



MANGALORE INSTITUTE OF TECHNOLOGY & ENGINEERING

(A Unit of Rajalaxmi Education Trust®, Mangalore - 575001)

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 Computer Science & Engineering

Preamble

The Department of Computer Science & Engineering fosters holistic development by encouraging students to actively participate in both curricular and extracurricular activities through its dedicated student forum, the Computer Organization of Responsible Engineers (CORE). CORE serves as a dynamic platform where students can explore, innovate, and enhance their skills beyond academics. Every student within the department is a member of CORE, which provides abundant opportunities to develop and showcase technical, presentation, and communication skills through a wide range of activities. These include invited talks and technical sessions by experts from academia and industry, hands-on workshops, coding competitions, aptitude training, placement-oriented programs, and various technical events that align with current industry trends.

CORE also organizes a diverse set of extracurricular activities that cater to students' creative and collaborative interests, fostering teamwork, leadership, and innovation. The forum regularly conducts cultural events, hackathons, technical fests, and social initiatives, enabling students to express their talents, engage with peers, and contribute meaningfully to society. These activities not only provide a refreshing break from academic routines but also help students develop essential soft skills such as communication, time management, and leadership. The forum also recognizes and appreciates academic excellence and extracurricular achievements by honoring class toppers and winners of various competitions with certificates and awards. Furthermore, CORE actively encourages students to participate in intercollegiate events, hackathons, and national-level competitions, offering them exposure to real-world challenges and diverse perspectives.

CORE's commitment to student development extends to organizing leadership development programs, personality enhancement sessions, and team-building activities that prepare students for professional and personal growth. By nurturing a culture of innovation, responsibility, and continuous learning, CORE ensures that students of the Department of Computer Science & Engineering are not only technically competent but also well-rounded individuals ready to meet the demands of the ever-evolving technological world with confidence and excellence.

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Activity 1

Title	Workshop on " From Campus to Career – Transition from College to Industry"
Resource Person	Mr. Muktharali khathib
Date	10/11/2025

A technical talk on “From Campus to Career – Transition from College to Industry”, by Mr. Mukhtarali Khatib, Vice President and Delivery Head at Novigo Solutions, addressed the students. The session focused on the shift from academic life to a professional career and discussed the expectations, skills, and mindset required to succeed in the IT industry.

About the Resource Person:

Mr. Mukhtarali Khatib is currently the Vice President and Delivery Head at Novigo Solutions. With extensive experience in the software services industry, he leads delivery across large and complex client engagements, overseeing teams, project execution, and customer success. Over the course of his career he has mentored numerous engineers transitioning from campus to industry and brings a practitioner’s perspective on the skills, mindset, and professional behaviours that the IT industry expects from fresh graduates.

About the Event:

The speaker shared practical insights on bridging the gap between college and the corporate world. He emphasised that the transition from campus to career is not only about technical knowledge but equally about attitude, communication, adaptability, and continuous learning. He guided students on how to prepare themselves while still in college and what the industry truly expects from fresh recruits. He discussed the following key points:

1. **Strong Fundamentals:** A solid grasp of core concepts – programming, data structures, databases, and problem solving – matters far more than memorising tools. The industry values candidates who understand the “why” behind what they build.
2. **Communication Skills:** The ability to clearly explain ideas, write professional emails, and present work confidently is as important as technical ability. Good communication sets apart engineers in team settings.

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3. **Ownership and Responsibility:** In industry, taking ownership of tasks, meeting deadlines, and being accountable for the quality of one's work builds trust and accelerates career growth.
4. **Adaptability:** Technologies and project requirements change constantly. Graduates must be willing to learn new tools quickly and adapt to different teams, domains, and ways of working.
5. **Continuous Learning:** Learning does not stop after college. Staying updated with emerging technologies, upskilling regularly, and being curious are essential habits for a long-term career.
6. **Teamwork and Collaboration:** Real projects are built by teams. Working well with others, respecting diverse viewpoints, and contributing to a shared goal are everyday expectations in the workplace.
7. **Professionalism and Work Ethic:** Punctuality, integrity, a positive attitude, and respect for colleagues form the foundation of a good professional reputation.
8. **Time and Self Management:** Balancing multiple tasks, prioritising effectively, and managing one's own time are critical skills when moving from a structured college timetable to a dynamic work environment.
9. **Building a Strong Profile:** Internships, real projects, a clean resume, and an active presence on platforms like GitHub and LinkedIn significantly improve placement and career opportunities.

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Figure: Mr. Mukhtarali Khatib, Vice President & Delivery Head, Novigo Solutions, delivering a session on From Campus to Career – Transition from College to Industry.

The session was highly interactive and well received by the students. The speaker concluded by encouraging students to start preparing early, build real projects, develop soft skills alongside technical skills, and approach the transition from college to industry with confidence and a learning mindset. The talk gave students a clear and practical roadmap for making a smooth and successful entry into their professional careers.

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Activity 2

Title	Hands-on Workshop on" IoT Essentials: Concepts to Applications"
Resource Person	Dr. Sreeja Rajesh Dr. Bhavana Rudra
Date	08/10/2025 to 10/10/2025

The Department of Computer Science and Engineering at Mangalore Institute of Technology and Engineering, Moodabidri, organized a three-day workshop titled “IoT Essentials: Concepts to Applications” from 8th to 10th October 2025. The aim of the workshop was to introduce students to the fundamentals of the Internet of Things (IoT) and provide them with practical exposure to IoT hardware, programming, and applications. The event focused on enabling participants to design and develop IoT-based systems capable of solving real-world problems.

About the Event:

The technical session was conducted by Dr. Sreeja Rajesh, Associate Professor, Department of Information Science and Engineering, MITE, on “Introduction to IoT and Applications.” She explained the IoT architecture, various communication layers, and the functioning of sensors and actuators. Participants gained insight into the integration of hardware and software components and how IoT systems enable automation in smart homes, healthcare, agriculture, and industry.

In the afternoon, a practical session on IoT Basics using Tinkercad simulation was conducted. Participants created and tested simple IoT circuits in a virtual environment to understand circuit behavior, sensor response, and data transmission. This activity helped them build confidence in circuit design and troubleshooting. The day concluded with an interactive discussion that encouraged participants to share their observations and innovative ideas.

The second session was delivered by Dr. Bhavana Rudra, Assistant Professor (Grade I), NITK Surathkal, on “IoT in Autonomous Vehicles.” She discussed the need for data confidentiality, device authentication, and network integrity in IoT systems. Participants learned about the major security challenges faced by IoT devices and explored modern solutions such as blockchain-based security frameworks and post-quantum cryptographic approaches. Her

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lecture gave participants a deep understanding of the importance of designing secure and trustworthy IoT networks.



In the afternoon, the hands-on session focused on ESP32 microcontroller programming using Arduino IDE. The students wrote programs to control sensor operations, process data, and trigger automated responses based on conditions. The exercise enabled participants to understand how sensor data can be acquired, processed, and used for intelligent decision-making in IoT systems. The day ended with a discussion on the future of IoT security and its significance in large-scale deployments.

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Key Outcomes:

The workshop on “IoT Essentials: Concepts to Applications” achieved all its planned objectives. Participants gained a solid understanding of IoT architecture, sensor integration, and device communication protocols. They successfully learned to program ESP32 microcontrollers using Arduino IDE and tested circuit designs through Tinkercad simulation. The sessions improved students’ practical knowledge of IoT hardware, data acquisition, and control logic, while also enhancing their analytical and problem-solving skills.

The expert lecture on IoT security introduced participants to critical security challenges and advanced protection techniques such as blockchain and quantum-resistant cryptography. The mini-project activity encouraged collaboration, creativity, and project-based learning, resulting in the development of functional IoT prototypes that addressed real-world issues. By the end of the workshop, participants were capable of conceptualizing, designing, and implementing small-scale IoT solutions independently.

The key objectives of conceptual understanding, practical skill development, teamwork, innovation, and awareness of IoT security were effectively met. The workshop concluded as a highly productive learning experience that inspired students to engage in future research, innovation, and development in the field of IoT and smart technologies.

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Activity 3

Title	Workshop on " Code the Stack: .NET Meets React”"
Resource Person	Mr. Srinidhi B,
Date	04/05/2026 to 05/05/2026

The Department of Computer Science & Engineering, Mangalore Institute of Technology & Engineering (MITE), successfully organized a two-day hands-on technical workshop titled “Code the Stack: .NET Meets React” on 4th and 5th May 2026. The workshop was conducted with the approval and support of IQAC and aimed at enhancing students’ practical knowledge in modern full-stack web development technologies. The inaugural session of the workshop commenced on 4th May 2026 in the presence of faculty members, student participants, and organizing committee members. The workshop was coordinated under the guidance of the Head of the Department, Dr. Ravinarayana B, and organized by Dr. Dinesha L and Mr. Shivaraj B G from the Department of CSE.

About Resource Person:

The resource person for the workshop was Mr. Srinidhi B, Full Stack Developer, Microchip Technologies, Bengaluru.



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About the Event:

The two-day workshop "Code the Stack: .NET Meets React," handled by Mr. Srinidhi B, introduced participants to full-stack web development through a combination of conceptual sessions and live coding demonstrations. Day 1 covered the fundamentals of backend and frontend integration, including an introduction to full stack development, an overview of the .NET Framework and ASP.NET Core, REST API concepts, React and component-based architecture, development environment setup, building basic React web applications, and connecting frontend and backend applications; the resource person explained each topic with real-time examples so that students could grasp practical implementation techniques, and by the end of the day participants were able to create APIs using ASP.NET Core, build user interfaces in React, work with Visual Studio Code and related tools, perform API testing and frontend integration, and connect ASP.NET Core APIs with SQL Server using Entity Framework Core. Day 2 began with a recap of the previous day's concepts and moved on to advanced, project-oriented sessions covering CRUD operations using ASP.NET Core APIs, React state management, routing and navigation in React, database connectivity, JSON data handling, frontend-backend communication, and error handling and debugging techniques, with detailed demonstrations of how modern web applications are developed and deployed in the software industry. Students worked individually and in teams to develop mini-project modules integrating a React frontend with .NET backend services, gaining hands-on exposure to creating responsive user interfaces, managing API requests and responses, handling database operations, and developing scalable web applications.



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Key outcomes:

The workshop concluded with participants gaining both conceptual clarity and practical competence in modern full-stack web development. By the end of the two days, students were able to design and develop RESTful APIs using ASP.NET Core, connect them to SQL Server through Entity Framework Core, and perform complete CRUD operations across the application stack. They acquired the ability to build responsive, component-based user interfaces in React, manage application state, implement routing and navigation, and consume backend services through structured API calls with proper JSON data handling. Participants also became comfortable working with Visual Studio Code and associated development tools, testing APIs, and applying error handling and debugging techniques to troubleshoot integration issues. Beyond the technical skills, the hands-on mini-project work strengthened their problem-solving ability, teamwork, and understanding of industry-standard development and deployment practices, leaving them well prepared to take up full-stack development projects, internships, and related career opportunities.

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Activity 4

Title	Workshop on " Machine Learning: Bridging Theory to DeepLearning Practice"
Resource Person	Dr. Radhika Kamath Dr. Krishnaraj Chadaga
Date	26/08/2026 to 22/08/2026

The Department of Computer Science & Engineering, Mangalore Institute of Technology & Engineering (MITE), successfully organized a two-day hands-on workshop titled “Machine Learning: Bridging Theory to Deep Learning Practice” on 24th and 26th August 2026 at the ADE Lab, 1 st floor, Main block. The workshop was conducted in association with CORE and the Institution’s Innovation Council (IIC). The programme aimed to provide students with practical exposure to machine learning workflows, data handling, model development, classification, regression, unsupervised learning, artificial neural networks, and model evaluation.

About Resource Person:

Dr. Radhika Kamath is an academician and researcher specializing in Image Processing, Computer Vision, Wireless Sensor Networks, and Artificial Intelligence. She currently serves as an Associate Professor in the School of Computer Engineering at Manipal Institute of Technology (MIT), Manipal Academy of Higher Education (MAHE), Manipal. She holds a Ph.D. and has extensive experience in teaching, research, and mentoring undergraduate and postgraduate students. Her research focuses on intelligent image analysis, computer vision, medical image analysis, pattern recognition, and Machine Learning. She has authored numerous research papers in reputed national and international journals and conferences and has supervised several student research projects.

Dr. Krishnaraj Chadaga is an academician and researcher specializing in Artificial Intelligence, Machine Learning, Explainable AI (XAI), Medical data analytics, and Intelligent healthcare systems. Currently serving as an Assistant Professor at Manipal Institute of Technology, Manipal. He has extensive research experience in developing AI-driven solutions for clinical and biomedical applications.

Among his notable contributions are the development of interpretable and secure machine learning models for healthcare applications, including cancer detection, thermographic analysis, biomarker analytics, bone marrow transplant outcome prediction, and intelligent disease prediction systems. Through interdisciplinary research, publications, and collaborative

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healthcare technology initiatives, he has significantly contributed to advancing AI-based clinical decision support and predictive healthcare technologies. He has also authored 50+ high-quality Q1 journal publications and presented research findings at several international conferences, reflecting his active contribution to the global research community.

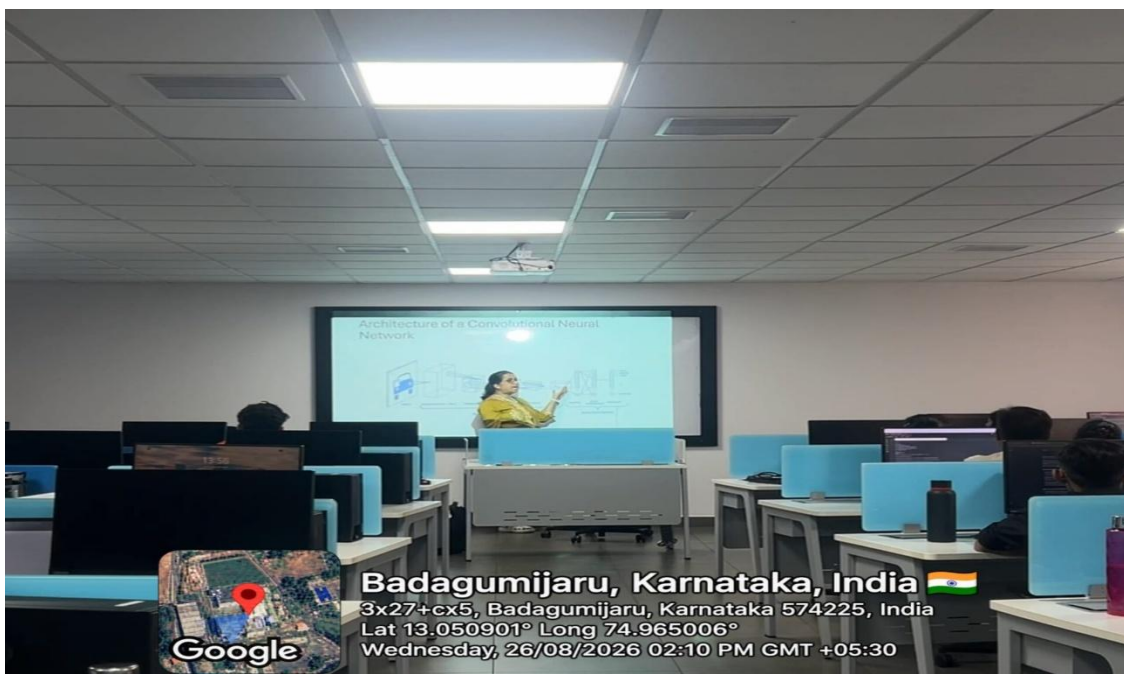
With strong expertise in Artificial Intelligence and medical data analytics, Dr. Chadaga has guided multiple student research projects and actively promotes innovation in intelligent systems, predictive modeling, and transparent AI solutions.

About the event:

The first day was devoted to the fundamentals of machine learning, data handling, regression, and classification. Sessions covered the complete machine learning workflow — problem formulation, preprocessing, train-test split, model training, and evaluation — along with data handling and visualization using Pandas, data cleaning and preparation, Linear and Logistic Regression with performance evaluation, K-Nearest Neighbours and Weighted KNN, Nearest Centroid classification, Decision Trees, and Naïve Bayes, concluding with a comparative study of the models. The resource person supplemented these sessions with real-world examples that illustrated how data-driven models support practical decision-making, helping participants appreciate the relevance of machine learning beyond theoretical concepts and encouraging them to explore its applications across different domains. By the end of Day 1, participants were able to perform data preprocessing, cleaning, and visualization, implement regression and similarity-based classification algorithms, apply Decision Tree and Naïve Bayes classifiers, and compare models using standard performance measures.

The second day advanced to Support Vector Machines, unsupervised learning, and neural networks. The sessions covered SVM and decision boundaries, K-Means and Hierarchical Clustering, Perceptron concepts and implementation, Artificial Neural Networks using Keras, loss and accuracy analysis during training, a comparison of SGD and Adam optimization methods, and guidance on selecting suitable algorithms for different problem types, along with an introduction to Reinforcement Learning. An assessment and feedback session was conducted at the close of the workshop, covering the end-to-end machine learning workflow, algorithm selection, model evaluation, and overall conceptual understanding.

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Key Outcomes:

The workshop provided participants with practical exposure to the complete machine learning workflow — from data preprocessing and visualization to model development, supervised and unsupervised learning, neural network implementation, optimization, and evaluation. The combination of expert demonstrations, hands-on exercises, and structured assessment strengthened students' understanding of machine learning algorithms and built their confidence in applying these techniques to practical problems

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Activity 5

Title	Workshop on “AI in Healthcare Data Analytics: From Machine Learning to Research Paper Drafting”
Resource Person	Dr. Krishnaraj Chadaga, Mr. Rahul Yadav,
Date	26/05/2026 to 27/05/2026

The Department of Computer Science & Engineering, Mangalore Institute of Technology & Engineering (MITE), successfully organized a two-day hands-on workshop titled “AI in Healthcare Data Analytics: From Machine Learning to Research Paper Drafting” on 26th and 27th May 2026. The workshop was conducted with the approval and support of IQAC in association with the Institution’s Innovation Council (IIC) and CORE. The workshop aimed at providing students with practical exposure to Artificial Intelligence (AI), Machine Learning (ML), Explainable Artificial Intelligence (XAI), healthcare data analytics, and research paper drafting techniques.

About Resource Person:

Dr. Krishnaraj Chadaga is an academician and researcher specializing in Artificial Intelligence, Machine Learning, Explainable AI (XAI), Medical data analytics, and Intelligent healthcare systems. Currently serving as an Assistant Professor at Manipal Institute of Technology, Manipal. He has extensive research experience in developing AI-driven solutions for clinical and biomedical applications.

Among his notable contributions are the development of interpretable and secure machine learning models for healthcare applications, including cancer detection, thermographic analysis, biomarker analytics, bone marrow transplant outcome prediction, and intelligent disease prediction systems. Through interdisciplinary research, publications, and collaborative healthcare technology initiatives, he has significantly contributed to advancing AI-based clinical decision support and predictive healthcare technologies. He has also authored 50+ high-quality Q1 journal publications and presented research findings at several international conferences, reflecting his active contribution to the global research community. With strong expertise in Artificial Intelligence and medical data analytics, Dr. Chadaga has guided multiple student research projects and actively promotes innovation in intelligent systems, predictive modeling, and transparent AI solutions.

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About event:

The first day introduced participants to the fundamentals of Artificial Intelligence, Machine Learning, and Deep Learning, and their growing importance in modern healthcare systems. The sessions covered the types of machine learning — supervised, unsupervised, and reinforcement learning — followed by healthcare data collection and preprocessing techniques including handling missing values and outliers, data encoding, feature scaling, data balancing using SMOTE, and feature selection. Participants then worked with a range of machine learning algorithms such as Linear Regression, Logistic Regression, Support Vector Machines, K-Nearest Neighbours, Decision Trees, Random Forest, and Boosting techniques, and learned to evaluate models using the Confusion Matrix, Accuracy, Precision, Recall, F1-score, and ROC-AUC. A dedicated session on Explainable AI (XAI) highlighted the importance of interpreting model decisions in critical domains such as healthcare and finance, with discussions on feature importance, model transparency, fairness, trust, and accountability. The resource person also demonstrated a real-world case study on COVID-19 diagnosis using machine learning and clinical markers, illustrating the significance of AI-assisted decision making in healthcare. The session was highly interactive, with students actively participating in discussions and practical exercises.

The second day shifted focus to research methodology, academic writing, and research paper drafting. Sessions covered the structure of a research paper, writing effective abstracts and introductions, literature review techniques, research methodology development, presentation of results and discussions, writing conclusions and references, citation and reference management tools, journal and conference publication processes, and best practices in academic writing and research ethics. Each section of a research paper was explained with examples and templates, and participants learned how to identify research gaps, formulate objectives, design methodologies, and present results effectively. A hands-on drafting session followed, in which students prepared a conference-style research paper based on a given problem statement, guided step by step through problem identification, literature survey, dataset selection, methodology formulation, result interpretation, and reference management. This practical exercise gave participants valuable experience in transforming technical work into a structured research manuscript.

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Key outcomes:

By the end of the two-day workshop, participants were able to understand the core concepts of Artificial Intelligence, Machine Learning, Deep Learning, and Explainable AI, and appreciate their role in healthcare analytics. They gained the ability to apply preprocessing techniques to healthcare datasets, develop and evaluate machine learning models using standard performance metrics, and interpret model predictions using XAI methods, while also recognising the challenges and ethical considerations involved in AI-driven healthcare systems. On the research side, participants were able to draft a research paper following standard academic structure, use

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citation and reference management tools effectively, understand publication procedures for conferences and journals, apply research ethics in academic writing, and prepare AI-based healthcare research studies for publication. The expert guidance of the resource persons, combined with extensive hands-on activities, enhanced students' understanding of both healthcare analytics and academic research, making the workshop an excellent platform for learning emerging AI technologies and research methodologies and contributing meaningfully to the academic and professional development of the participants