

The institute has established IQAC as per National Assessment and Accreditation Council (NAAC) guidelines in 2012. Since quality enhancement is a continuous process, the IQAC becomes a part of the institution's system and works towards the realization of the goals of quality enhancement and sustenance. The IQAC ensures the effective implementation of the quality initiatives through continuous reviews and periodic meetings. The IQAC works towards attaining excellence in all the academic activities and for continuous improvement in teaching-learning process.

Objectives:

- To develop a system for conscious, consistent and catalytic action to improve the academic performance of the institution.
- To promote measures for institutional functioning towards quality enhancement through internalization of quality culture and institutionalization of best practices.

About MathWorks & CoreEL Technologies

MathWorks is the developer of mathematical computing software for Engineers and Scientists. MathWorks is leading worldwide supplier of technical computing software. The business activities are characterized by quality, innovation, and timeliness; competitive awareness; ethical business practices; and outstanding service to the customers. MathWorks actively support local and professional communities through initiatives that advance STEM education, foster staff volunteerism, build environmental sustainability, and aid global relief efforts.

CoreEL Technologies is driven by innovation and a multi-disciplinary approach towards technology. CoreEL offer innovative solutions ranging from Intellectual Property (IP) cores, Design and Development, System Design and Prototype Development, Next-Gen Digital products, Integrated solutions, Low Volume Manufacturing, System Upgrades, Obsolescence management, EDA tools, COTS products, to Semiconductor solutions, and Technology Training.

SCHEDULE OF FDP

DAY-1
05/02/2024 (Monday)
Physical Modeling and System Analysis

Time	Topic
10:00 am-12:30 pm	▪ Introduction to System Modeling ▪ Modelling Mass Spring Damper System in MATLAB ▪ Modeling Dynamic System in Simulink ▪ Physical Modeling using Simscape
2:00 pm-4:00 pm	▪ Thermal Analysis ▪ Heat Transfer ▪ Structural Analysis ▪ Multibody Modeling

DAY-2
06/02/2024 (Tuesday)
Robotics System Modeling

Time	Topic
10:00 am-12:30 pm	▪ Overview of Robotic System Modeling ▪ Modeling Paradigms of Robotic Systems ▪ Modeling Robotic Manipulator Arm ▪ Model[illegible]
2:00 pm-4:00 pm	▪ Control [illegible] of Robotic Systems ▪ Ground Vehicle and Mobile Robotics ▪ Simulation of Physical Systems ▪ Import Robot Models into MATLAB and Simulink from urdf files.

DAY-3
07/02/2024 (Wednesday)
Image Processing and Computer Vision

Time	Topic
10:00 am-12:30 pm	▪ Introduction to Image Processing ▪ Importing and Exporting of Images ▪ Image Enhancement ▪ Image Thresholding
2:00 pm-4:00 pm	▪ Edge Detection ▪ Image Morphology ▪ Image Segmentation ▪ Feature Detection, Extraction and Matching ▪ Computer Vision Application Demos

MANGALORE INSTITUTE OF TECHNOLOGY & ENGINEERING

(A unit of Rajalaxmi Education Trust ®, Mangalore)

Autonomous Institute Affiliated to V.T.U., Belagavi, Approved by AICTE, New Delhi

Accredited by NAAC with A+ Grade & an ISO 9001:2015 Certified Institution

Badaga Mijar, Moodabidri, Mangaluru Tq, D.K. Dist., Karnataka-574225

MITE

Invent Solutions

INSTITUTION'S INNOVATION COUNCIL

(Ministry of Education Initiative)

nirf Innovation Ranking 151-300

NAAC A+ GRADE CGPA: 3.44

Report

Faculty Development Program (FDP)

on

"MATLAB Mastery: Crafting Innovative Workflows for Physical Modeling and Analysis"

Date: 05.02.2024 to 07.02.2024

Organized by

Internal Quality Assurance Cell (IQAC)

In association with

MathWorks

CoreEL Technologies

Enabling Excellence

Faculty Development Program
on
"MATLAB Mastery: Crafting Innovative Workflows for Physical Modeling and Analysis"

Internal Quality Assurance Cell (IQAC), MITE organized a Faculty Development Program (FDP) on **"MATLAB Mastery: Crafting Innovative Workflows for Physical Modeling and Analysis"** from 5th February, 2024 to 7th February, 2024 in association with **MathWorks & CorEL** Technologies, Bangalore.

About MathWorks & CoreEL Technologies:

MathWorks is the developer of mathematical computing software for Engineers and Scientists. MathWorks is leading worldwide supplier of technical computing software. The business activities are characterized by quality, innovation, and timeliness; competitive awareness; ethical business practices; and outstanding service to the customers. MathWorks actively support local and professional communities through initiatives that advance STEM education, foster staff volunteerism, build environmental sustainability, and aid global relief efforts.

CoreEL Technologies is driven by innovation and a multi-disciplinary approach towards technology. CoreEL offer innovative solutions ranging from Intellectual Property (IP) cores, Design and Development, System Design and Prototype Development, Next-Gen Digital products, Integrated solutions, Low Volume Manufacturing, System Upgrades, Obsolescence management, EDA tools, COTS products, to Semiconductor solutions, and Technology Training.

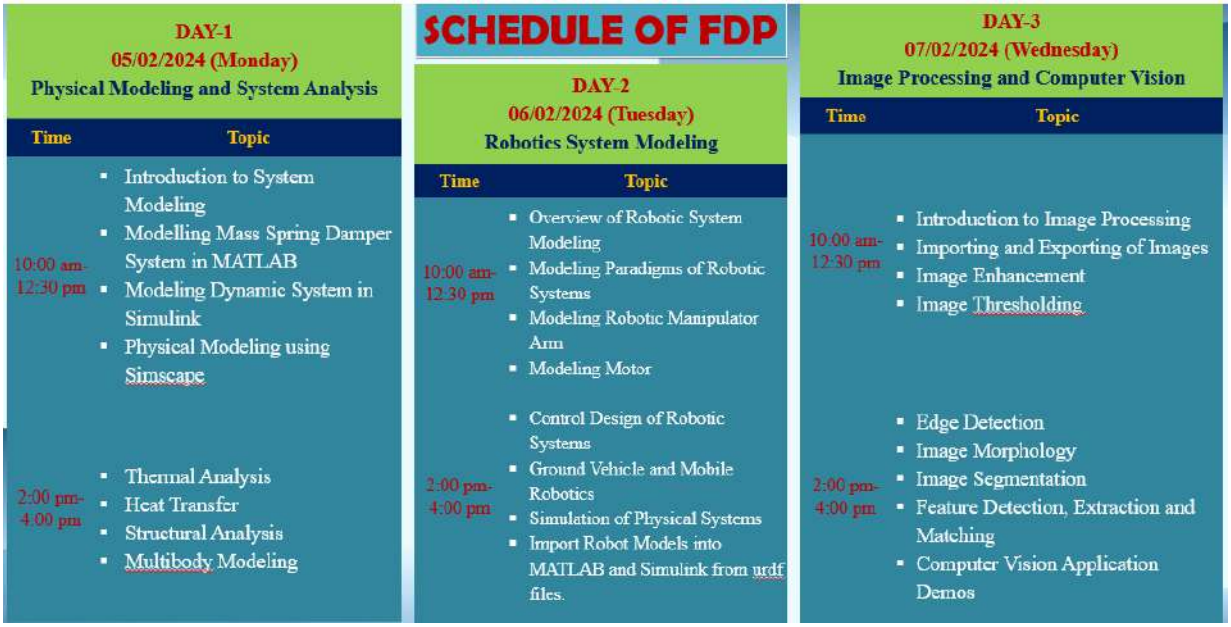
The resource person of the Faculty development Program:

Mr. Rakshith B S, *Senior Application Engineer, MathWorks Products, Bengaluru*

Resource Person Profile:

Mr. Rakshith B S is the Senior Application Engineer for Mathworks products at CoreEL Technologies, Bengaluru. He holds a B.E degree from GSSIT, Karnataka. He has 10 years of extensive experience in Technical Education. He is currently providing technical engagement and solutions to educational institutions as a part of CoreEL University Program.

He has technical hands-on expertise in MATLAB and Simulink. His area of interests are Power Electronics, Control Systems, Fuzzy Logic, Image Processing, Computer Vision, Machine Learning and Deep Learning.



DAY – 1 || 5th February 2024

Topic: Physical Modeling and System Analysis

Brief about the event:

SESSION-1

Resource Person has enhanced the knowledge on Modelling Mass Spring Damper System in MATLAB and Physical Modeling using Simscape and their importance, data impost-export, simulation, query code, S-Function in order to use functions such as loading an *.xml file. etc., during the hands on session using MATLAB software.

Application: The Mass-Spring-Damper model is one of the most common models used by engineers to model kinematic systems. From human tissue to bridges, this straightforward model features three mechanisms and can be summarized as the following second-order differential equation. Spring/mass/damper systems are routinely modeled for purposes of designing car, truck and motorcycle suspensions- for best performance under a variety of conditions. More advanced models of this general type can be written to include the effects of tire.

Physical Modeling using Simscape makes it easy to model physical systems, including electrical, mechanical, and hydraulic components. A hydraulic scissor jack, controlled by an electrical circuit, is used to show some of the modeling, simulation, and deployment capabilities of Simscape.

SESSION-2

During the Session 2, resource person mainly focused on Thermal Analysis, Heat Transfer, Structural Analysis and Multibody Modeling. Addressed the challenges with thermal management by analyzing the temperature distributions of components based on material properties, external heat sources, and internal heat generation for steady-state and transient problems.

DAY – 2 || 6th February 2024
Topic: Robotics System Modeling

SESSION-3

In the session of Day 2, resource person has covered the following topics of Overview of Robotic System Modeling, Modeling Paradigms of Robotic Systems, Modeling Robotic Manipulator Arm and Modeling Motor.

Applications: Robotics researchers and engineers use MATLAB and Simulink to design, simulate, and verify every aspect of autonomous systems, from perception to motion.

- Model robotic systems down to the finest details such as sensor noise and motor vibration.
- Simulate robotic systems with accurate kinematics, dynamics, and contact properties.
- Design and optimize both high-level autonomy and low-level control.
- Synthesize and analyze sensor data with a maintained library of algorithms.
- Verify robot design or algorithm gradually, from simulation to hardware-in-the-loop (HIL) test.
- Deploy algorithms to robots via ROS or directly to microcontrollers, FPGAs, PLCs, and GPUs.

SESSION-4

Using MATLAB software following analysis of modelling has been done ie. Model kinematics and dynamics of mobile robots and manipulators. Import robot models using the Robotics System Toolbox Robot Library Data, or import URDF files, or use Simscape, Multibody models to create custom robot models. Visualize and simulate robot motion to validate the algorithms.

MATLAB and Simulink provide specialized algorithms, simulation tools, ROS support, and hardware connectivity for developing robot manipulators to

- Integrate mechanical designs from CAD with models of the electrical system.
- Analyze power consumption to select the most efficient design and trajectory
- Use built-in algorithms and sensor models for robot manipulator applications involving perception and motion planning
- Design robot control algorithms and simulate with a robot model while including a 3D simulation environment
- Evaluate the robot manipulation algorithms by connecting external simulators or real robots.

DAY – 3 ‖ 7th February 2024
Topic: Image Processing and Computer Vision

SESSION-5

During the Session 5 of Day 3, resource person covered the topics of Introduction to Image Processing, Importing and Exporting of Images, Image Enhancement and Image Thresholding using MATLAB software. During the hand on session participants learned the following image processing techniques.

- Importing and exporting images
- Enhancing images
- Detecting edges and shapes
- Segmenting objects based on their color and texture
- Modifying objects' shape using morphological operations
- Measuring shape properties
- Performing batch analysis over sets of images

- Aligning images with image registration
- Detecting, extracting, and matching image features

SESSION-6

In the session 6 of day 3, participants has actively involved in Improving Segmentation in the image processing technique using MATLAB. Improve binary segmentation results by refining the segmentation mask. Used interactive and iterative techniques to segment image regions. Following image processing steps learned by the participants.

- Using morphological operations to refine segmentation masks
- Segmenting images and refining results interactively
- Using iterative techniques to evolve segmentation from a seed
- Extracting and labeling objects in a segmentation mask
- Measuring shape properties
- Separating adjacent and overlapping objects with watershed transform
- Detecting object edges
- Identifying objects by detecting lines and circles
- Performing batch analysis over sets of images
- Applying geometric transformations to images
- Aligning images using phase correlation
- Aligning images using point mapping
- Detecting and extracting features
- Matching features to estimate geometric transformation between two images

Photographs

Participants are learning the Physical Modeling and System Analysis using the MATLAB software in the Session 1 of Day 1

Participants are learning the Physical Modeling and System Analysis using the MATLAB software in the Session 2 of Day 1

Participants are learning the Robotics System Modeling using the MATLAB software in the Session 1 of Day 2

Participants are learning the Robotics System Modeling using the MATLAB software in the Session 2 of Day 2

Participants are learning the Image Processing and Computer Vision using the MATLAB software in the Session 1 of Day 3

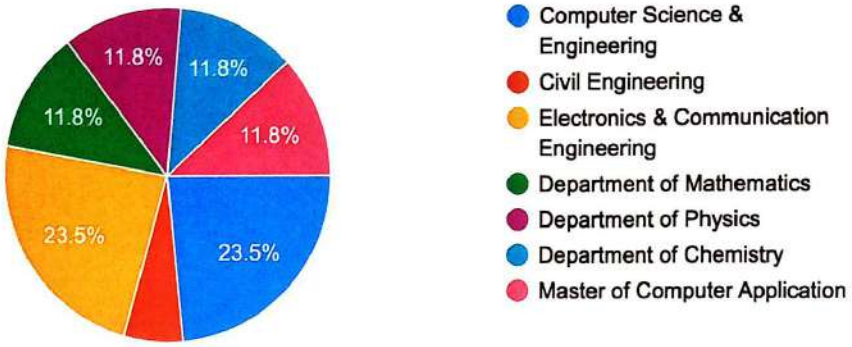
Participants are learning the Image Processing and Computer Vision using the MATLAB software in the Session 2 of Day 3

Group photo of the Faculty Development Program on "MATLAB Mastery: Crafting Innovative Workflows for Physical Modeling and Analysis" which is held from 5th to 7th February, 2024

Department

Copy

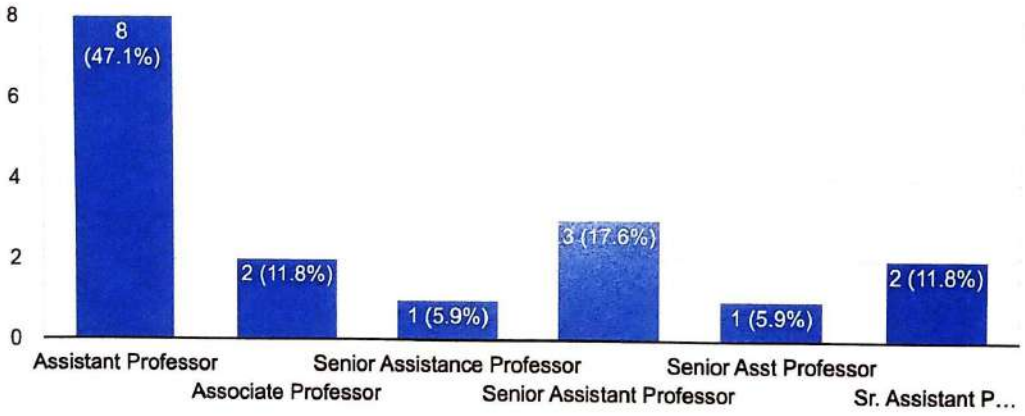
17 responses



Designation

Copy

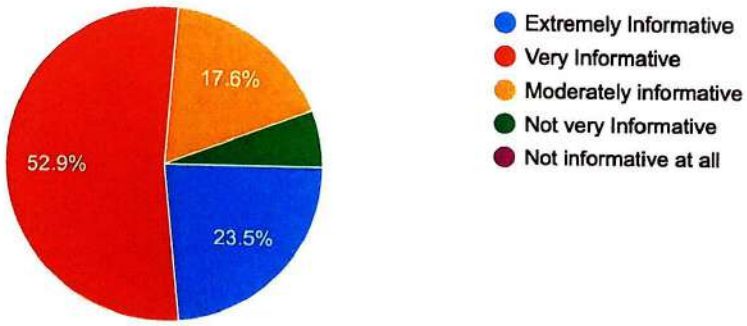
17 responses



1. Was the "MATLAB Mastery: Crafting Innovative Workflows for Physical Modeling and Analysis", Faculty Development Program Informative?

Copy

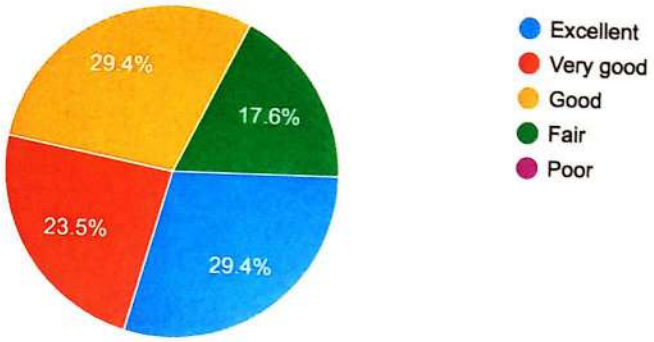
17 responses



2. How was the quality of Knowledge Transferred in the Faculty Development Program of "MATLAB Mastery: Crafting Innovative Workflows for Physical Modeling and Analysis"?

Copy

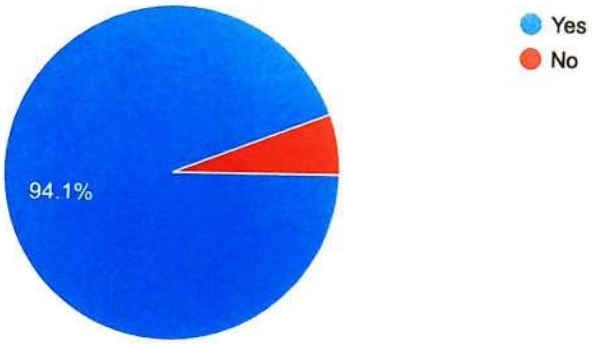
17 responses



3. Did the resource person covered all the topics schedule of the Faculty Development Program?

Copy

17 responses



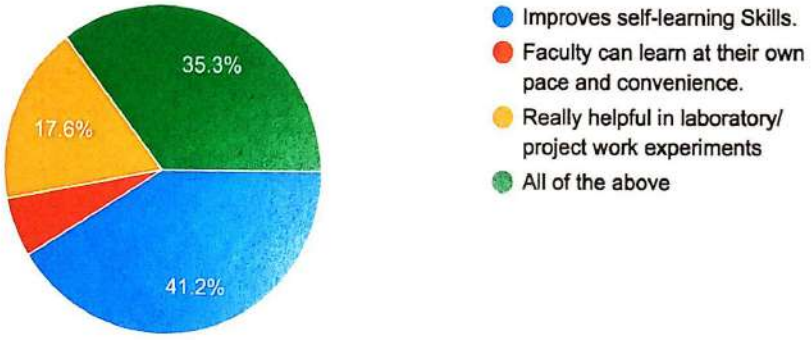
4. What is your opinion about sessions covered in the FDP? Copy

Day 1: Physical Modeling and System Analysis

Day 2: Robotics System Modeling

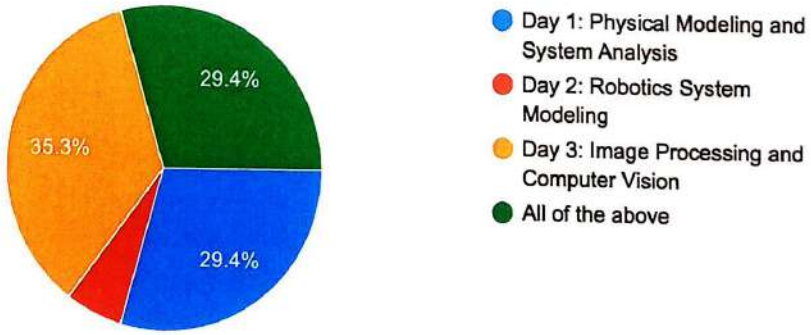
Day 3: Image Processing and Computer Vision

17 responses



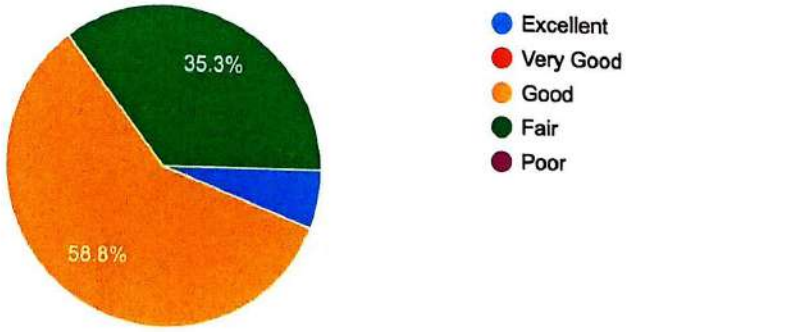
5. Which session was more informative and provided Innovative thinking? Copy

17 responses



6. How confidence you are to perform Innovative Workflows for Physical Modeling and Analysis using MATLAB & Simulink Campus-Wide Suite? Copy

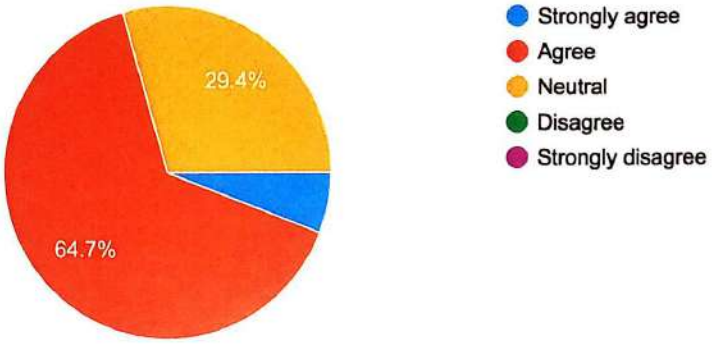
17 responses



7. Whether the deliverable of concepts related to MATLAB software suite is sufficient to perform the Physical Modeling, Analysis, Robotics System Modeling, Image Processing and Computer Vision?

Copy

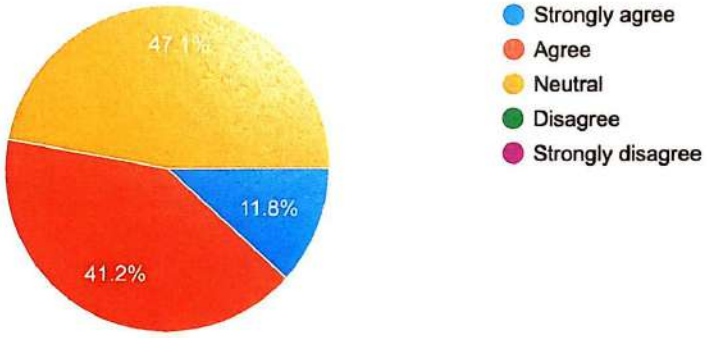
17 responses



8. Are you confident enough to use the features of end user work flow of MATLAB software?

Copy

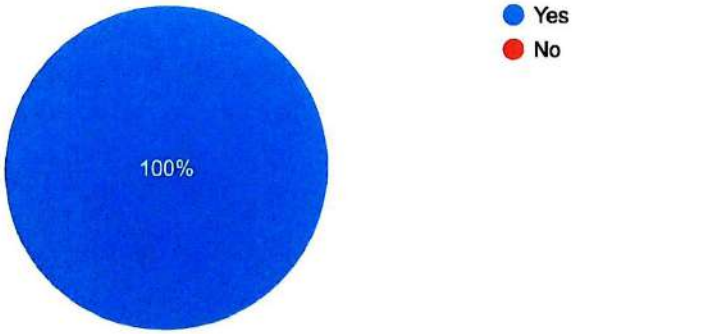
17 responses



9. Was the Q & A session useful to clear your doubts regarding the Physical Modeling, Analysis, Robotics System Modeling, Image Processing and Computer Vision and usage of MATLAB software?

Copy

17 responses



10. What was the major take away from this Faculty Development Program on "MATLAB Mastery: Crafting Innovative Workflows for Physical Modeling and Analysis"?

17 responses

Introduction to MATLAB

Knowledge

Image processing steps

The resource person was so informative, expressive and enriched with knowledge that was highly grateful and appreciative.

Need sessions designed specially for cs

Could locate Matlab for deep learning

good

Learnt about different packages available for image processing and machine vision

It provided an insight into Matlab tools, libraries and repositories which was not known

Innovative thinking of transformation from one domain to other

Improve self learning skills

Incorporation of innovative ideas in research field.

A good session that gave insights for a beginner on how to start using the MATLAB application

Gained insights into hands-on exercises, project-based learning, and online resources.

Exposed new type of software using that we can diversify our research.

Could explore the physical modeling and Simulink tool

MANGALORE INSTITUTE OF TECHNOLOGY & ENGINEERING

(A unit of Rajalaxmi Education Trust ®, Mangalore)

Autonomous Institute Affiliated to V.T.U., Belagavi, Approved by AICTE, New Delhi

Accredited by NAAC with A+ Grade & ISO 9001:2015 Certified Institution.

Internal Quality Assurance Cell (IQAC)

Faculty Development Program (FDP)

on

"MATLAB Mastery: Crafting Innovative Workflows for Physical Modeling and Analysis"

5th to 7th February, 2024

Attendance Sheet

Sl. No.	Name	Department	05/02/2024	
			FN	AN
1	Ms. Anusha Jain	Civil Engineering		
2	Dr. Jayaprakash M C	Civil Engineering		
3	Ms. Sadhana K	Master of Computer Application	5/2/24	5/2/24
4	Mr. Ragesh Raju	Master of Computer Applications	05/2/24	05/2/24
5	Dr. Sumanth Joishy	Department of Physics		
6	Dr. Anthoni Praveen Menezes	Department of Physics		
7	Dr. Mamatha I.	Electronics & Communication Engineering		
8	Ms. Poornima K	Electronics & Communication Engineering		
9	Ms. Bhakthi Shetty	Electronics & Communication Engineering		
10	Ms. Bhavya S	Electronics & Communication Engineering		
11	Ms. Rashmi. M. R	Department of Mathematics	05/02/24	05/02/24
12	Dr. Vasanth Kumar S	Department of Mathematics	05/2/24	5/2/24
13	Dr. Pavithra G P	Department of Chemistry		
14	Ms. Ashwini A Kamath	Department of Chemistry		
15	Dr. Vignesh Nayak Ullal	Mechanical Engineering	—	—
16	Ms. Sowmya S	Computer Science & Engineering		
17	Ms. Jyothi V Prasad	Computer Science & Engineering		
18	Ms. Amrutha	Computer Science & Engineering		
19	Ms. Shwetha Kamath	Computer Science & Engineering		

Convener-IQAC

Dean QA & Convener IQAC

MANGALORE INSTITUTE OF TECHNOLOGY & ENGINEERING

(A unit of Rajalaxmi Education Trust ®, Mangalore)
Autonomous Institute Affiliated to V.T.U., Belagavi, Approved by AICTE, New Delhi
Accredited by NAAC with A+ Grade & ISO 9001:2015 Certified Institution.

Internal Quality Assurance Cell (IQAC)

Faculty Development Program (FDP)
on
"MATLAB Mastery: Crafting Innovative Workflows for Physical Modeling and Analysis"

5th to 7th February, 2024

Attendance Sheet

Sl. No.	Name	Department	06/02/2024	
			FN	AN
1	Ms. Anusha Jain	Civil Engineering	—	
2	Dr. Jayaprakash M C	Civil Engineering		
3	Ms. Sadhana K	Master of Computer Application	6/2/2024	6/2/2024
4	Mr. Ragesh Raju	Master of Computer Applications	06/2/24	06/2/24
5	Dr. Sumanth Joishy	Department of Physics		
6	Dr. Anthoni Praveen Menezes	Department of Physics		
7	Dr. Mamatha I.	Electronics & Communication Engineering		
8	Ms. Poornima K	Electronics & Communication Engineering		
9	Ms. Bhakthi Shetty	Electronics & Communication Engineering		
10	Ms. Bhavya S	Electronics & Communication Engineering		
11	Ms. Rashmi. M. R	Department of Mathematics	06/02/24	06/2/24
12	Dr. Vasanth Kumar S	Department of Mathematics		06/02/24
13	Dr. Pavithra G P	Department of Chemistry		
14	Ms. Ashwini A Kamath	Department of Chemistry		
15	Dr. Vignesh Nayak Ullal	Mechanical Engineering	—	—
16	Ms. Sowmya S	Computer Science & Engineering		
17	Ms. Jyothi V Prasad	Computer Science & Engineering		
18	Ms. Amrutha	Computer Science & Engineering		
19	Ms. Shwetha Kamath	Computer Science & Engineering		

Convener-IQAC

Mangalore Institute of Technology & Engineering
Dean QA & Convener IQAC

MANGALORE INSTITUTE OF TECHNOLOGY & ENGINEERING

(A unit of Rajalaxmi Education Trust ®, Mangalore)

Autonomous Institute Affiliated to V.T.U., Belagavi, Approved by AICTE, New Delhi

Accredited by NAAC with A+ Grade & ISO 9001:2015 Certified Institution.

Internal Quality Assurance Cell (IQAC)

Faculty Development Program (FDP)

on

"MATLAB Mastery: Crafting Innovative Workflows for Physical Modeling and Analysis"

5th to 7th February, 2024

Attendance Sheet

Sl. No.	Name	Department	07/02/2024	
			FN	AN
1	Ms. Anusha Jain	Civil Engineering	—	—
2	Dr. Jayaprakash M C	Civil Engineering		
3	Ms. Sadhana K	Master of Computer Application	7/2/2024	7/2/2024
4	Mr. Ragesh Raju	Master of Computer Applications	07/2/24	07/2/24
5	Dr. Sumanth Joishy	Department of Physics		
6	Dr. Anthoni Praveen Menezes	Department of Physics		
7	Dr. Mamatha I.	Electronics & Communication Engineering		
8	Ms. Poornima K	Electronics & Communication Engineering		
9	Ms. Bhakthi Shetty	Electronics & Communication Engineering		
10	Ms. Bhavya S	Electronics & Communication Engineering		
11	Ms. Rashmi. M. R	Department of Mathematics	7/2/24	
12	Dr. Vasanth Kumar S	Department of Mathematics	7/2/24	7/2/24
13	Dr. Pavithra G P	Department of Chemistry		
14	Ms. Ashwini A Kamath	Department of Chemistry		
15	Dr. Vignesh Nayak Ullal	Mechanical Engineering	—	—
16	Ms. Sowmya S	Computer Science & Engineering		
17	Ms. Jyothi V Prasad	Computer Science & Engineering		
18	Ms. Amrutha	Computer Science & Engineering		
19	Ms. Shwetha Kamath	Computer Science & Engineering		

Convener-IQAC

6. Faculty Development Programme on Additive Manufacturing for Research & Innovation

Resource persons

Professionals specializing in Additive Manufacturing (AM) from reputed Indusries, National Resaerch Centre & Academic institution.

Course contents

- Fundamentals of additive manufacturing
- Polymer AM Processes and Technologies
- AM Process Flow
- Software Tools for AM
- Surface modifications in metal AM
- CAD Modelling & Slicer Software hands on session
- Materials in AM
- Metallurgy in AM
- Post processing & Reverse Engineering AM parts
- Metal 3D Printer & it's process parameters
- Hands-on session on operating a basic 3D printer
- Applications of AM in Aerospace Industries
- Real-World AM Applications & Future Trends & Challenges
- Research and Innovation in AM

Back to index

Who can attend:

- Faculty, Research Scholar, PG students and Industrial personnel.
- The maximum number of participants is limited to 35.
- Interested participants are requested to register through the following link along with their ID card and No objection certicate (or self-declaration) from the host organization.

https://forms.gle/YVM7W6bSZcomEPLg7

Last date for registration is 20th January 2024

No registration fees. No TA/DA will be provided for the participants.

- Candidates selected for the FDP will be notified via email.
- Participants should attend all the sessions to get the certificate.
- Accommodation will be provided for the outstation participants on shared basis at the institute's hostels based on the availability.

For further details contact FDP Co-ordinators

Dr. Shivaramu H T
Sr. Assistant Professor
MITE,Moodabidri
9964144078
shivaramu@mite.ac.in

Mr. Aveen K P
Sr. Assistant Professor
MITE,Moodabidri
9483982466
aveen@mite.ac.in

MANGALORE INSTITUTE OF TECHNOLOGY & ENGINEERING

(A Unit of Rajalaxmi Education Trust ®, Mangalore)
Autonomous Institute affiliated to VTU, Belagavi,
Approved by AICTE, New Delhi
Accredited by NAAC with A+ Grade & an ISO 9001:2015
Certified Instiution

NAAC A+ GRADE CGPA: 3.44

nirf Innovation Ranking 151-300

DEPARTMENT OF MECHANICAL ENGINEERING

Organizing a

Faculty Development Programme

on

ADDITIVE MANUFACTURING FOR RESEARCH AND INNOVATION

29th Jan - 02nd Feb 2024

in association with

National Centre for Additive Manufacturing

NATIONAL CENTRE FOR ADDITIVE MANUFACTURING

GOVERNMENT OF TELANGANA

सत्यमेव जयते

इलेक्ट्रॉनिकी एवं सूचना प्रौद्योगिकी मंत्रालय
MINISTRY OF ELECTRONICS AND INFORMATION TECHNOLOGY

About MITE:

In the realm of technical education, Mangalore Institute of Technology & Engineering (MITE) emerges as a distinguished landmark. Established in 2007, MITE now boasts over 3000 students and 180 expert faculty members, offering a diverse array of academic programs. These include 10 cutting-edge Undergraduate Engineering Programs, advanced Postgraduate Engineering courses, an MBA, an MCA, and 7 intensive Research Programs. Renowned for its commitment to excellence, MITE is an **Autonomous institution** affiliated with Visvesvaraya Technological University (VTU), Belagavi and recognized by the AICTE, New Delhi. MITE has earned the prestigious NAAC A+ Grade and a notable position in the NIRF Innovation Band 151-300, reflecting its unwavering dedication to fostering innovation and delivering quality education.

MITE has a steadfast belief in "making a difference" in the lives of students and the future generation by going beyond curriculum and academics. To attain this, institute has established an ecosystem for innovation, creativity, critical thinking, life-long learning and social entrepreneurship. MITE's commitment to industry relevance is further manifested through strategic partnerships with leading Global companies like Salesforce, UiPath, KPIT, Bosch-Rexroth, SIEMENS, TIEI, and many more. With an intent to shape globally competent graduates, MITE has established a campus that would aid students to manifest their true selves by promoting effective learning, and creativity, to ensure that they become formidable individuals to "**INVENT SOLUTIONS**".

About Department:

The stream of Mechanical Engineering is one of the most diverse and versatile field of engineering. It encompasses the study of objects and systems in motion. The Department of Mechanical Engineering at MITE was started in the year 2007 along with the inception of the Institute with an intake of 60. The Mechanical Engineering Program has accredited by National Board of Accreditation (NBA), AICTE, New Delhi from 2017. The department of Mechanical Engineering had received a grant of INR 13.5 lakhs from AICTE to set up "Advanced Material Testing laboratory"during theyear 2019-20 and about INR 15 lakhs from various funding agencies to organize conferences and FDPs.

Back to index

About NCAM:

National Centre for Additive Manubiacturing (NCAM) has been established by the Ministry of Electronics and Information Technology (MEITY), Govt. of India and ITE&C Department, Govt. of Telangana in partnership with industry. It is established with a vision to develop a comprehensive Additive Manufacturing (AM) ecosystem in the county and to position India as a Gobal AM Manufacturing Hub. NCAM aims to create and enable a sustainable ecosystem for product innovation in India with emphasis on research, design, development and testing through collaborative efforts between academia, industry and government using the disruptive technology of AM.

The Objectives of Additive Technology Enhancement Program (ATEP):

The primary objective of the Additive Technology Enhancement Program (ATEP) of NCAM is to acquaint the participants with the concepts of AM, provide exposure of the various AM technologies, materials science aspect for AM, CAD modeling of AM processes and their applications in various industry domains. Also, this programme can update the partiapants about the AM landscape with its latest advancements, opportunities, emerging trends and challengesinvolved in adoption in India. This programme also aims to provide hands on exposure to the participants on 3D printers and for 3D printing of parts.

Objectives of the FDP:

- To provide participants with a thorough understanding of the fundamental ideas and technological foundations of additive manufacturing.
- To introduce participants to state-of-the-art methods for AM that go beyond standard 3D printing, such as generative design and material printing.
- Aiding educators in creating new curricula centered on additive manufacturing or incorporating the technology's principles into already-existing courses.

Outcomes of the FDP:

- The FDP could lead to the initiation of new research projects or collaborations focused on additive manufacturing.
- Comprehensive understanding of additive manufacturing technologies, processes, materials, and applications.
- To explore research opportunities in the field of additive manufacturing.

Chief Patron

Sri. Rajesh Chouta
Chairman, MITE, Moodabidri

Patron

Dr. Prashanth C M
Principal, MITE, Moodabidri

Co-Patron

Dr. Rajashekhar C R
Vice-Principal, MITE, Moodabidri

Advisor

Mr. Narendra U P
Director (Placements, Training and Industry Relations)
MITE, Moodabidri

Co-ordinator

Dr. Shivaramu H T
Senior Assistant Professor, Dept. of ME, MITE

Co-coordinator

Mr. Aveen K P
Senior Assistant Professor, Dept. of ME, MITE

Organizing Committee

Mr. Shridar D R, Sr. Assistant Professor, Mechanical Engg

Mr. Yuvraj K B, Assistant Professor, Mechanical Engg

Mr. Santhosh Acharya, Assistant Professor, Mechanical Engg

Mr. Arun Krishnan, Assistant Professor, Mechanical Engg

Mr. B Shankar Shenoy, Assistant Professor, Mechanical Engg

Program Schedule.

9.00 am – 9.30 am Inauguration & Keynote address by Mr. Santhosh.M.S, Manager-Sales, Wipro 3D, Bengaluru, Karnataka.

Day/Time	9.30 a.m. – 11.00 a.m.	Tea Break (11.00 a.m. – 11.15 a.m.)	11.15 a.m. – 12.45 p.m.	Lunch Break (12.45 p.m. – 1.45 p.m.)	1.30 p.m. – 3.15 p.m.	Tea Break (3.15 p.m. – 3.30 p.m.)	3.30 p.m. – 5.30 p.m.
Day 1 29-01-2024 (Monday)	Fundamentals of Additive Manufacturing Mr. Sai Rakesh K Engineer, Wipro 3D, Bengaluru, Karnataka		Metal AM Processes and Technologies Dr. A.S.S. Balan Assistant Professor Grade I Dept. of Mechanical Engg, NITK Surathkal, Mangalore		Surface Modifications in Metal AM Dr. A.S.S. Balan Assistant Professor Grade I Dept. of Mechanical Engg, NITK Surathkal, Mangalore		Hands-on session on operating a basic 3D Printers Mr. Swaroop G District Innovation Associate, K-Tech - New Age Innovation Network, MITE
Day 2 30-01-2024 (Tuesday)	AM Process Flow Mr. Sai Rakesh K Engineer, Wipro 3D, Bengaluru, Karnataka		Additive Manufacture Aided UAV Development Mr. Roshan Antony Principal Scientist, CSIR - National Aerospace Laboratories (NAL), Bengaluru		Wind Tunnel Testing of Additive Manufactured UAV design Mr. Roshan Antony Principal Scientist, CSIR - NAL, Bengaluru		CAD Modelling & Slicer Software hands on session Mr. Aveen K P Sr. Assistant Professor, MITE
Day 3 31-01-2024 (Wednesday)	Magic's software Demo for Metal AM Mr. Sai Rakesh K Engineer, Wipro 3D, Bengaluru, Karnataka		Materials in AM Dr. L Jyothish Kumar Founder Preident, Additive Manufacturing Society of India (AMSI) - Bengaluru		Direct Deposition AM Technology : Process, Materials and acceptance standards Dr. L Jyothish Kumar Founder President, AMSI - Bengaluru		Printing of objects using 3D printer Dr. Shivaramu H T Sr. Assistant Professor, MITE
Day 4 01-02-2024 (Thrusday)	Metallurgy in AM Mr. Sai Rakesh K Engineer, Wipro 3D, Bengaluru, Karnataka		Metal 3D Printer & it's Process Parameters Mr. Sai Rakesh K Engineer, Wipro 3D, Bengaluru, Karnataka		Real-World AM Applications & Future Trends and Challenges Mrs. Akshatha H Dayananda Technical Leader, Wipro 3D, Bengaluru, Karnataka		Printing of objects using 3D printer Dr. Shivaramu H T Sr. Assistant Professor, MITE
Day 5 02-02-2024 (Friday)	Research and Innovation in AM Dr. Mohan Kumar Associate Professor, MITE		Applications of AM in Aerospace Industries Dr. Anand S N Professor & Head, Dept. of Aeronautical Engg., MITE		Sustainability in AM Mrs. Akshatha H Dayananda Technical Leader, Wipro 3D, Bengaluru, Karnataka		Assesment, Feedback and Valedictory

Back to index

MANGALORE INSTITUTE OF TECHNOLOGY & ENGINEERING

(A Unit of Rajalaxmi Education Trust®, Mangalore)
Autonomous Institute affiliated to VTU, Belagavi, Approved by AICTE, New Delhi
Accredited by NAAC with A+ Grade & ISO 9001:2015 Certified Institution

DEPARTMENT OF MECHANICAL ENGINEERING

Organized

Faculty Development Programme

on

ADDITIVE MANUFACTURING FOR RESEARCH AND INNOVATION

29th Jan - 02nd Feb 2024

In association with

National Centre for Additive Manufacturing

NATIONAL CENTRE FOR ADDITIVE MANUFACTURING

सत्यमेव जयते

इलेक्ट्रॉनिकी एवं
सूचना प्रौद्योगिकी मंत्रालय
MINISTRY OF
ELECTRONICS AND
INFORMATION TECHNOLOGY

Session wise Details

Title: Additive Manufacturing for Research and Innovation

Name of the Institute: Mangalore Institute of Technology & Engineering, Badaga Mijar, Moodabidri, DK 574225 Karnataka

Schedule

Date	Time	Activity	Venue	Speaker
29-01-24 (Day-1)	9.00 – 9.30	Inauguration	Audi-2	
	9.30 – 11.00	Session I: Fundamentals of additive manufacturing		**Mr. Sai Rakesh K** Engineer, Wipro 3D, Bengaluru, Karnataka, India
	11.00 – 11.15	***Tea Break***		
	11.15 – 12.45	Session II: Metal AM Processes and Technologies	Audi-2	**Dr. A.S.S. Balan** Assistant Professor Grade I Department of Mechanical Engineering, NITK Surathkal, Mangalore
	12.45 – 1.45	***Lunch Break***		
	1.45 – 3.15	Session III: Surface modifications in metal AM	Audi-2	**Dr. A.S.S. Balan** Assistant Professor Grade I Department of Mechanical Engineering, NITK Surathkal, Mangalore
	3.15 – 3.30	***Tea Break***		
	3.30 – 5.30	Session IV : Hands-on session on operating a basic 3D printer	Maker Space	**Mr. Swaroop G** District Innovation Associate, K-Tech - New Age Innovation Network, MITE
30-01-24 (Day-2)	9.30 – 11.00	Session I : AM Process Flow	Audi-2	**Mr. Sai Rakesh K** Engineer, Wipro 3D, Bengaluru, Karnataka, India
	11.00 – 11.15	***Tea Break***		
	11.15 – 12.45	Session II: Additive Manufacture Aided UAV Development	Audi-2	**Mr. Roshan Antony** Principal Scientist, CSIR - National Aerospace Laboratories (NAL), Bengaluru, Karnataka.
	12.45 – 1.45	***Lunch Break***		

	1.45 – 3.15	Session III: Wind Tunnel Testing of Additive Manufactured UAV design	Audi-2	**Mr. Roshan Antony** Principal Scientist, CSIR - National Aerospace Laboratories (NAL), Bengaluru, Karnataka.
	3.15 – 3.30	***Tea Break***		
	3.30 – 5.30	Session IV : CAD Modelling & Slicer Software hands on session	Siemens Lab	**Mr. Aveen K P** Sr. Assistant Professor, MITE
31-01-24 (Day-3)	9.30 – 11.00	Session I : Magic's software Demo for Metal AM	Audi-2	**Mr. Sai Rakesh K** Engineer, Wipro 3D, Bengaluru, Karnataka, India
	11.00 – 11.15	***Tea Break***		
	11.15 – 12.45	Session II: Materials in AM	Audi-2	**Dr. L Jyothish Kumar** Founder & President, Additive Manufacturing Society of India (AMSI) - Bangalore, Karnataka, India
	12.45 – 1.45	***Lunch Break***		
	1.45 – 3.15	Session III: Direct Deposition AM Technology : Process, Materials and acceptance standards	Audi-2	**Dr. L Jyothish Kumar** Founder & President, Additive Manufacturing Society of India (AMSI) - Bangalore, Karnataka, India
	3.15 – 3.30	***Tea Break***		
	3.30 – 5.30	Session IV : Printing of objects using 3D printer	Maker Space	**Dr. Shivaramu H T** Sr. Assistant Professor, MITE
01-02-24 (Day-4)	9.30 – 11.00	Session I : Metallurgy in AM	Audi-2	**Mr. Sai Rakesh K** Engineer, Wipro 3D, Bengaluru, Karnataka, India
	11.00 – 11.15	***Tea Break***		
	11.15 – 12.45	Session II: Metal 3D Printer & it's process parameters	Audi-2	**Mr. Sai Rakesh K** Engineer, Wipro 3D, Bengaluru, Karnataka, India
	12.45 – 1.45	***Lunch Break***		
	1.45 – 3.15	Session III: Real-World AM Applications & Future Trends and Challenges	Audi-2	**Mrs. Akshatha H Dayananda** Technical Leader, Wipro 3D, Bengaluru, Karnataka, India

	3.15 – 3.30	***Tea Break***		
	3.30 – 5.30	Session IV: Printing of objects using 3D printer	Maker Space	**Dr. Shivaramu H T** Sr. Assistant Professor, MITE
02-02-24 (Day-5)	9.30 – 11.00	Session I : Research and Innovation in AM	Audi-2	**Dr. Mohan Kumar** Associate Professor, MITE
	11.00 – 11.15	***Tea Break***		
	11.15 – 12.45	Session II: Applications of AM in Aerospace Industries	Audi-2	**Dr. Anand S N** Professor & Head, Dept. of Aeronautical Engg., MITE
	12.45 – 1.45	***Lunch Break***		
	1.45 – 3.15	Session III: Sustainability in AM	Audi-2	**Mrs. Akshatha H Dayananda** Technical Leader, Wipro 3D, Bengaluru, Karnataka, India
	3.15 – 3.30	***Tea Break***		
	3.30 – 5.30	Session IV: Assessment (60 Min.), Feedback (15 Min.) & Valedictory (30 Min.)	Audi-2	Coordinators

External Speakers Details

Mr. Sai Rakesh K
Engineer, Wipro 3D, Bengaluru, Karnataka, India

Dr. A.S.S. Balan
Assistant Professor
Department of Mechanical Engineering, NITK Surathkal, Mangalore

Mr. Roshan Antony
Principal Scientist, CSIR - National Aerospace Laboratories (NAL), Bengaluru, Karnataka

Dr. L Jyothish Kumar
Founder & President, Additive Manufacturing Society of India (AMSI) - Bangalore, Karnataka, India

Mrs. Akshatha H Dayananda
Technical Leader, Wipro 3D, Bengaluru, Karnataka, India

About NCAM:

The National Centre for Additive Manufacturing (NCAM) has been established by the Ministry of Electronics and Information Technology (MEITY), Govt. of India and ITE&C Department, Govt. of Telangana in partnership with industry. It is established with a vision to develop a comprehensive Additive Manufacturing (AM) ecosystem in the county and to position India as a Global AM Manufacturing Hub. NCAM aims to create and enable a sustainable ecosystem for product innovation in India with emphasis on research, design, development and testing through collaborative efforts between academia, industry and government using the disruptive technology of AM.

The Objectives of Additive Technology Enhancement Program (ATEP):

The primary objective of the Additive Technology Enhancement Program (ATEP) of NCAM is to acquaint the participants with the concepts of AM, provide exposure of the various AM technologies, materials science aspect for AM, CAD modeling of AM processes and their applications in various industry domains. Also, this programme can update the participants about the AM landscape with its latest advancements, opportunities, emerging trends and challenges involved in adoption in India. This programme also aims to provide hands on exposure to the participants on 3D printers and for 3D printing of parts.

Objectives of the FDP:

- To provide participants with a thorough understanding of the fundamental ideas and technological foundations of additive manufacturing.
- To introduce participants to state-of-the-art methods for AM that go beyond standard 3D printing, such as generative design and material printing.
- Aiding educators in creating new curricula centered on additive manufacturing or incorporating the technology's principles into already-existing courses.

Outcomes of the FDP:

- The FDP could lead to the initiation of new research projects or collaborations focused on additive manufacturing.
- Comprehensive understanding of additive manufacturing technologies, processes, materials, and applications.
- To explore research opportunities in the field of additive manufacturing.

Inauguration Session

Along with Dr. Prashanth C M, Principal; Dr. C R Rajashekar, Vice Principal; and Dr. Shivaramu H T, Coordinator of the FDP, Chief Guest **Mr. Santhosh M.S.**, Manager-Sales, Wipro 3D, Bangalore, was lighting the lamp.

The inauguration of the FDP on "Additive Manufacturing for Research and Innovation" commenced with the lighting of the lamp by the esteemed Chief Guest, Mr. Santhosh M.S., Manager-Sales at Wipro 3D, Bangalore. The Vice Principal, Dr. C R Rajashekar extended warm wishes to the participants, while the Dr. Prashanth C M, Principal underscored the significance of faculty members upgrading their skills and technologies to deliver content effectively in the classroom. The coordinator Dr. Shivaramu H T outlined the objectives and anticipated outcomes of the FDP, extending a warm welcome to all attendees. Concluding the inaugural session, Mr. Aveen K.P., the Co - coordinator, expressed gratitude through a vote of thanks

29-01-24 (Day-1)

Session I: Fundamentals of additive manufacturing

Delivered by **Mr. Sai Rakesh K,** Engineer, Wipro 3D, Bengaluru, Karnataka, India

The speaker provided a comprehensive overview of additive manufacturing, highlighting its layer-by-layer construction, digital design process, and diverse applications across industries. He emphasized its advantages such as reduced material waste and design flexibility, while also acknowledging challenges like limited material selection and the need for skilled personnel. Overall, the presentation underscored the transformative potential of additive manufacturing in modern manufacturing processes.

Session II: Metal AM Processes and Technologies

Delivered by **Dr. A.S.S. Balan,** Assistant Professor Grade I, Department of Mechanical Engineering, NITK Surathkal, Mangalore

The speaker delivered a comprehensive overview of metal AM processes and technologies, highlighting advancements and applications in the field. Key topics included various metal AM techniques such as powder bed fusion, directed energy deposition, and binder jetting, emphasizing their roles in producing complex metal parts with high precision. The presentation underscored the transformative potential of metal AM in industries such as aerospace, automotive, and healthcare, paving the way for innovative manufacturing solutions and product designs.

Session III: Surface modifications in metal AM

Delivered by **Dr. A.S.S. Balan,** Assistant Professor Grade I, Department of Mechanical Engineering, NITK Surathkal, Mangalore

The speaker discussed surface modifications in metal additive manufacturing (AM), highlighting techniques to enhance surface quality and functionality of AM-produced metal parts. They emphasized methods such as surface finishing, post-processing treatments, and coating applications to address challenges such as roughness, porosity, and surface integrity. The talk underscored the importance of optimizing surface properties to meet the demanding requirements of various industrial applications.

Session IV: Hands-on session on operating a basic 3D printer

Engaged by **Mr. Swaroop G,** District Innovation Associate, K-Tech - New Age Innovation Network, MITE

The speaker led a hands-on session demonstrating the operation of a basic 3D printer. Participants gained practical experience in loading printing materials, preparing digital designs for printing, and initiating the printing process. The session provided valuable insights into the foundational aspects of additive manufacturing and its potential applications.

30-01-24 (Day-2)

Session I: AM Process Flow

Delivered by **Mr. Sai Rakesh K,** Engineer, Wipro 3D, Bengaluru, Karnataka, India

The speaker provided a concise overview of the additive manufacturing (AM) process flow, highlighting its digital design phase, layer-by-layer material deposition, and post-processing steps. They emphasized the importance of digital modeling in AM, followed by precise material deposition techniques and the necessity of post-processing for refining the final product. Overall, the presentation outlined the sequential stages involved in AM, underscoring its transformative potential in modern manufacturing.

Session II: Additive Manufacture Aided UAV Development

Delivered by **Mr. Roshan Antony,** Principal Scientist, CSIR - National Aerospace Laboratories

The speaker discussed how additive manufacturing is aiding in the development of unmanned aerial vehicles (UAVs), emphasizing its role in rapid prototyping and customized component production. They highlighted the benefits of AM, such as design flexibility and reduced lead times, enabling faster iteration and innovation in UAV development. The presentation underscored how AM is revolutionizing the aerospace industry by enabling the creation of lightweight, complex UAV structures with improved performance and efficiency.

Session III: Wind Tunnel Testing of Additive Manufactured UAV design

Delivered by **Mr. Roshan Antony,** Principal Scientist, CSIR - National Aerospace Laboratories

The speaker presented findings from wind tunnel testing of a UAV design fabricated using additive manufacturing techniques. The study evaluated the aerodynamic performance and structural integrity of the UAV prototype. Results indicated promising outcomes, showcasing the potential of additive manufacturing for rapid and efficient development of UAVs with optimized design characteristics.

Session IV: CAD Modelling & Slicer Software hands on session

Engaged by **Mr. Aveen K P,** Sr. Assistant Professor, MITE

During the session on CAD modeling and slicer software, participants engaged in a practical hands-on experience, learning to create digital 3D models using CAD software and then slicing them into printable layers with slicer software. The speaker provided guidance on design principles and optimization techniques, equipping attendees with essential skills for additive manufacturing workflows. Overall, the session enabled participants to gain practical knowledge in preparing digital models for 3D printing processes.

31-01-24 (Day-3)

Session I: Magic's software Demo for Metal AM

Delivered by **Mr. Sai Rakesh K,** Engineer, Wipro 3D, Bengaluru, Karnataka, India

During the presentation, the speaker showcased Magic's software demonstration for Metal Additive Manufacturing (AM), highlighting its advanced capabilities in optimizing designs, managing material properties, and ensuring printability. The software's intuitive interface and powerful tools were emphasized, promising to streamline the AM workflow and unlock new possibilities in metal 3D printing. Attendees were impressed by the potential of Magic's solution to accelerate innovation and improve efficiency in metal AM processes.

Session II: Materials in AM

Delivered by **Dr. L Jyothish Kumar,** Founder & President, Additive Manufacturing Society of India (AMSI) - Bangalore, Karnataka, India

The speaker discussed the pivotal role of materials in additive manufacturing (AM), emphasizing their influence on product performance and manufacturability. They highlighted the diverse range of materials used in AM processes, from polymers and metals to ceramics and composites, each with unique properties and processing requirements. Additionally, the speaker underscored the ongoing research efforts aimed at developing new materials tailored for specific AM applications, driving innovation in the field.

Session III: Direct Deposition AM Technology: Process, Materials and acceptance standards

Delivered by **Dr. L Jyothish Kumar,** Founder & President, Additive Manufacturing Society of India

The speaker delivered a comprehensive overview of Direct Deposition Additive Manufacturing (AM) technology, emphasizing its process intricacies, material selection considerations, and acceptance standards. They highlighted the significance of precise material deposition techniques, the versatility of materials utilized, and the importance of adherence to established quality benchmarks for industry-wide acceptance. The presentation underscored Direct Deposition AM's potential to revolutionize manufacturing by enabling intricate designs, diverse material applications, and meeting stringent quality requirements.

Session IV: Printing of objects using 3D printer

Engaged by **Dr. Shivaramu H T**, Sr. Assistant Professor, MITE

The speaker delivered an informative talk on the printing of objects using 3D printers, highlighting the revolutionary process of additive manufacturing. They discussed the layer-by-layer construction method, digital design principles, and diverse material deposition techniques employed in 3D printing. The presentation emphasized the wide-ranging applications and benefits of additive manufacturing across industries.

01-02-24 (Day-4)

Session I: Metallurgy in AM

Delivered by **Mr. Sai Rakesh K,** Engineer, Wipro 3D, Bengaluru, Karnataka, India

The speaker highlighted the critical role of metallurgy in additive manufacturing (AM), emphasizing the importance of understanding material properties and behavior during the printing process. They discussed the challenges of ensuring material integrity and performance in AM, particularly in metal-based printing techniques. Additionally, the speaker underscored the ongoing research efforts aimed at optimizing metallurgical processes to enhance the quality and reliability of AM-produced metal parts.

Session II: Metal 3D Printer & its process parameters

Delivered by **Mr. Sai Rakesh K,** Engineer, Wipro 3D, Bengaluru, Karnataka, India

The speaker discussed Metal 3D printing and emphasized the significance of process parameters in achieving optimal results. They highlighted key factors such as laser power, scanning speed, layer thickness, and powder bed temperature, stressing their impact on part quality and build efficiency. The presentation underscored the importance of understanding and controlling these parameters for successful metal additive manufacturing applications.

Session III: Real-World AM Applications & Future Trends and Challenges

Delivered by **Mrs. Akshatha H Dayananda,** Technical Leader, Wipro 3D, Bengaluru,

The speaker highlighted real-world applications of additive manufacturing (AM) across industries like aerospace, healthcare, and automotive, emphasizing its role in rapid prototyping, customized production, and supply chain optimization. Future trends discussed included advancements in AM materials, increased integration with digital technologies like AI and IoT, and the potential for AM to revolutionize spare parts management. Challenges identified encompassed material limitations, regulatory hurdles, and the need for standardization to ensure quality and scalability in AM adoption.

Session IV: Printing of objects using 3D printer

Engaged by **Dr. Shivaramu H T**, Sr. Assistant Professor, MITE

Participants successfully printed a variety of objects using a 3D printer, showcasing the versatility and potential of additive manufacturing technology. The process involved digital design creation, material deposition, and post-processing steps to achieve desired results. This demonstration highlighted the practical applications and benefits of additive manufacturing in creating complex geometries and customized products.

02-02-24 (Day-5)

Session I: Research and Innovation in AM

Delivered by **Dr. Mohan Kumar,** Associate Professor, MITE

During the session on Research and Innovation in Additive Manufacturing (AM), speakers highlighted the latest advancements in AM technologies, materials, and processes. They discussed ongoing research initiatives aimed at enhancing AM capabilities, improving material properties, and expanding its applications across industries. The session emphasized the importance of collaboration between academia, industry, and government to drive further innovation in AM.

Session II: Applications of AM in Aerospace Industries

Delivered by **Dr. Anand S N,** Professor & Head, Dept. of Aeronautical Engg., MITE

In a session on the applications of additive manufacturing (AM) in aerospace industries, speakers highlighted the technology's pivotal role in producing lightweight yet strong components, reducing lead times for prototyping and production, and enabling intricate designs impossible with traditional methods. They emphasized how AM is revolutionizing aircraft manufacturing by improving efficiency, performance, and customization while reducing costs and material waste.

Session III: Sustainability in AM

Delivered by **Mrs. Akshatha H Dayananda,** Technical Leader, Wipro 3D, Bengaluru.

During the session on Sustainability in Additive Manufacturing, speakers highlighted the environmental benefits of AM, such as reduced material waste and energy consumption compared to traditional manufacturing methods. They also discussed the importance of using recycled and biodegradable materials in AM processes to further enhance sustainability.

Session IV: Valedictory

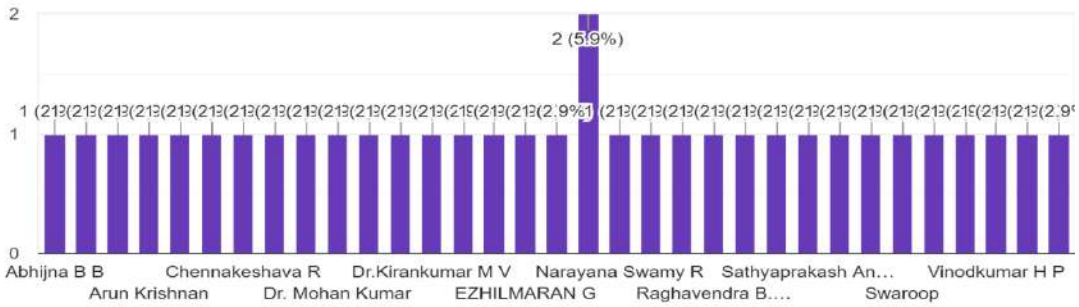
Participants enthusiastically praised the 5-day FDP on "Additive Manufacturing for Research and Innovation," highlighting its informative sessions and practical insights. Dr. Shivaramu H.T., the coordinator, expressed gratitude to all speakers, management, principal, vice principal, funding agency (NCAM), department faculty members, and participants for their active engagement, emphasizing their dedication to advancing the field. Certificates were subsequently distributed to participants by Mr. Santhosh M.S., the Sales Manager of Wipro 3D.

Additive Manufacturing for Research and Innovation

Feedback Analysis

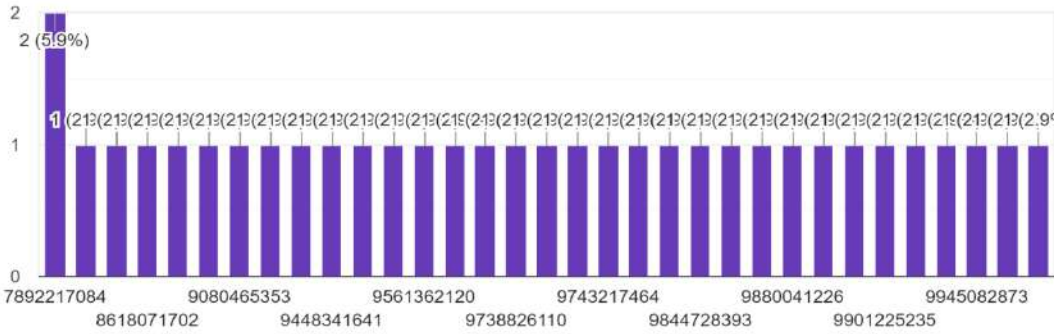
Participant Name

34 responses



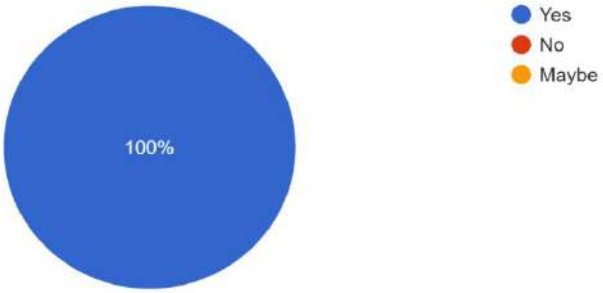
Contact Number

34 responses



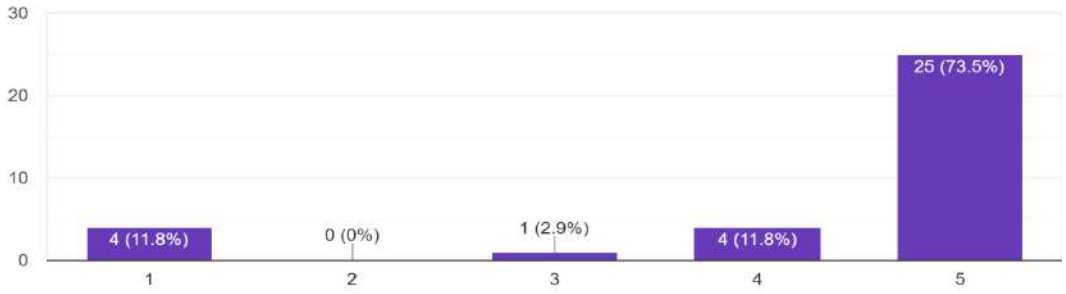
Did the program cover all the topics you expected it to ?

34 responses



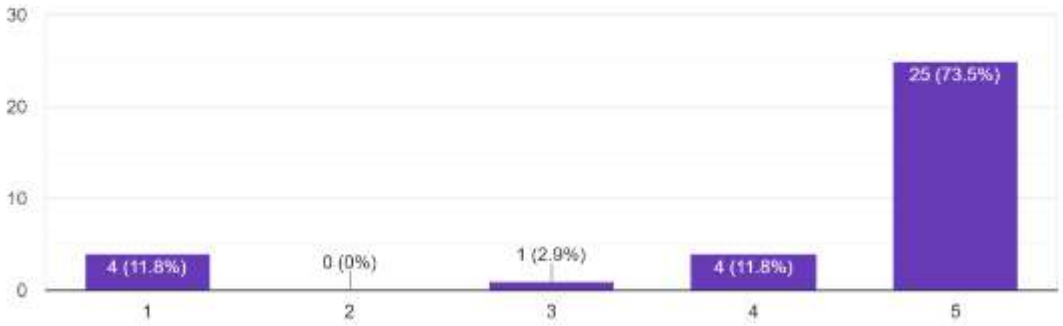
How satisfied were you with the FDP schedule and timing?

34 responses



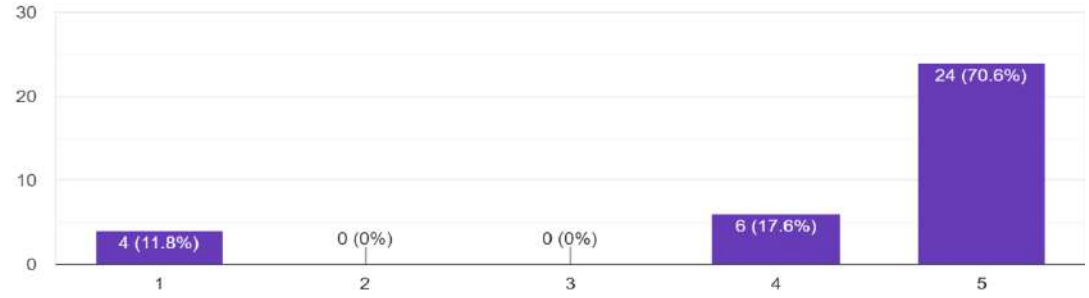
On a scale of 01 to 05, how satisfied are you with the overall program?

34 responses



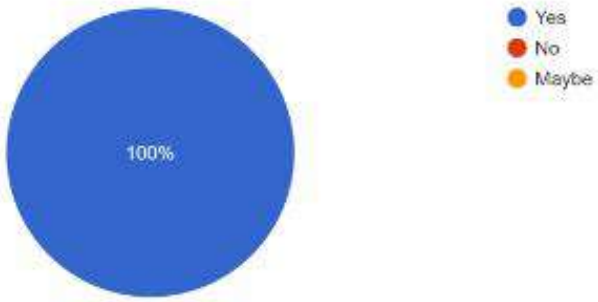
On a scale of 1-5 how successful were the program organizers in providing necessary information?

34 responses



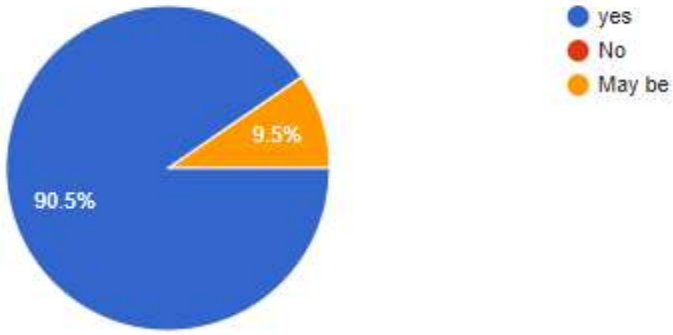
Were you able to connect and collaborate effectively with other participants?

34 responses



Do you think you will be eager to attend similar programs in the future?

2 34 responses



7. Faculty Development Programme on Energy Management & Performance optimization for Sustainable E-mobility

REPORT

ON

AICTE TRAINING AND LEARNING ACADEMY

SPONSORED

SIX DAY FACULTY DEVELOPMENT PROGRAMME

"ENERGY MANAGEMENT & PERFORMANCE OPTIMIZATION FOR SUSTAINABLE E-MOBILITY"

08.01.2024-13.01.2024

DEPARTMENT OF MECHANICAL ENGINEERING

LIST OF RERSOURCE PERSON

Sl no	*Name & Designation*	*Photo*
1	**Dr. SRINIVAS RANGA GUNTI** Head - Talent Development, General Manager Tata Passenger Electric Mobility Limited, Pune	
2	**Mr. SURAJ S D** **Founder & CEO** • EDriveUnit Engineering Solutions Private Limited **Founder & CEO** • Decibels Lab private limited	
3	**Mr. Krishna Hanamaraddi** **Research And Development Engineer** • E-Drive Unit Engineering Solutions Private Limited **Application Engineer** • Decibels Lab Pvt Ltd	

4	***Dr SOUMYA R*** ***Faculty*** ***Department of Electronics*** ***Manipal Institute of Technology***	
5	***Mrs. DIVYA D SHETTY*** ***Faculty*** ***Department of Electronics*** ***Manipal Institute of Technology***	

One Week Faculty Development Programme Schedule

	Day-1 (08.1.2024)	Day 2 (09.1.2024)	Day 3 (10.01.2024)	Day 4 (11.01.2024)	Day 5 (12.01.2024)	Day 6 (13.01.2024)
Resource Person	**Dr. Srinivas Ranga Gunti** **GM** **Tata Motors**	**Mr. Suraj S D** **CEO** **Decibels lab Pvt Ltd**	**Mr. Krishna** **AE** **Decibels lab Pvt Ltd**	**Mr. Abhinav Aravind** **BDE** **Decibels lab Pvt Ltd**	**Dr. Soumya P R** **Faculty** **Manipal Institute of Technology**	**Mrs. Divya D Shetty** **Faculty** **Manipal Institute of Technology**
9.30Am - 12.00Pm	**Session 1:** Emerging Technologies for Sustainable Future Mobility	**Session 3:** Introduction to Powertrain and basic of Sizing	**Session 5:** Project based powertrain sizing for Ather 450	**Session 7:** Li-ion cell technology & its characteristic behaviour	**Session 9:** Charging Infrastructure and Energy Management	**Session 10:** Thermal Management of EVs
12.00Pm - 1.00Pm	**ARTICLE DISCUSSION**					
TEA BREAK 11.00AM-11.15AM		**LUNCH BREAK 1.00PM-2.00PM**			**TEA BREAK 3.45PM-4.00PM**	
2.00Pm - 4.00Pm	**Session 2:** Electric Vehicle Architecture and Requirements	**Session 4:** Approach for component EV sizing and case study discussion	**Session 6:** Introduction to EV PowerTrain Modelling	**Session 8:** Overview of Li-ion cell modeling & simulation with ECM approach	**Industrial visit:** Electric Vehicle Testing Laboratory MANIPAL MIT	**MCQ, Feedback & Interactions**
4:00Pm – 5:00Pm **Practical Session:**	ATV EV DEMO	MATLAB Modelling	MATLAB Modelling	MATLAB Modelling		**Valedictory Session**

Fig: Inauguration of ATAL FDP

ATAL sponsored one week faculty development programme on the topic "Energy Management & Performance Optimization for sustainable E-Mobility" inaugurated by the esteemed chief guest Dr. Srinivas Ranga Gunti, General Manager.

This event was inaugurated in the presence of Dr. Prashanth C M, Principal, Dr. Rajashekar C R Vice Principal and Mr. Swaroop Gannamani, Assistant Professor, Department of Mechanical Engineering.

This Faculty Development Programme is mainly focused to strengthen the core domain knowledge of performance optimization in electric vehicle category. Participants from various institutes/organization have participated in this programme.

This programme has supported by technical partners TATA MOTORS, DECEIBELS LAB PVT LTD, MANIPAL INSTITUTE OF TECHNOLOGY which took a new shape to provide advanced learning experience to the participants.

This programme also covered practical sessions like Simulation using MATLAB-Simulink and in-house built Electric vehicle demonstration and Industrial visit to Electric vehicle testing laboratory.

Fig: Dr. Srinivas Ranga Gunti presenting on topic
SESSION-1: "Emerging Technologies for Sustainable Future Mobility"

He discussed on the challenges faced by the industries to upgrade technology to electric vehicle. He briefed about the concepts of on how software based innovation in automobiles are an emerging trend in the current scenerio. He explained the infrastructure used to develop advanced vehicles with robust automation in the industries.

Fig: Dr. Srinivas Ranga Gunti presenting a topic on
SESSION-2: "Electric Vehicle Architecture and Requirements"

He discussed about vehicle architecture towards vehicles of various categories under passenger vehicles. He briefed on how the latest design and innovation describes the battery and motor placement under more accuracy of performance. He also explained on how the light weight modelling helps to achieve better range of the vehicle. The amount of automation required to achieve the customer demand and its causes towards maintenance for better product design.

Fig: Mr Suraj S D presenting a topic on
SESSION-3: "Introduction to Powertrain and basic of Sizing "

He explained on how the power train design has to be made by considering critical parameters for effective performance of the vehicle on roads. He briefed about the basic things to be considered for sizing of motors and selection based on the application of vehicle. He used MATLAB software and briefed about the modelling on how to design using the simulink.

Fig: Mr. Suraj S D Presenting a topic on
SESSION-4: "Approach for component EV sizing and case study discussion "

He briefed about the components of electric vehicle that are to be considered for sizing to deliver effective performance, the component-sizing optimization process will be developed by applying PMP and POUNDERS to the EMS and component-sizing algorithm, He explained on how in a forward-looking simulation framework. For the initial parameter, we have to calculate the fuel consumption using the forward-looking simulation model to which PMP is applied; and through these results, the POUNDERS algorithm updates the parameter to find the optimum value.

Fig: Mr. Krishna S H presenting a topic on
SESSION-5: "Project based powertrain sizing for ATHER 450"

He briefed about the fundamentals of powertrain sizing using hands on calculation material for ATHER 450. He explained to all the participants on how to calculate using the various equations for performance calculation of the vehicle ATHER 450. After obtaining the desired results, participants used Simulink-Matlab for testing it and analizing the various parameters with new inputs.

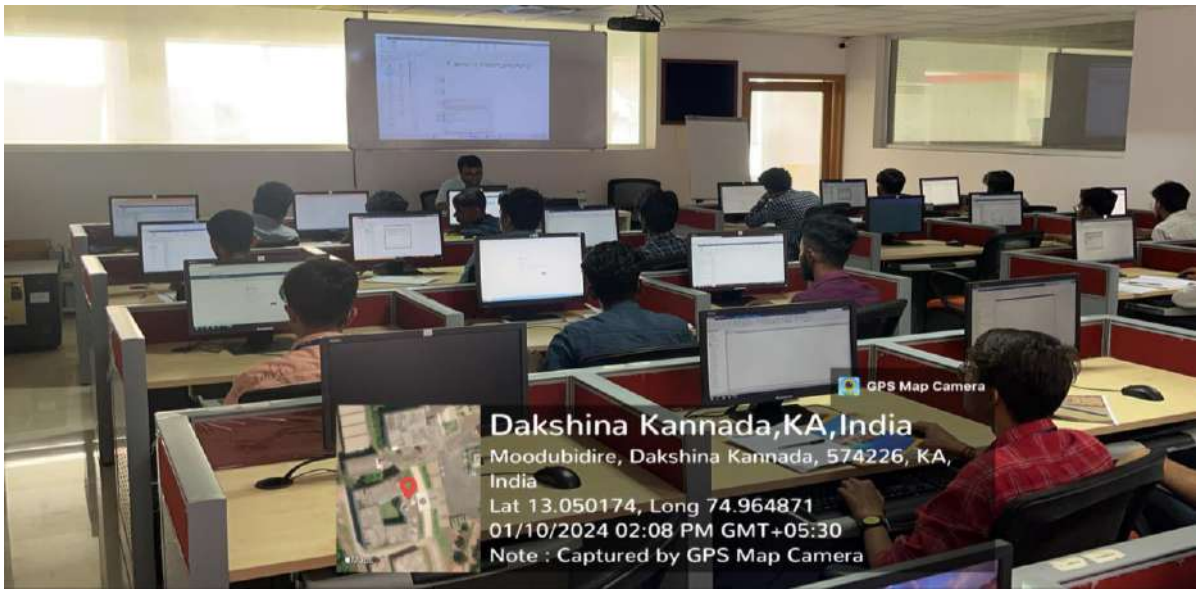


Fig: Mr. Krishna S H presenting a topic on
SESSION-6: "Introduction to EV PowerTrain Modelling"

He demonstrated the power train modelling using the Matlab simulink software to all the participants. Participants designed the modelling of electric vehicle in the matlab simulink software and obtained the desired results. He briefly explained about the different stages to be used to opitmize the performance of the electric vehicle using various parameters under different conditions.

Fig: **Mr. Krishna S H presenting a topic on**
SESSION-7: "Li-ion cell technology & its characteristic behaviour"

He explained about the various Cell technologies and its impact on performance of the vehicle in providing the required amount of energy during its power engagement. He also briefed on how to assess their environmental performance, several Life Cycle Assessments (LCA) of LIBs. He classified the various characteristics of different cells to build a high performance battery pack for advanced EV's to optimize their performance under various road conditions.

Fig: **Mr. Suraj S D Presenting a topic on**
SESSION-8: "Overview of Li-ion cell modeling & simulation with ECM approach"

He briefed on how to use simulink-modelling software to design the cell circuit and modelling it to the bring the advanced methodology to see how the various characteristics of the battery can be mixed to bring the desired output. He also explained how to integrate with the battery management system to connect with the power train and check the various parameters output.

Fig: Dr Soumya Presenting a topic on
SESSION-9: "Charging Infrastructure and Energy Management"

She briefed about the important parameters to be consdered for building various solutions for the charging infrastructure to connect EV's on the go. She also explained about the following points like consultancy and feasibility, civil design and installation,provision, installation and maintenance of hardware,software and back-office solutions,lease and purchase of products,full end-to-end service.

Fig: Mrs. Divya D Shetty Presenting a topic on
SESSION-10: "Thermal Management of EVs"

She explained on how thermal management of EV's brings the better performance of the EV. She also briefed about how Power electronic systems are responsible for controlling electric motors. Power electronic systems operate in line with the electric vehicle control system and drive the electric motor according to the control instructions. DC-DC converters, inverters, and control circuits in the power electronic system are vulnerable to thermal effects.

INDUSTRIAL VISIT: MANIPAL INSITUTE OF TECHNOLOGY

ELECTRIC VEHICLE TESTING LABORATORY

List of Participants Registered

Sl no	Name	Email-ID	Mobile Number	Institute/organization	Designation	Area
1	SHIVARAMU H T	shivaramu@mite.ac.in	9964144078	Mangalore Institute Of Technology & Engineering	Assistant Professor	PRODUCT DESIGN & MANUFACTURING
2	RAJA YATEESH YADAV	yateeshyadav@gmail.com	9964281896	Shri Madhwa Vadiraja Institute of Technology and Management	Associate Professor	Thermal Engineering
3	Nithin Joshuva	nithinjoshuva@sitmng.ac.in	8884248646	Srinivas Institute Of Technology	Assistant Professor	Mechanical
4	R.SANTHOSHKUMAR	santhoshkumarajendran@gmail.com	9600217996	Sri Ramakrishna Engineering College	Assistant Professor	power systems engineering
5	Aveen K p	aveen@mite.ac.in	9483982466	Mangalore Institute Of Technology & Engineering	Assistant Professor	Mechanical Engineering
6	Prashanth M	prashanthshetty748@gmail.com	9900556468	Mangalore Institute of Technology & Engineering	FOREMAN	Mechanical Engineering
7	Yogisha P	yogisha.p01@gmail.com	9844812092	Mangalore Institute of Technology & Engineering	Lab Instructor	ITI
8	karthik	karthik.mec777@mite.ac.in	8296780838	Mangalore Institute of Technology & Engineering	Lab Instructor	Dimploma-MEchanical Engineering
9	Harish Thantri	thantriharish@yahoo.com	9964280045	S N M Polytechnic, Moodubidire	Lecturer	Electrical and Electronics Engineering
10	PRAVEEN K C	praveenkc.ken@gmail.com	9739933530	Alvas Institute of Engineering and Technology	Assistant Professor	Machine Design
11	Dhavalakeerthi	dhavala65@gmail.com	9980687815	S N Mudbidre Polytechnic	Selection Grade Lecturer	Electrical & Electronics

12	Noronha Tarina Rita	tarinasnmp@gmail.com	8105916990	S N Mudbidri Polytechnic, Moodubidire	Selection Grade Lecturer	Electrical and Electronics Engineering
13	PRADEEP D G	dgp@mcehassan.ac.in	9886827411	Malnad College of Engineering	Assistant Professor	Mechanical Engineering
14	Mohamed Gowspeer	mgp.mech@sitmng.ac.in	7892217084	Srinivas Institute of Technology	Assistant Professor	Automation
15	Prathap M S	msp@mcehassan.ac.in	9035959755	Malnad College of Engineering	Assistant Professor	Mechanical Engineering
16	VENKATESH RAO S N	vr.mech@sitmng.ac.in	7975473898	Srinivas Institute of Technology	Assistant Professor	CIM
17	Madhu Kolpe	madhukolpe416@gmail.com	8088392459	Friends auto works	Technician	Maintanance department
18	Sidharth K S	kososidharth@gmail.com	9446667744	Collins Aerospace	Associate Engineer	Aerospace
19	Abhay Kumar	abhay2u4u@gmail.com	6360860568	Cognizant technology solutions	Programmer Analyst	Automation testing
20	Sanjay Mangalore	sanjay4444saliaan@gmail.com	7483039694	Infosys	System Engineer	Integration Development
21	Nishanth raj JK	raj.nishanth99@gmail.com	9113595347	Cyient	Embedded hardware engineer	Electronics
22	Manasa K L	manasaklraoa@gmail.com	9110222826	Alva's	other	Msc
23	Madhusudhan Balkundhi	madhusudhan.balkundhi@gmail.com	9448320705	MITE	other	Mechanical
24	PRASHANTH K	prashanthkakkaje@gmail.com	9972155027	K V G COLLEGE OF ENGINEERING SULLIA	Faculty members of the AICTE approved institutions	mechanical
25	Abhijna B B	abhijnabb88@gmail.com	9164524565	KVGCE, Sullia	Faculty members of the AICTE approved institutions	Computer Integrated Manufacturing

26	Raghavendra B Kamath	rbk.963@gmail.com	9561362120	KVG College of engineering	Faculty members of the AICTE approved institutions	Design
27	Sudheer K V	sudheerkv21@gmail.com	8971139602	KVG College of Engineering Sullia	Faculty members of the AICTE approved institutions	Mechanical Engineering
28	Ramesh K Mahadev	rameshkmahadev@gmail.com	9632642715	TRIVIDTRANS PVT LTD	MD	Mechatronics Engineering
29	Pavan Kumar S R	pavankumarsr.offical@gmail.com	9986846606	TRIVIDTRANS PVT LTD	VP of Product Development	Mechanical Engineering
30	Pavankumar M S	pavankumarms12333@gmail.com	7899879519	TRIVIDTRANS PVT LTD	pRODUCTION HEAD	Mechanical Engineering
31	Vinaykumar M Naik	vinaykumarhonnavar@gmail.com	8861891947	TRIVIDTRANS PVT LTD	COO	Mechanical Engineering
32	Jarin T	jeroever2000@gmail.com	9626623332	Jyothi Engineering College	Faculty members of the AICTE approved institutions	Electrical Engineering
33	Anand S N	anand@mite.ac.in	9742658577	Mangalore Institute of Technology & Engineering	Faculty members of the AICTE approved institutions	Mechanical Engineering
34	Sandesh Nayak	sandeshnk.92@gmail.com	9901129035	Mangalore Institute of Technology & Engineering	Faculty members of the AICTE approved institutions	Mechanical Engineering

35	YUVARAJ K B	yuvaraj@mite.ac.in	9108097189	Mangalore Institute of Technology and Engineering	Faculty members of the AICTE approved institutions	Mechanical Engineering
36	KIRANKUMAR M V	kirankumarmv2008@gmail.com	9738826110	MANGALORE INSTITUTE OF TECHNOLOGY & ENGINEERING	Faculty members of the AICTE approved institutions	MACHINE DESIGN
37	Sushanth H Gowda	sushanthg@sjec.ac.in	9481391950	St Joseph Engineering College	Faculty members of the AICTE approved institutions	Thermal Power
38	Rajesh Belchada	rajeshb@sjec.ac.in	8050102807	St Joseph Engineering College	Faculty members of the AICTE approved institutions	Materials Engineering
39	SUNILRAJ B A	sunilaswath@yahoo.co.in	9844752319	ACS COLLEGE OF ENGINERING	Faculty members of the AICTE approved institutions	MECHANICAL ENGINEERING
40	AJITH KUMAR	ajithkumar.mech@gmail.com	6362429356	Mangalore Institute of Technology and Engineering Moodabidri	Assistant Professor	Machine Design


OF EXCELLENCE
GPS Map Camera
Dakshina Kannada,KA,India
Moodubidire, Dakshina Kannada, 574226, KA, India
Lat 13.050131, Long 74.965003
01/13/2024 02:26 PM GMT+05:30
Note : Captured by GPS Map Camera

MITE

MANGALORE INSTITUTE OF TECHNOLOGY & ENGINEERING

(A Unit of Rajalaxmi Education Trust ®, Mangalore)
Autonomous Institute Affiliated to VTU, Belagavi, Approved by AICTE, New Delhi
Accredited by NAAC with A+ Grade and an ISO 9001:2015 Certified Institution

Department of Mechanical Engineering

ATAL SPONSORED FACULTY DEVELOPMENT PROGRAMME
On

"Energy Management and Performance Optimization for Sustainable E-Mobility"
08th - 13th January 2024

ATTENDANCE SHEET

Date: 09/01/2024 **Venue: SIEMENS LAB-2**

Sl no	Student Name	USN	Branch	Year	Sign
1]	Gurudatta.V.K		M.E	II Sem III	
2	Dhanush	4MT22ME008	M.E	III	
3)	Harshith.	HMT21EC040	E C	III	
4]	Chirayu C Poojary	4MT21MT006	M.T	III	
5)	Amar Shetty	4MT21AE007	A E	III	
6)	Lloyd Moras	HMT21EC014	EC	III	
7)	Anusha shetty	4MT21EC014	EC	III	
8.	Lithrickcham	4MT21AE025	AE	III	
9	Harshith. S. Bhandary	4MT21AE019	AE	III	
10	Supreeth.S	4MT21MT028	MT	III	

MITE

MANGALORE INSTITUTE OF TECHNOLOGY & ENGINEERING

(A Unit of Rajalaxmi Education Trust ®, Mangalore)
Autonomous Institute Affiliated to VTU, Belagavi, Approved by AICTE, New Delhi
Accredited by NAAC with A+ Grade and an ISO 9001:2015 Certified Institution

Department of Mechanical Engineering

ATAL SPONSORED FACULTY DEVELOPMENT PROGRAMME
On

"Energy Management and Performance Optimization for Sustainable E-Mobility"
08th - 13th January 2024

ATTENDANCE SHEET

Date: **Venue: SIEMENS LAB-2**

Sl no	Student Name	USN	Branch	Year	Sign
11.	Nanith	4MT21AE049	AE	3	
12.	Aneesh. K. K	4MT21AE008	AE	3rd	
13	Clenton. Wilson. Pinto	4MT22EC024	ECE	2nd	
14.	Roston Pinto	4MT22EC090	ECE	2nd	
15.	Ashish Alva	4MT22EC011	ECE	2nd	
16	Shrijith vinayaraj	2023BGME025	ME	2nd	
17	Sidharth Suresh Babu	4MT22 ME 007	ME	2nd	

MITE

MANGALORE INSTITUTE OF TECHNOLOGY & ENGINEERING

(A Unit of Rajalaxmi Education Trust ®, Mangalore)
Autonomous Institute Affiliated to VTU, Belagavi, Approved by AICTE, New Delhi
Accredited by NAAC with A+ Grade and an ISO 9001:2015 Certified Institution

Department of Mechanical Engineering

ATAL SPONSORED FACULTY DEVELOPMENT PROGRAMME
On

"Energy Management and Performance Optimization for Sustainable E-Mobility"
08th - 13th January 2024

ATTENDANCE SHEET

Date: 10/01/2024 **Venue: SIEMENS LAB-2**

Sl no	Student Name	USN	Branch	Year	Sign
1	Prakyath.KH	–	ME	2nd	
2	Kaushik Shetty	–	ME	2nd	
3.	Abhishek	–	ME	2nd	
4.	Manoj Kumar BV	4MT22ME005	ME	2nd	
5.	Deekshith K Gowda	4MT22ME002	ME	2nd	
6.	YUVARAJ	–	ME	2nd	
7	Gurudatta.V.K	–	M.E	2nd	
8	Dhanush	4MT22ME003	M.E	2nd	
9	Clenton Wilson Pinto	4MT22EC021	ECE	2nd	
10	Ashish Alve	4MT22EC00	ECE	2nd	

MITE

MANGALORE INSTITUTE OF TECHNOLOGY & ENGINEERING

(A Unit of Rajalaxmi Education Trust ®, Mangalore)
Autonomous Institute Affiliated to VTU, Belagavi, Approved by AICTE, New Delhi
Accredited by NAAC with A+ Grade and an ISO 9001:2015 Certified Institution

Department of Mechanical Engineering

ATAL SPONSORED FACULTY DEVELOPMENT PROGRAMME
On

"Energy Management and Performance Optimization for Sustainable E-Mobility"
08th - 13th January 2024

ATTENDANCE SHEET

Date: **Venue: SIEMENS LAB-2**

Sl no	Student Name	USN	Branch	Year	Sign
11	Roston Pinto	4MT22EC090	ECE	2nd year	
12	Krishna Prasad.	4MT22MT010	MTR.	2nd year	
13	K. Prathik	4MT22MT009	MTR	2nd year	
14	Mazin	4MT22ME006	ME	2nd year	
15	Sidharth Suresh Babu	4MT22ME007	ME	2nd year	
16	SHRIJITH VINAYAKA T S	1023BEME029	ME	2nd year	
17	Supreeth. S	4MT21MT028	MT	3rd year	
18	Chirayu. C. Poojary	4MT21MT006	MT	3rd year	
19	Hassan Ishaq	4MT22ME004	ME	2nd year	
20	Hudaimath Sinan	4MT22MT006	MT	2nd year	

8. An interactive session on Start-up eco-system in India a Journey Through IP Awareness

MITE

MITE

MANGALORE

Innovation Solutions

nirf Innovation Ranking 151-300

NAAC A+ GRADE CGPA: 3.44

MITE Entrepreneurship Development Cell

IPR Cell MITE

INSTITUTION'S INNOVATION COUNCIL (Ministry of Education Initiative)

An Interactive Session on Start-up Ecosystem in India: A Journey through IP Awareness

Guest Speaker

Mr. Divyendu Verma

Managing Partner & Advocate

Patent & TM Attorney

DuxLegis Attorneys

12th Feb 2024 **Audi-2**

https://mite.ac.in/ MITEedu

MITE- KSCST IPRCELL

Startup Ecosystem in India A Journey Through IP Awareness

Date: 12-02-2024

MITE-KSCST IPR Cell in association with MITE- Entreprenurship development cell organized an inerative session on Startup Ecosystem in India: A Journey Through IP Awareness on 12th February 2024. Mr. Divyendu Verma , Mamaging partner & Advocate Patent & TM Attorney, Duxegis was the resource person for the event. Divyendu Verma is an Advocate and Patent & Trademark Attorney at INNOIPS – An Innovation and IP Law Firm in INDIA. In over 15+ years of experience, Adv. Verma has amassed vast experience in IP strategic advisory, patent drafting, prosecution and litigation.

Glimpse of the Event

The session began with a welcome address by Prof.Narendra U P, Director Placements, Training and industry relations. He emphasized the significance of IP awareness in fostering innovation and protecting intellectual assets in the competitive startup environment.

Mr. Verma's presentation covered a wide range of topics, including:

- Introduction to Intellectual Property (IP): Understanding the different types of IP, including patents, trademarks, copyrights, and trade secrets.
- The Role of IP in Startups: How startups can leverage IP to gain a competitive edge, attract investment, and safeguard their innovations.
- IP Strategy and Management: Best practices for developing and implementing an effective IP strategy tailored to the unique needs of startups.
- Patent Drafting and Prosecution: An overview of the patent application process, from drafting to filing and prosecution.
- IP Litigation and Enforcement: Insights into the enforcement of IP rights and the importance of protecting one's intellectual assets through legal means.

Mr. Vema addressing the audience

Following the presentation, an interactive Q&A session was held, where attendees had the opportunity to engage directly with Mr. Verma. Participants asked a variety of questions related to IP challenges faced by startups, specific case studies, and practical tips for navigating the IP landscape. Mr. Verma's responses were insightful and provided valuable guidance to the budding entrepreneurs and innovators in the audience.

The event concluded with a vote of thanks to Mr. Verma for his enlightening presentation and to all the participants for their active involvement. The session was highly informative and received positive feedback from attendees, who appreciated the opportunity to learn from an expert in the field.

9. A Session on Patent Search for Novelty

Chief Patron

Mr. Rajesh Chouta
Chairman, MITE, Moodabidri

Patron

Dr. Prashanth C. M
Principal, MITE, Moodabidri.

Coordinator

Dr. Vinayambika S. Bhat
Professor & HoD, ECE.
Dean Quality Assurance.

Co-Coordinator

Mr. Ranjith H D
Senior Assistant Professor
Dept. of E&CE

Resource Person

Dr. Ramalingam H M
Senior Assistant Professor, ECE &
Convener
MITE-KSCST IPR Cell

Registration

Registration Link:

https://forms.gle/k2x8Dd7zUAtDtYU8A

MITE KSCST IPR CELL

A session on

Patent Search for Novelty

02nd Dec 2023
3:00 to 4:30pm

Organized by
Department of Electronics & Communication Engineering
(Accredited by NBA)

In Association with
MITE-KSCST IPR Cell

MANGALORE INSTITUTE OF TECHNOLOGY & ENGINEERING
(A Unit of Rajalaxmi Education Trust®,Mangalore-575001)
Autonomous Institute affiliated to VTU, Belagavi, Approved by AICTE, New Delhi
Accredited by NAAC with A+ Grade & ISO 9001:2015 Certified Institution
Mijar,Moodabidri-574225,Mangalore Taluk,D.K. Dist., Karnataka INDIA.

Title:	**Workshop on "Patent Search for Novelty"**
Resource Person:	**Dr. Ramalingam H M, Convener MITE-KSCST IPR CELL and Senior Assistant Professor, Department of ECE, MITE**
Date:	**02/12/2023**

The Patent Searching for Novelty session is organized by the Department of Electronics & Communication Engineering in association with MITE-KSCST IPR Cell was held on 2nd December 2023. The event aimed to provide participants with a comprehensive understanding of the patent search and drafting process through practical exercises and real-life examples.

The resource persons for the workshop is Dr. Ramalingam H M, Convener MITE-KSCST IPR CELL and Senior Assistant Professor, Department of ECE, MITE. His extensive experience and expertise in intellectual property law significantly contributed to the depth and quality of the session. The session commenced with an opening address by Mr. Ranjith H D, co-ordinator of the workshop, who welcomed the participants and introduced the resource person Dr. Ramalingam H M.

Then the resource person started the session and focused on the interface between IP search and drafting. He explained how patent search results influence drafting strategies. Participants learned techniques for integrating search findings into patent applications and analyzed case studies demonstrating the impact of thorough searches on successful patent drafting. This session emphasized the critical connection between effective searches and robust patent documents. Then conducted hands-on session on prior art searches. Participants were introduced to various patent databases and search tools and were taught techniques for conducting effective prior art searches.

The resource person also focused on drafting patent claims, aimed at teaching the art of drafting robust and defensible claims. Participants learned about the different types of claims, including independent, dependent, method, and apparatus claims. This session equipped participants with the skills to draft strong patent claims that protect their inventions effectively.

Following this, participants were familiarized with the various forms and documentation required for patent applications. The session provided an overview of the different forms used in the patent filing process, with detailed guidance on how to complete each form accurately.The Patent Searching & Drafting Workshop successfully enhanced the participants' skills in patent drafting and searching.

Dr. Ramalingam H M delivering his presentation at the workshop

Photo of participants along with the resource person

[Back to Index]

MANGALORE INSTITUTE OF TECHNOLOGY & ENGINEERING

Accredited by NAAC with A+ Grade, An ISO 9001: 2015 Certified Institution
(A Unit of Rajalaxmi Education Trust®, Mangalore - 575001)
Affiliated to V.T.U., Belagavi, Approved by AICTE, New Delhi.

Department of Electronics & Communication Engineering

(Accredited by NBA)

The feedback on the session Patent Search for Novelty conducted on 2nd December 2023.

Name

22 responses

Ms.Deepthi Kotian

Dr. Rashmi Samanth

Dr Deekshitha S Nayak

Dr. Sruthi Dinesh

POORNIMA K

Prakash L S

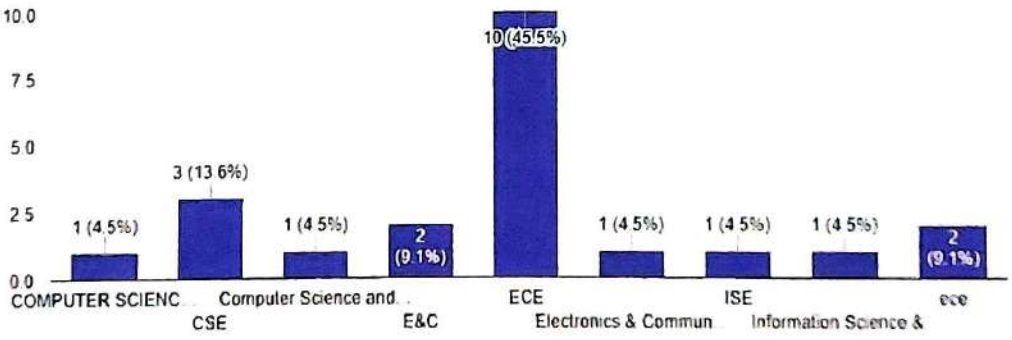
Ms. Deeksha Bekal Gangadhar

Sri Krishna Shastri C

Shwetha C H

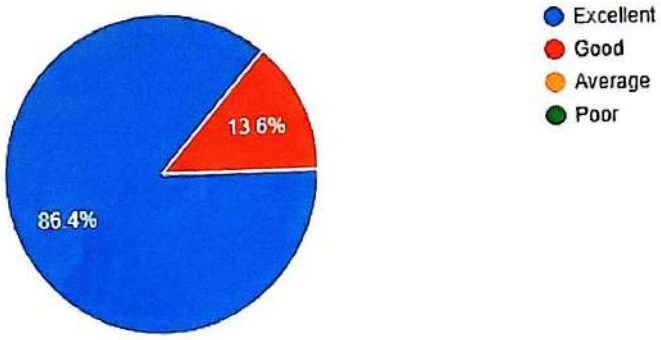
Department:

22 responses



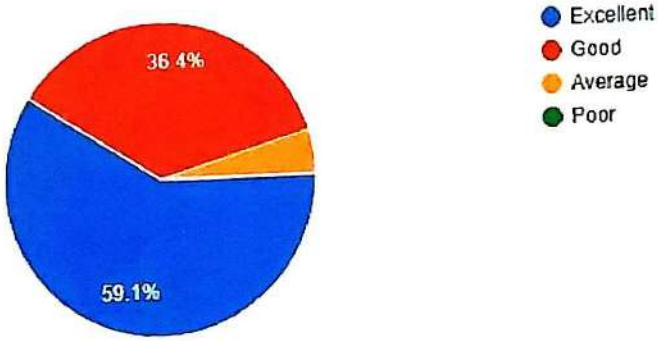
1. Overall, how informative was the session?

22 responses



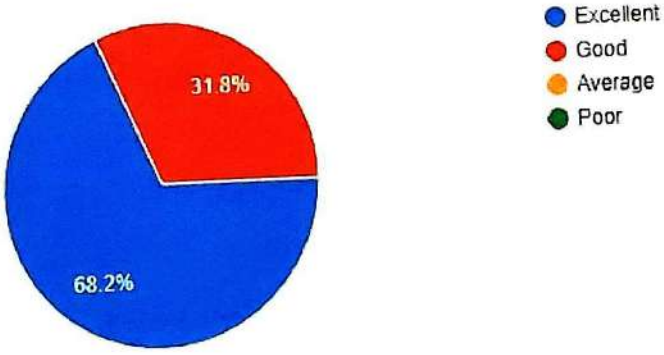
2. After the session, how inspired did you feel?

22 responses



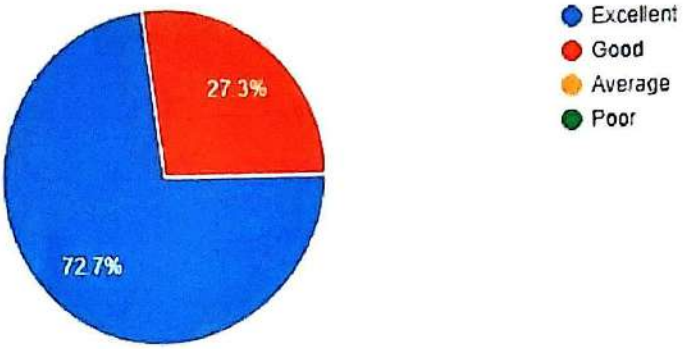
3. Do you feel the session provided value for the time you spend?

22 responses



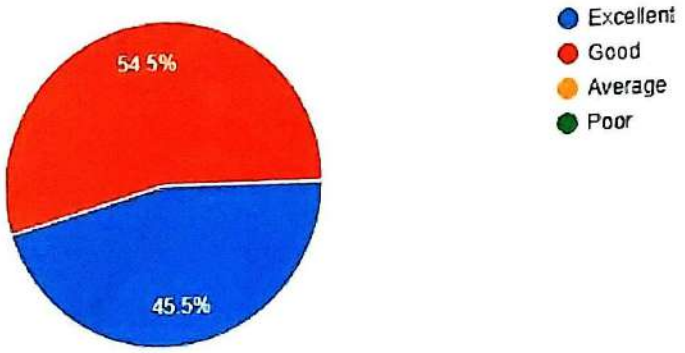
4. How do you rate the resource persons?

22 responses



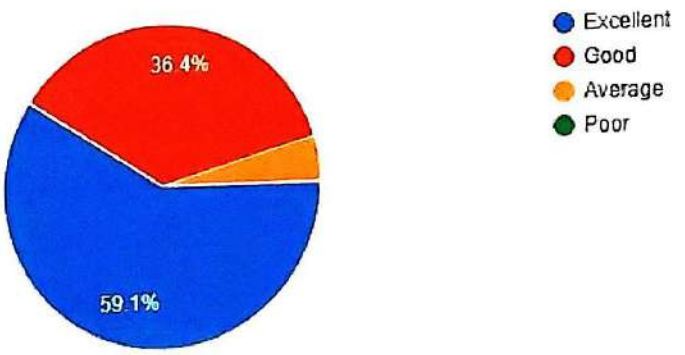
5. Drafting and patent specification . How would you rate your level of patent drafting?

22 responses



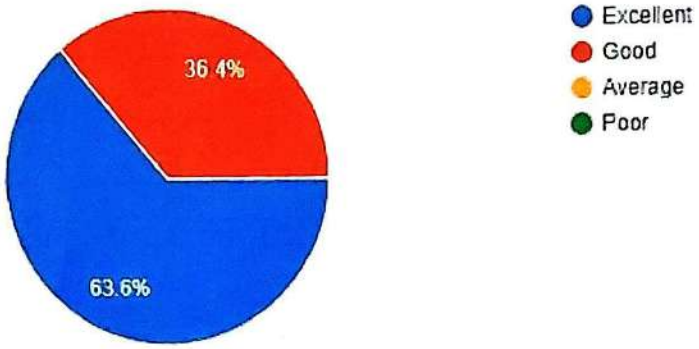
6. How would you rate your level of Drafting the claims for patent specification ?

22 responses



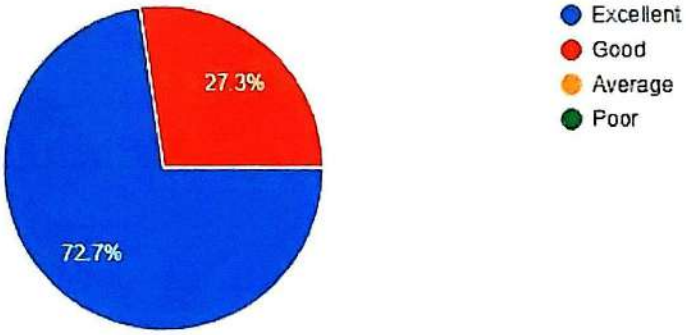
7. What is your understanding level on various forms required for Patent application.?

22 responses



8. How you rate the session on Prior art searches?

22 responses



MANGALORE INSTITUTE OF TECHNOLOGY & ENGINEERING

(A Unit of Rajalaxmi Education Trust®, Mangalore)
Autonomous Institute affiliated to VTU, Belagavi, Approved by AICTE, New Delhi
Accredited by NAAC with A+ Grade & ISO 9001:2015 Certified Institution

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

(Accredited by NBA)

DATE: 02/12/2023

Patent search for Novelty

List of Faculty Members Attended

Sl.No.	Name of the faculty	Department	Sign
1	Shwetha C.H.	CSE	
2	Sowmya S	CSE	
3	Jyothi V. Prasad	CSE	
4	Vijayananda V Madhu	CSE	
5	Shreejith.K.B	CSE	
6	Dr. Rejeesh Rayaroth	CSE	
7	R. Lalitha	CSE	
8	Dr. Deekshitha. S. Nayak	ECE	
9	Bhakti Shetty	ECE	
10	Dr. Ramananda Mallyak	ISE	
11	Dr. Mamatha I.	ECE	
12	Rachana.P	ECE	
13	Vishwitha. A.	ECE	
14	Poornima.K.	ECE	
15	Swapna Srinivasan	ECE	
16	Deepthi Kotian	ECE	
17	Dr. Smithi Dinesh	ECE	

MANGALORE INSTITUTE OF TECHNOLOGY & ENGINEERING

(A Unit of Rajalaxmi Education Trust®, Mangalore)
Autonomous Institute affiliated to VTU, Belagavi, Approved by AICTE, New Delhi
Accredited by NAAC with A+ Grade & ISO 9001:2015 Certified Institution

Sl.No.	Name of the faculty	Department	Sign
18	Rajesh N. Kamath	ISE	
19	Dony Armstrong D'Souza	ECE	
20	Deeksha Bekal Gangadhar	ECE	
21	MS. SOWJANYA	ECE	
22	Dr. Rashmi Samarth	ECE	
23	Bhavya.S	ECE	
24	Sri Krishna Shashi.C	ECE	
25	Prakash H.S	ECE	
26	Ranjith H.D	ECE	
27			
28			
29			
30			
31			
32			
33			
34			
35			
36			
37			
38			

10. Faculty Enablement Program on Crafting Effective Research Proposal

PROGRAM SCHEDULE

Inauguration: 9:30 AM to 10:00 AM

Session 1: 10:15 AM to 12:30 PM

- Opportunities in Research Funding

Session 1: 2:00 PM to 4:00 PM

- Writing Successful Research Proposals

RESOURCE PERSONS

Dr. M Pallikonda Rajasekaran

Director R & D

Kalasalingam Academy of Research and Education

Tamil Nadu

CHIEF PATRON

Mr. Rajesh Chouta

Chairman, MITE, Moodabidri

PATRON

Dr. Prashanth C M

Principal, MITE, Moodabidri

COORDINATOR

Dr. Ramalingam H M

Sr. Asst. Professor, Dept. of ECE.

MITE-KSCST-IPR Cell Convenor

ABOUT THE WORKSHOP

Bridging Gaps in Research Proposals," promotes collaborative efforts and tackles disparities, ultimately elevating the overall quality of research submissions through comprehensive and inclusive approaches.

OUTCOME THE WORKSHOP

Enhanced research quality, fostering collaboration and inclusivity in proposal submissions.

MITE

Invent Solutions

MITE-KSCST IPR CELL

Faculty Enablement Program on Crafting Effective Research Proposals

24 FEBRUARY 2024

Organized by

MITE-KSCST-IPR CELL

In Association with

INSTITUTION'S INNOVATION COUNCIL (Ministry of Education Initiative)

National Digital Library of India

MANGALORE INSTITUTE OF TECHNOLOGY & ENGINEERING

(A Unit of Rajalaxmi Education Trust®, Mangalore-575001)

Autonomous Institute affiliated to VTU, Belagavi, Approved by AICTE, New Delhi

Accredited by NAAC with A+ Grade & an ISO 9001:2015 Certified Institution

Mijar, Moodbidri-574225, Mangalore Taluk, D.K. Dist., Karnataka, INDIA.

Faculty Enablement Program on Crafting Effective Research Proposals

MITE-KSCST IPR Cell in association with RESEARCH COUNCIL- MITE and NDLI- MITE organized a three day Faculty Enablement Program on Crafting Effective Research Proposals from 22nd to 24th February 2024. Dr. M Pallikonda Rajasekaran, Director R & D, Kalasalingam Academy of Research and Education, Krishnan Koilm Tamil Nadu was the resource person for the event. Dr. M. Pallikonda Rajasekaran has served as Professor, Head of the Department, and Controller of Examinations. Currently, he is the Director of Research and Development at Kalasalingam Academy of Research and Education.

Dr. Rajasekaran's academic career includes over 100 publications with more than 2200 citations as on date. His accolades include the Young Scientist Award (2016), APJ Abdul Kalam Award for Teaching Excellence (2016), and Best Faculty in Rural Institution Award (2017). Recognized globally, he is listed among the Top 2% Scientists in the world by Stanford University. He has led seven funded projects, securing over 2 crores in grants from various agencies. Under his mentorship, 10 scholars have completed their Ph.D., with six more currently pursuing their doctorates. Outside academia, he mentors RAJ BIOELECTRONICS & INTELLIGENT (P) LTD. and consults for MLR MEDICARE, New Delhi.

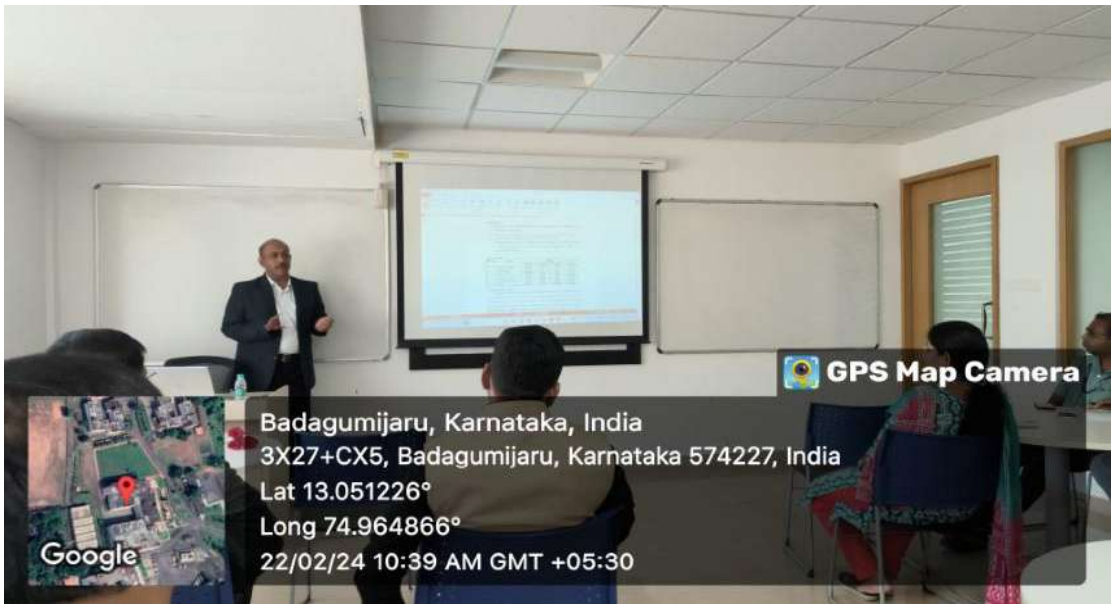
Inagural Session of the program

Date: 22-02-2024

Opportunities in Research Funding

The program commenced with an inaugural address by Dr. M. Pallikonda Rajasekaran, the esteemed Director of Research and Development at Kalasalingam Academy of Research and Education. In his opening remarks, Dr. Rajasekaran underscored the pivotal role that securing adequate funding plays in propelling research and fostering innovation. He articulated that without sufficient financial support, many groundbreaking ideas and potential advancements in various fields might remain unrealized. Dr. Rajasekaran elaborated on how funding serves as the backbone of research activities, enabling researchers to procure necessary resources, conduct extensive studies, and collaborate with experts globally. He also highlighted the institution's unwavering commitment to supporting its researchers in their quest for excellence.

Furthermore, Dr. Rajasekaran underscored the necessity of research for faculty members. He noted that research not only advances knowledge and innovation but also enhances teaching quality and professional development. Engaging in research enables faculty to stay updated with the latest advancements in their fields, contributing to their academic growth and the institution's reputation.



Dr.Rajasekaran Explaining the oppoutunities in research funding

In conclusion of the day, Dr. Rajasekaran urged all participants to actively engage in the sessions, explore new funding opportunities, and leverage the knowledge gained to advance their research endeavors. His motivational words set a positive tone for the program, inspiring attendees to pursue their research goals with renewed vigor and confidence.

Date: 23-02-2024

Writing Successful Research Proposals

The second day of the program began with a review meeting of proposals submitted to various funding agencies, led by Dr. Pradeep B S, Dean- Research at MITE. He provided an in-depth analysis of the proposals, highlighting common strengths and areas for improvement.

Dr. Pradeep B S addressing the Audiance

Following the review, the day's session on writing a successful research proposal commenced. Dr. Pallikonda Rajasekaran addressed the audience, presenting an example of a proposal that had successfully secured a grant. He meticulously explained the key components that contribute to a winning proposal, emphasizing the importance of clarity, originality, and

feasibility. Dr. Rajasekaran highlighted essential aspects such as clearly defining research objectives, providing a thorough literature review, detailing the methodology, and outlining the potential impact of the research. His practical insights and real-world example provided valuable guidance to attendees, equipping them with the knowledge needed to craft compelling research proposals.

Date : 24-02-2024

Essential Criteria for Various Funding Organizations

The final day of the faculty enablement program focused on providing comprehensive insights into various funding agencies and their expectations. The session aimed to equip faculty members with the knowledge and skills necessary to secure research funding successfully. Dr.Rajasekaran, began by introducing the participants to a range of funding agencies, both national and international.

Glipse of the last day of the faculty enablement program

Further he explained the different types of project proposals that these agencies typically consider, highlighting the importance of aligning proposals with the specific priorities and criteria of each agency. Detailed discussions covered the expectations agencies have regarding the scope, significance, and potential impact of proposed projects. The speaker emphasized the need for proposals to address current challenges and contribute to advancing knowledge in their respective fields.

The session concluded with an interactive Q&A segment, giving participants the opportunity to seek clarification and further advice on specific aspects of proposal writing and funding applications. The valuable insights shared by the guest speaker left attendees better equipped to navigate the competitive landscape of research funding, ultimately enhancing their ability to secure grants and advance their research endeavors. Dr. Pradeep B S delivered the vote of thanks, expressing gratitude to the speaker and participants for their active involvement and contributions to the program's success.

MANGALORE INSTITUTE OF TECHNOLOGY & ENGINEERING

(A Unit of Rajalaxmi Education Trust ® , Mangalore)
Autonomous Institute affiliated to VTU, Belagavi, Approved by AICTE, New Delhi
Accredited by NAAC with A+ Grade & ISO 9001:2015 Certified Institution

Faculty Enablement Program on Crafting Effective Research Proposals

S.No	Name	22-2-2024 FN	22-2-2024 AN	23-2-2024 FN	23-2-2024 AN	24-2-2024 FN	24-2-2024 AN
1.	Ranjith H-D						
2	Dr. Dinesha.L						
3.	Sri krishna shashi						
4.	Dr. Jayaprakash. M.C						
5	Dr. Guruprasad A M						
6.	Dr. Sujesh Kumar						
7	Prathvi						
8.	Yogesh						
9.	Dr. Sahana N. Hegde.						
10	Ashwini A Kamath						
11	Rajeshwari						
12.	Dr. Sandesh Nayak						
13	AMRUTHA						
14	Dr. RAMANANDA MALLYA K						

MANGALORE INSTITUTE OF TECHNOLOGY & ENGINEERING

(A Unit of Rajalaxmi Education Trust ® , Mangalore)
Autonomous Institute affiliated to VTU, Belagavi, Approved by AICTE, New Delhi
Accredited by NAAC with A+ Grade & ISO 9001:2015 Certified Institution

15.	Dony Armstrong DSouza						
16.	Vidya. J.						
17	Dr. Rashmi Samarth						
18	MS. SOWJANYA						
19.	Sandeep Seetoram Naik						
20.	Dr. Mamatha I.						
21	Vishwitha. A						
22.	Dr. V. Sandeep						
23	Prakash L.S						
24	Dr. Jyothi S						
25	Dr. Raghavendra. Sagar						
26	Dr Vinayambika S Bhat						
27	DR. Vineetha Telma D'souza						
28	Amrutha H P						
29	Dr. M. Amirthavalli						
30	Dr. Sreeja Rajesh						

MANGALORE INSTITUTE OF TECHNOLOGY & ENGINEERING

(A Unit of Rajalaxmi Education Trust ® , Mangalore)
Autonomous Institute affiliated to VTU, Belagavi, Approved by AICTE, New Delhi
Accredited by NAAC with A+ Grade & ISO 9001:2015 Certified Institution

31	RAGESH RAJU						
32	Dr. Madhavaraj. V						
33	Ajith Kumar						
34	Samuel Williams						
35	Dr. Mitra K.						
36	Shweta C.H						
37	Dr. Kirankumara M.V						
38	Dr. Rajeesh Rayaroth						
39	Sunitha N V						
40	Jyothi V. Prasad						
41	Dr. Pradeep B.S						
42	Ms. Deeksha Belcad Gangadhar						
43	Ms Anushree Raj						
44	Dr. Sruthi Dinesh						
45	Yathish. Aradhya B. C						
46	Amruth Ashok Gadag						

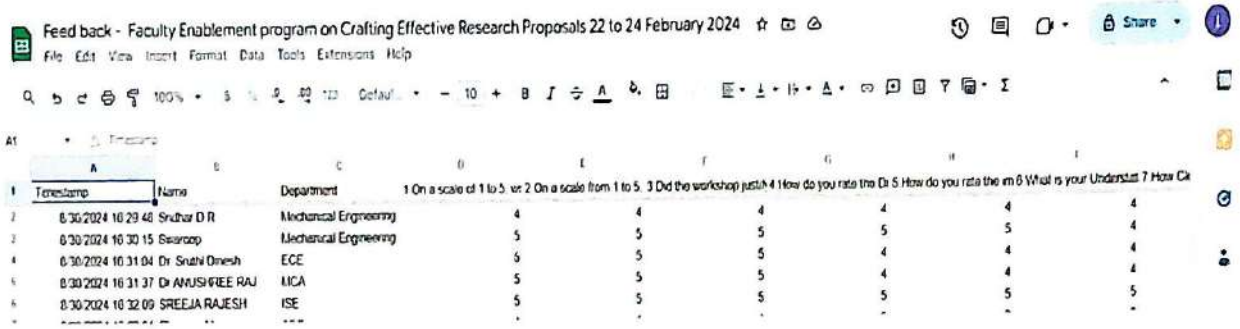
47	Dr Manjo M Gupe	✓	✓	✓	✓	✓	✓
48.	Dr. Y. Shiraj Rao						
49	Prof. Sachitha						

MITE-KSCST IPR Cell

Feedback:

Faculty Enablement program on Crafting Effective Research Proposals organized on the 22nd to 24th February 2024.

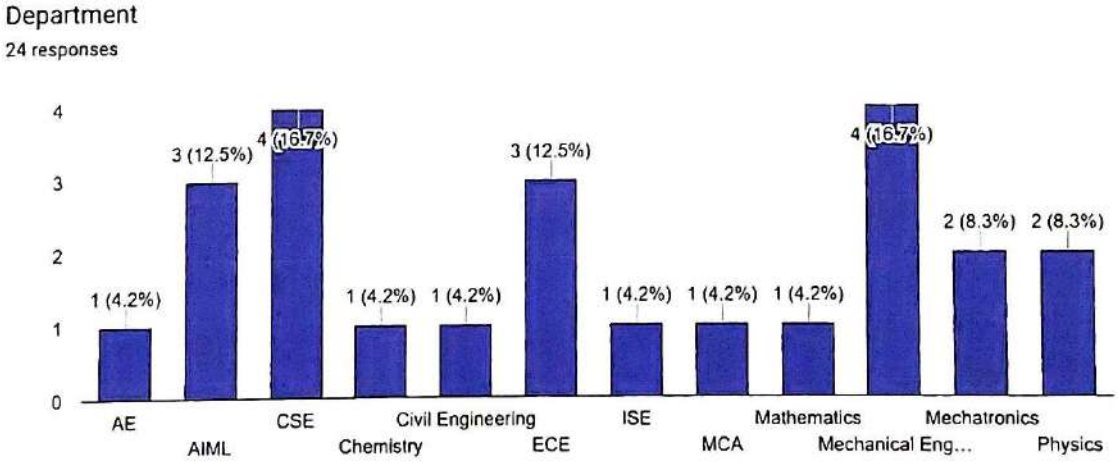
Google sheet Response:


Feed back - Faculty Enablement program on Crafting Effective Research Proposals 22 to 24 February 2024

File Edit View Insert Format Data Tools Extensions Help

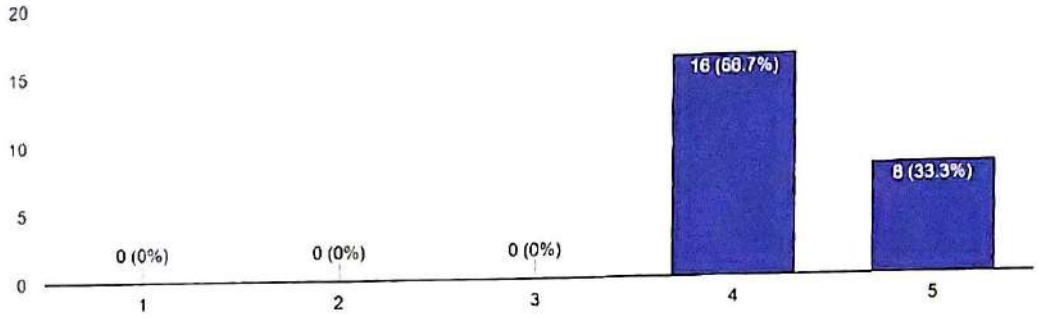
Share

	Timestamp	Name	Department	1 On a scale of 1 to 5, ve	2 On a scale from 1 to 5,	3 Did the workshop justifi	4 How do you rate the Di	5 How do you rate the en	6 What is your Understan	7 How Cle
2	8/30/2024 16:29:48	Sridhar D R	Mechanical Engineering	4	4	4	4	4	4	
3	8/30/2024 16:30:15	Swaroop	Mechanical Engineering	5	5	5	5	5	4	
4	8/30/2024 16:31:04	Dr. Srushti Dinesh	ECE	5	5	5	4	4	4	
5	8/30/2024 16:31:37	Dr ANUSHREE RAJ	MCA	5	5	5	4	4	4	
6	8/30/2024 16:32:09	SREEJA RAJESH	ISE	5	5	5	5	5	5	



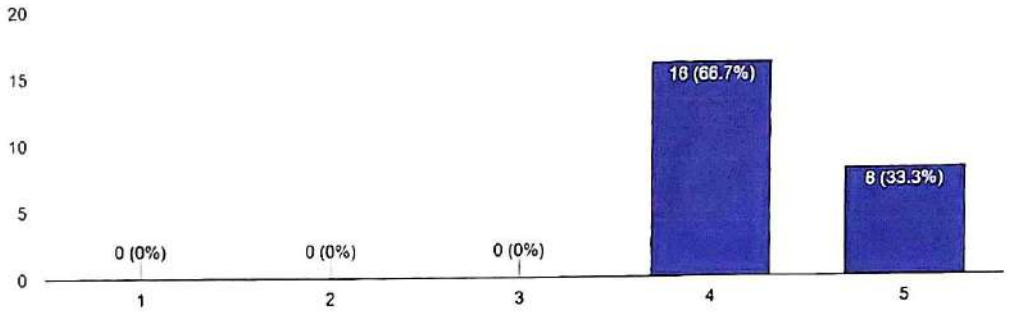
1.On a scale of 1 to 5, with 1 being least informative and 5 being highly informative, how do you rate the workshop's informativeness?

24 responses



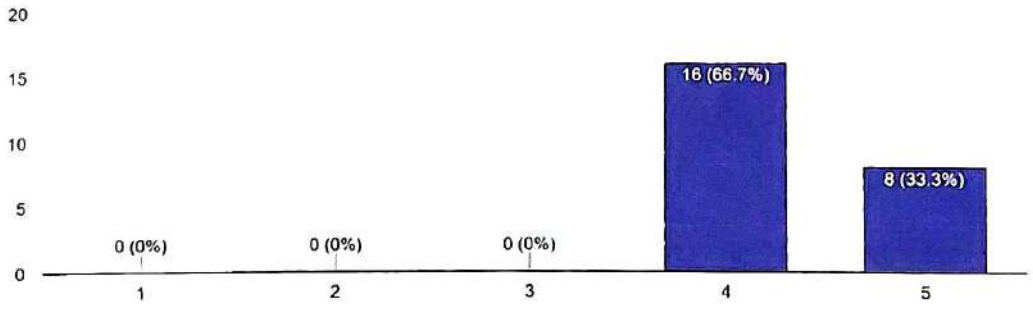
2.On a scale from 1 to 5, with 1 being not at all inspired and 5 being extremely inspired, how did you feel after every the session?

24 responses



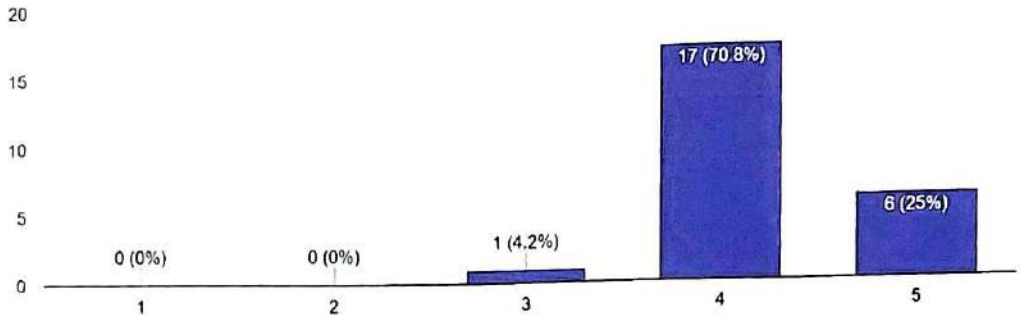
3.Did the workshop justify the time you invested in it by providing valuable insights or knowledge?

24 responses



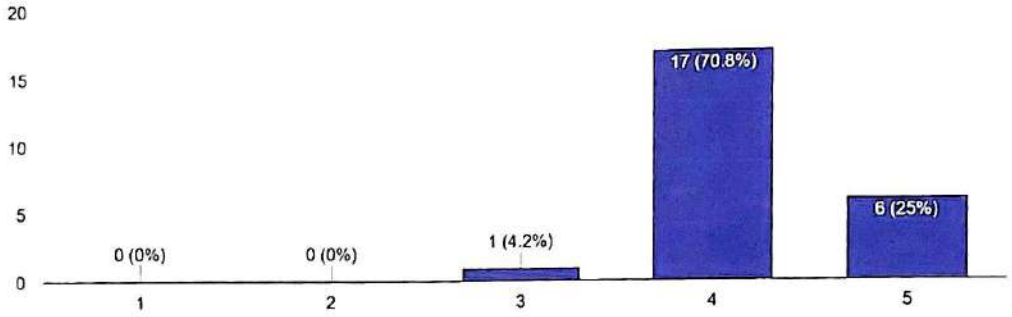
4.How do you rate the Dr. Pallikonda Rajasekaran's session on Research Funding Opportunities?

24 responses



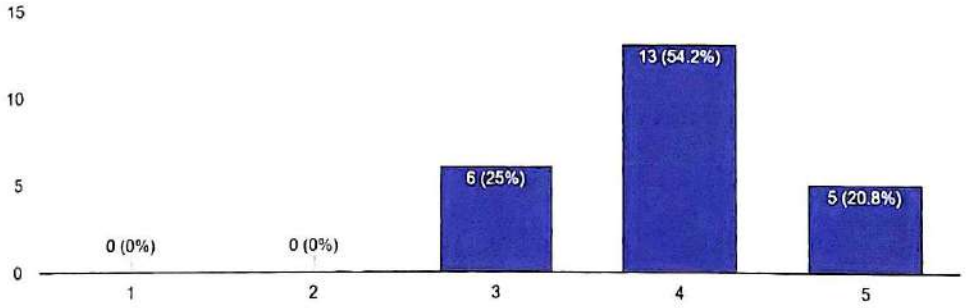
5.How do you rate the importance writing successful research Proposal ?

24 responses



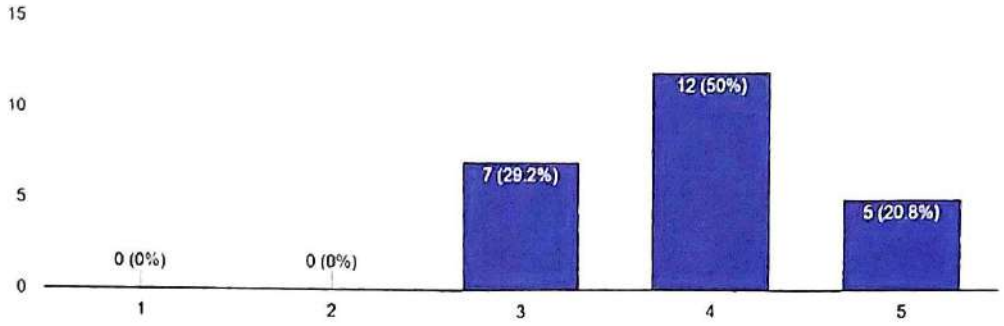
6.What is your Understating about the essential criteria of Various funding agencies?

24 responses



7.How Clear you are about the Specific aspects of writing proposals?

24 responses



11. Workshop on Patent Searching & Drafting

CHIEF PATRON

Mr. Rajesh Chouta

Chairman, MITE, Moodabidri

PATRON

Dr. Prashanth C M

Principal, MITE, Moodabidri

COORDINATOR

Dr. Ramalingam H M

Sr. Asst. Professor, Dept. of ECE.

Convenor MITE-KSCST-IPR Cell

ORGANIZING COMMITTEE

Dr .Anand S N

Dr. Vignesh Nayak Ullal

Dr. Sreeja Rajesh

Dr. Bindu Madhavi J

Dr. Rejeesh Rayaroth

Mr. Ranjith H D

RESOURCE PERSONS

1.Mr. Nagarjun M G

Project Associate, KSCST

2.Ms. Priyanka

Patent Agent and Project Associate

KSCST

REGISTRATION

All participants are requested to fill the registration form in the following online registration link on or Before 24-5-2024

Registration Link : https://forms.gle/MjMZzN8oSRxv2FSU7:

MITE

Invent Solutions

MITE-KSCST IPR CELL

KSCST

Three days Workshop on Patent Searching & Drafting

27 - 29 MAY 2024

Organized by

MITE-KSCST-IPR CELL

In Association with

INSTITUTION'S INNOVATION COUNCIL

(Ministry of Education Initiative)

National Digital Library of India

MANGALORE INSTITUTE OF TECHNOLOGY & ENGINEERING

(A Unit of Rajalaxmi Education Trust®, Mangalore-575001)

Autonomous Institute affiliated to VTU, Belagavi, Approved by AICTE, New Delhi

Accredited by NAAC with A+ Grade, An ISO 9001:2015 Certified Institution

Mijar, Moodbidri-574225, Mangalore Taluk, D.K. Dist., Karnataka, INDIA.

ABOUT MITE

Mangalore Institute of Technology & Engineering, Moodbidri is a leading Engineering & Management Institution in the region, established in the year 2007 by the Rajalaxmi Education Trust under the leadership of the Visionary Mr. Rajesh Chouta. The institute is accredited by NAAC with A+ Grade, offers 10 UnderGraduate programs, among which 6 are NBA accredited, 3 Post Graduate and 7 research programs in its beautiful serene green campus. The institute is placed in highest category platinum ranking in AICTE-CII survey 2020 of industry linked technical institutes in India and ranked in Band - Excellent in the private institute category under Atal Ranking of Institutions on Innovation Achievements (ARIIA) during the year 2020 and 2021 respectively. The institute known for its high academic standards, has registered 29 University Ranks over the last 5 years as a reference to the quality teaching learning pedagogy. MITE has collaborations with industries of repute . The industry-standard Incubation Centre is supported by the Government of Karnataka and MSME, Government of India to support budding entrepreneurs. MITE was awarded as the "Best Performing College of the Year 2019-20" by KSCST & the students have received several Top Awards at National and State Level events. With an intent to shape globally competent graduates, MITE has established a campus that would aid students to manifest their true selves by promoting effective learning, and creativity, to ensure that they become formidable individuals to “INVENT SOLUTIONS”

VISION

“To attain perfection in providing Globally Competitive Quality Education to all our Students and also benefit the global community by using our strength in Research and Development“

MISSION

“To establish world class educational institutions in their respective domains, which shall be centers of excellence in their Stated and Implied sense. To achieve this objective we dedicate ourselves to meet the Challenges of becoming Visionary and Realistic, Sensitive and Demanding, Innovative and Practical and Theoretical and Pragmatic; All at the same time”

ABOUT THE WORK SHOP

the workshop delves into the art of patent drafting, teaching participants how to write clear, concise, and comprehensive patent specifications. Topics covered include drafting patent claims, describing the invention in detail, and addressing legal and technical requirements. Practical exercises and case studies are often incorporated to reinforce learning and provide hands-on experience in drafting patent documents.

PROGRAM SCHEDULE

Day -1 : 27 May 2024

- Interface of IP search and drafting
- Drafting and patent specification

Day -2 : 28 May 2023

- Drafting the claims for patent specification
- Hands on session on Prior art searches

Day -3 : 29 May 2023

- Various Forms for Patent application
- Patent Drafting Hands on

OUTCOME THE WORKSHOP

By the end of the workshop, participants come away with a deeper understanding of the patenting process, improved proficiency in patent searching and drafting, and the confidence to navigate the intricacies of intellectual property law

3 Days Workshop on Patent Searching & Drafting

The Patent Searching & Drafting Workshop, hosted by MITE-KSCST-IPR CELL in collaboration with the MITE-NDLI Club and the institute's Innovation Council, took place from May 27 to May 29, 2024. This three-day event was designed to give participants a thorough understanding of the patent drafting process through hands-on activities and real-world examples.

The workshop focused on the intricacies of patent drafting, guiding participants in crafting clear, concise, and comprehensive patent specifications. Key topics included drafting patent claims, detailing the invention, and meeting both legal and technical requirements. To enhance understanding and provide practical experience, the workshop featured hands-on exercises and case studies in patent document drafting.

The primary resource persons for the workshop were Mr. Nagarjun M G, Project Associate at KSCST, and Ms. Priyanka, Patent Agent and Project Associate at KSCST. Their extensive knowledge and expertise in intellectual property law greatly enriched the workshop's content and quality.

Day 1: May 27, 2024

The workshop began with an opening address by Dr. Ramalingam H M, who welcomed the participants and stressed the importance of the event. He underscored the value of acquiring skills in patent searching and drafting, emphasizing the role of practical, hands-on learning in mastering these areas. His introduction set a positive tone for the workshop, fostering an atmosphere of enthusiasm and eagerness to learn.

Following this, Dr. Maryjo M George introduced the key resource person, Mr. Nagarjun. With a strong background in mechanical engineering and extensive experience in various technical and administrative roles, Mr. Nagarjun's expertise in intellectual property law and his contributions to numerous projects and programs at the Karnataka State Council for Science and Technology (KSCST) were highlighted, establishing his credentials to lead the workshop.

The first session provided an overview of patent searching and drafting, aimed at giving participants a comprehensive understanding of the patent system. This session covered the importance of patents, the process of patent filing and examination, and the critical need for thorough patent searches to avoid infringement and ensure novelty. Participants were introduced to basic tools and databases used for patent searching, laying a strong foundation for the subsequent practical sessions.

Mr. Nagarjun M G delivering his presentation at the workshop

In the afternoon, Dr. Bindu Madhavi J introduced the resource person, Ms. Priyanka, who led a session on the basics of intellectual property (IP) law. This session aimed to familiarize participants with the fundamental aspects of IP law, including various types of intellectual property such as patents, copyrights, trademarks, and trade secrets. The session covered the legal frameworks governing intellectual property rights, key concepts and terminology, and the role of IP in fostering innovation and commercialization.

Day 2: May 28, 2024

The second day of the workshop centered on the connection between IP search and drafting. The morning session, led by Ms. Priyanka, focused on how patent search results influence drafting strategies. Participants learned techniques for incorporating search findings into patent applications and examined case studies that demonstrated the impact of thorough searches on

successful patent drafting. This session highlighted the essential link between effective searches and strong patent documents.

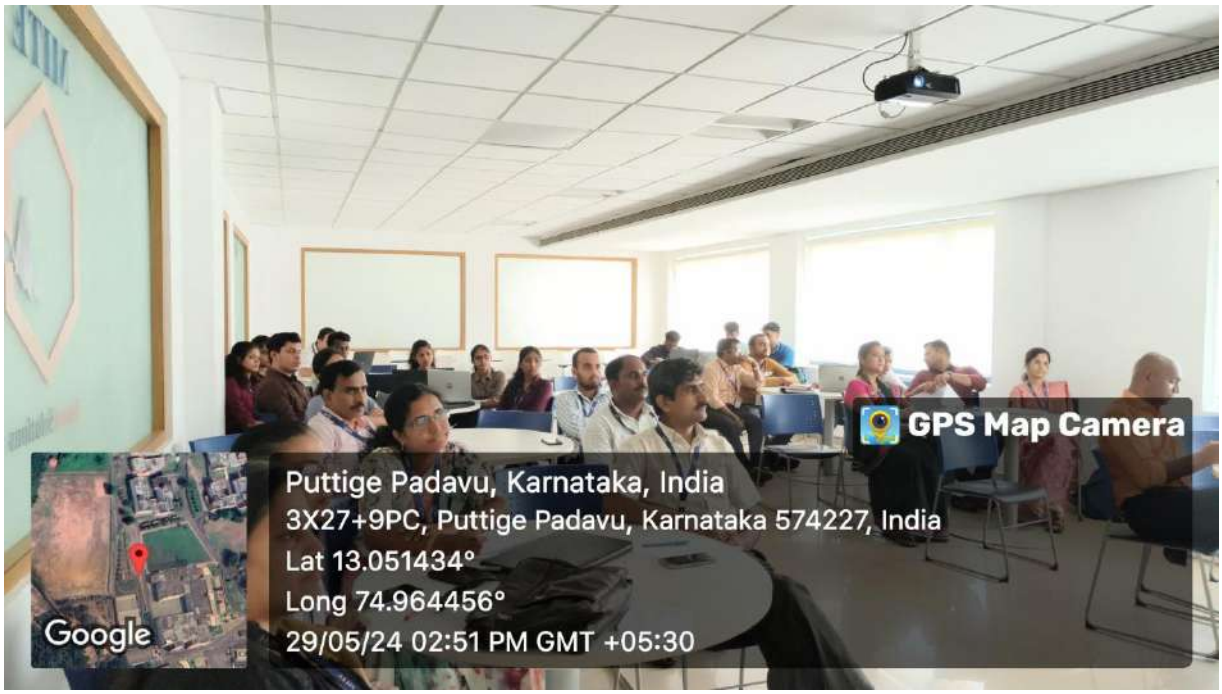
Priyanka Delivering the session on day-2

In the afternoon, the focus shifted to drafting patent specifications, with Mr. Nagarjun leading the session. Participants were taught the key elements of drafting a patent specification, with detailed discussions covering various components, including the title, abstract, background, summary, detailed description, and claims. Best practices for writing clear and comprehensive descriptions that meet both legal and technical requirements were emphasized. The session also addressed common pitfalls in patent drafting, offering practical tips on how to avoid them.

The day concluded with a hands-on session on prior art searches. Participants were introduced to various patent databases and search tools and learned techniques for conducting effective prior art searches. Through practical exercises based on real-world scenarios, participants gained hands-on experience in searching for prior art, analyzing, and interpreting search results. This practical session reinforced the theoretical knowledge gained earlier in the day.

Day 3: May 29, 2024

The final day of the workshop began with a session on drafting patent claims, focusing on teaching participants how to draft robust and defensible claims. They learned about various types of claims, including independent, dependent, method, and apparatus claims. The session covered strategies for crafting claims that are both broad and specific, legal considerations in claim drafting, and examples of well-drafted and poorly-drafted claims. This session equipped participants with the skills needed to create strong patent claims that effectively protect their inventions.



Participants of the workshop

Following this, participants were introduced to the various forms and documentation required for patent applications. This session provided an overview of the different forms used in the patent filing process, along with detailed guidance on how to accurately complete each one. Emphasis was placed on the importance of adhering to procedural requirements and ensuring the accuracy of documentation.

The workshop concluded with a recap of key takeaways and a Q&A session, allowing participants to clarify any remaining doubts and solidify their understanding. Overall, the

MITE-KSCST IPR Cell

Patent Searching & Drafting Workshop successfully enhanced participants' skills in patent searching and drafting, equipping them with the knowledge and confidence to navigate the complexities of intellectual property law. The collaborative efforts of MITE, KSCST, and the experienced resource persons ensured a valuable and enriching learning experience for all attendees

Photo of participants along with the resource persons

Attendance sheet

Workshop title: Three days workshop on patent searching & drafting organised by MITE-KSCST IPR Cell

Table: Details of the participants and their attendance status

#	Name	Department	27-5-2024 FN	27-5-2024 AN	28-5-2024 FN	28-5-2024 AN	29-5-2024 FN	29-5-2024 AN
1	Dr. B INDU. T.	MTR						
2	Dr. Vineetha Telma D'souza	Chemistry						
3	Dr. Raghavendra. Sagar	Physics		AB				
4.	Dr Manjo Myne	AIML			AB			
5	Dr. Shivaramu H.T	ME						
6.	Dr. Sandeep Nayak	MT						
7.	Rajani Salvankar	Maths			AB			
8.	Dr. Vignesh Nayak	ME			AB			

9	Mr. Ranjith H-D	ECE						
10	Ashwin Kumar M	CSE			AB			
11	Dr. Neelakantha VL	ME		AB	AB			
12	Dr. Mohan Kumar	ME		AB	AB			
13.	Mr. Prakash h.s	ECE		AB	AB			
14	Dr. Rejeesh Rayaroth	CSE						
15.	Dr. Sumanth. Joshy	Physics						
16.	Dr. Y. Shivraj Rao	AERO		AB	AB			
17.	P. A. Abhishek	AI & ML						
18	Sinchana Anantha	CSE						
19	Mounesh Naik	CSE						
20.	Disha shet	CSE						

21	Simran	AIML						
22	Bhagyashree. N.M	AIML	Bhagya	Bhagya	Bhagya	Bhagya	Bhagya	Bhagya
23	Vineet P. Padgal	CSE						
24	Karthik. U. Shettigar	CSE			AB			
25	Navesh Baria	CSE			AB			
26.	Dhanush. S. Shetty	CSE			AB			
27	Tejas Jain	CSE						
28	Vaibhav Godani	CSE						
29	SWAROOP	MECH		AB				
30	Dr. SREEJA RAJESH	ISE						
31.	Amruta Ashok Gaday	AI&ML	AB		AB			
32	Dr. Smitha Dinesh	ECE						

		Department	27/05/24	27/05/24	28/05/24	28/05/24		
33	Megha Mayuri BG	Civil			AB			
34	Dr. Anushree Raj	MCA						
35	Bhavana.H.	AIML						

MITE-KSCST IPR Cell

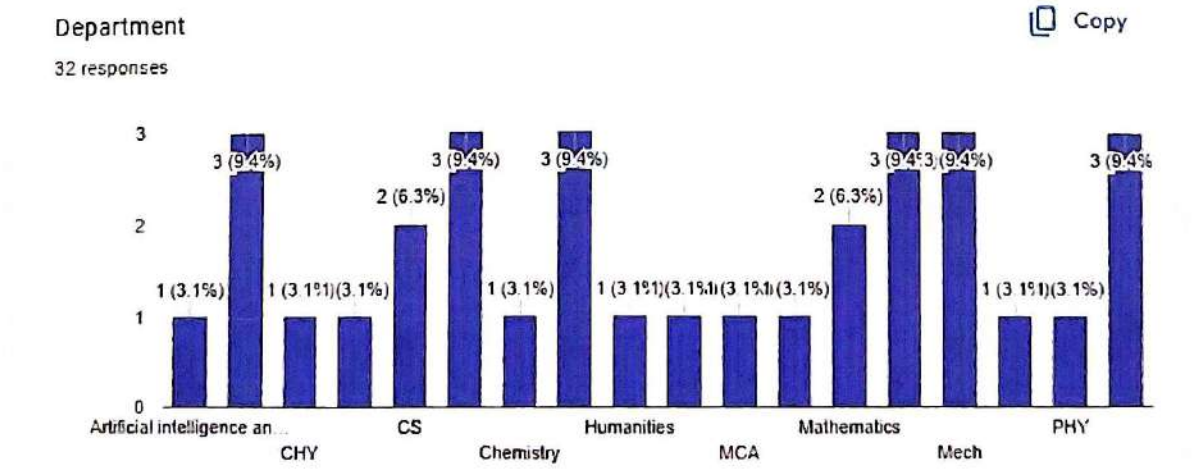
Feedback:

Three days Workshop on Patent Searching & Drafting was organized on the 27th and 28th from 10 AM to 12 PM and 2 PM to 4 PM.

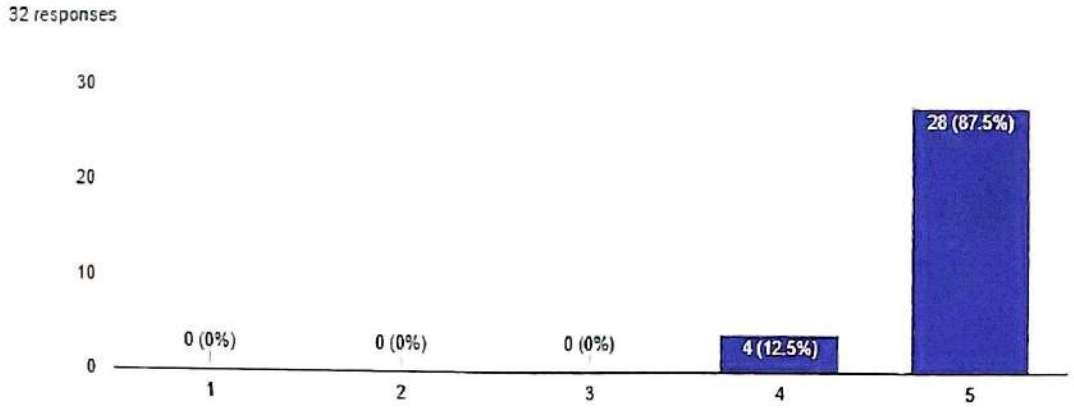
Google sheet Response:

Feedback || Workshop on Patent Searching & Drafting (Responses) ☆ Saved to Drive
File Edit View Insert Format Data Tools Extensions Help

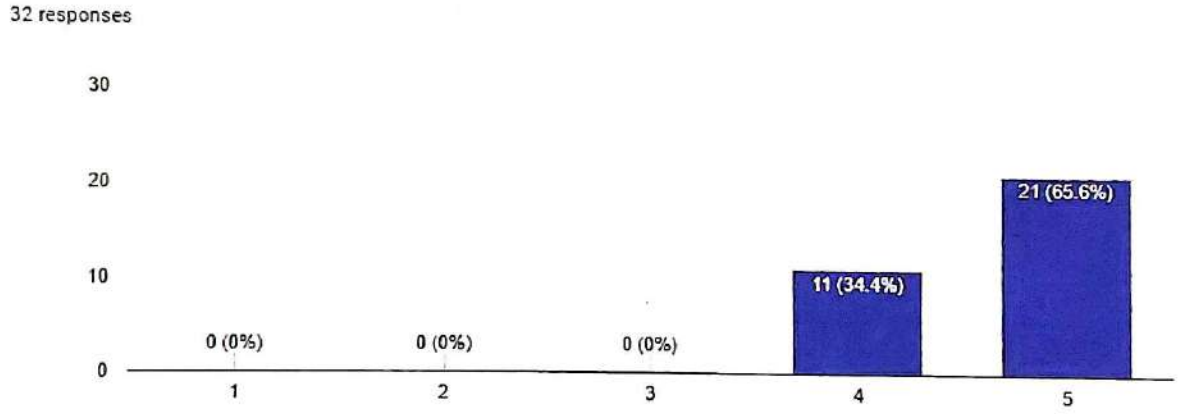
	Name	Department	1 Do you fe	2 How do y	3 .How do y	4. Interfac	5. Drafting	6. How woul	7. How y	8. What i	9. Overall,	10 After the session, h
2	Dr.Sruthi Dinesh	ECE	5	5	4	5	5	5	4	4	4	5
3	MEGHA MAYURI B G	ECE	5	5	5	5	5	5	4	5	4	4
4	Ashwin Kumar M	CSE	4	4	3	4	4	3	3	4	3	4
5	Sinchana Ananth Moger	CSE	5	5	5	4	3	3	4	3	5	4
6	Mansi Naik	CSE	5	4	4	4	4	4	4	4	4	4
7	Dr. Raghavendra Sagar	Physics	5	5	5	5	5	5	5	5	5	5
8	P A Abhishek	Artificial intelligence and	5	4	5	5	5	4	4	4	4	4
9	Dr. Shivaramu H T	Mechanical Engineering	5	5	5	4	4	4	4	4	4	5
10	Dr Anushree Raj	MCA	5	5	5	5	5	4	4	4	4	4
11	Dr. Sumanth Joishy	Physics	5	5	5	4	3	3	4	4	5	5
12	Dr. Vineetha Telma D'Sou	Chemistry	5	5	5	5	5	5	5	5	5	5
13	Ms. Prathvi	Physics	4	5	4	5	5	5	5	5	4	5
14	Dr. Anthoni Praveen Men	PHY	4	5	4	5	5	4	5	4	4	4
15	Dr. Guruprasad A M	CHY	5	5	5	5	4	4	4	5	5	5
16	Ms. Ashwini A Kamath	CHE	5	4	4	4	5	5	5	5	5	5



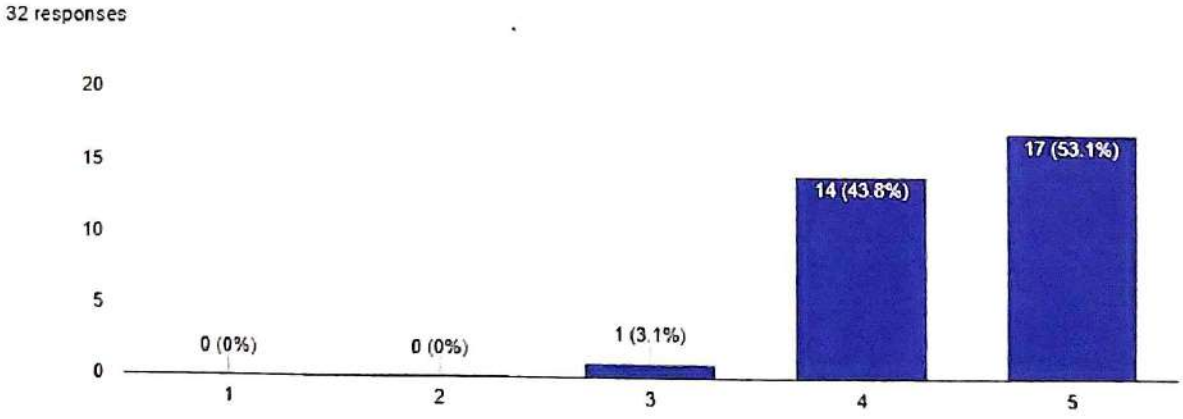
1. Do you feel the session provided value for the time you spend?*



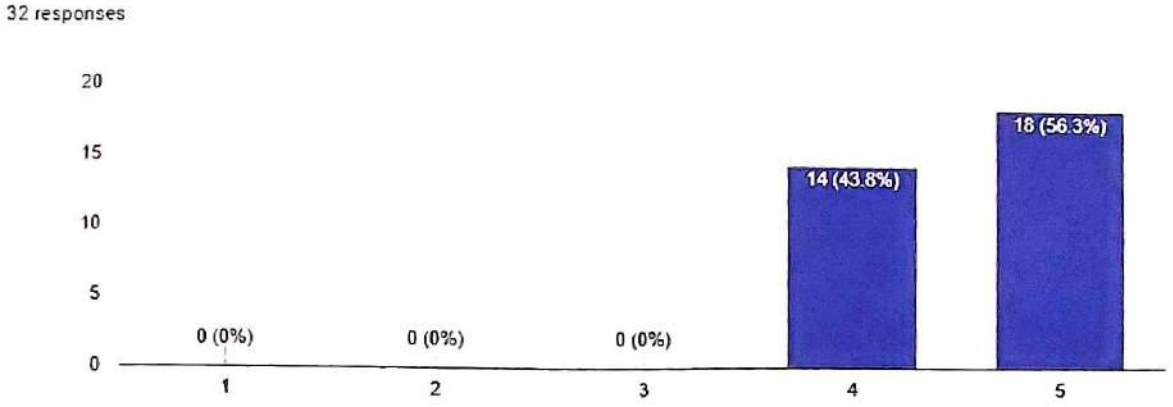
2. How do you rate the resource persons, Mr. Nagarjun M G?*



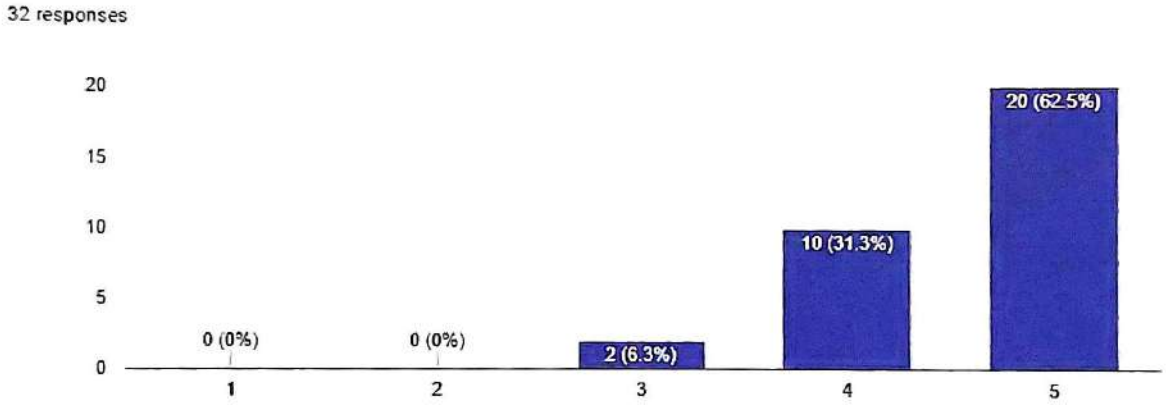
3. How do you rate the resource persons Ms. Priyanka?*



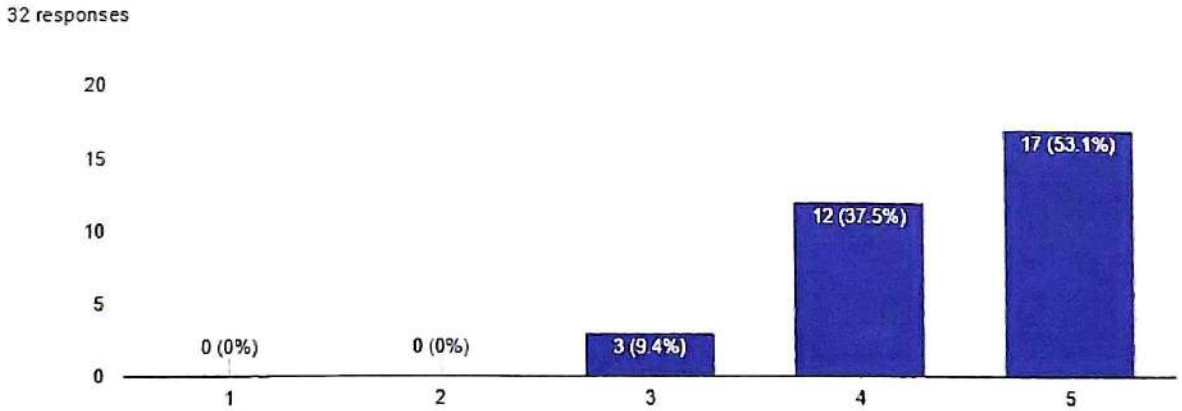
4. Interface of IP search and drafting. How satisfied are you with your learning experience?



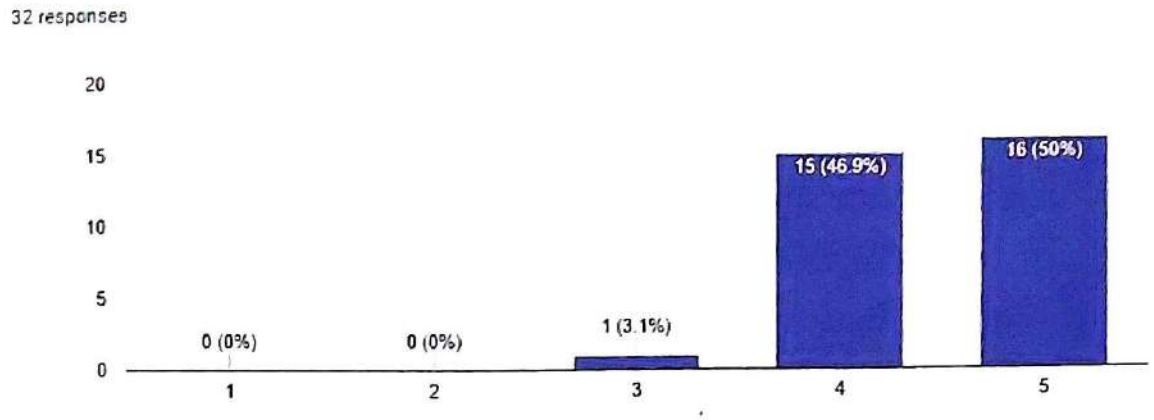
5. Drafting and patent specification . How would you rate your level of patent drafting?



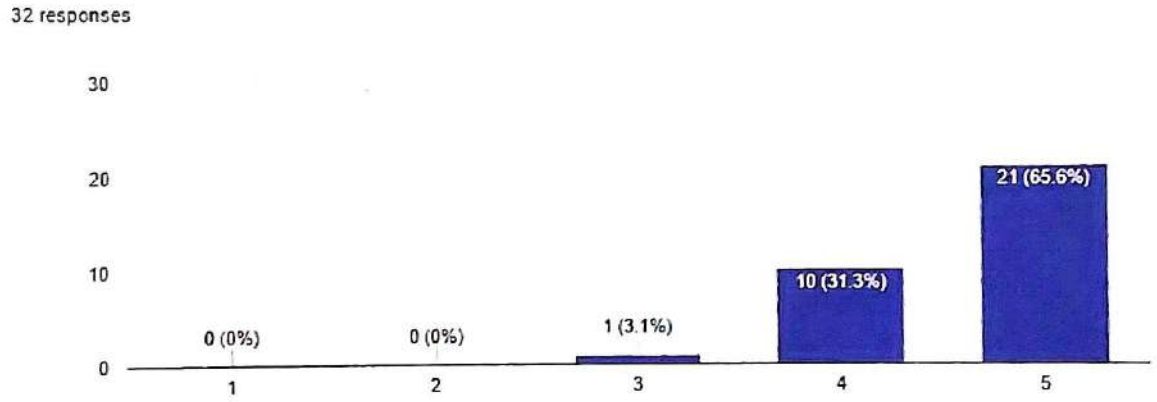
6. How would you rate your level of Drafting the claims for patent specification ?



7. How you rate your experience of hands on session on Prior art searches?



8. What is your understanding level on various forms required for Patent application?



9. Overall, how informative was the session?*