

Workshop Report

Workshop on MATLAB for Engineering Applications: AI, Signal Processing, Robotics, and RF Systems

Date: 03 July 2026

Time: 09:30 AM – 05:30 PM

Venue: R205A, 5G & Beyond: Open Innovation Lab, Department of Electronics and Communication Engineering, KLEF Deemed to be University, Vaddeswaram, Guntur, Andhra Pradesh.

Organized By

The **Department of Electronics and Communication Engineering (ECE)** in association with the **Academic Staff College (ASC), KLEF Deemed to be University** organized a one-day faculty development workshop titled "**MATLAB for Engineering Applications: AI, Signal Processing, Robotics, and RF Systems**" on **03 July 2026**.

The workshop aimed to enhance the technical skills of faculty members by introducing the latest MATLAB tools and their applications in Artificial Intelligence, Signal Processing, Robotics, RF Systems, and engineering education.

Resource Person

Ms. Ponnaganti Chandana

Product Manager

ARKANCE IN Private Limited

Organizing Committee

Program Chair

Dr. I. Govardhani, Head, Department of ECE

Co-Chairs

Dr. Ch. Radhika Rani, Principal, Academic Staff College

Dr. M. S. G. Prasad, Alternate Head, Department of ECE

Convener

Dr. Nishant Kumar, Assistant Professor, Department of ECE

Co-Conveners

Dr. R. Balaji, Assistant Professor, Department of ECE

Dr. Venkata Kishore Kothapudi, Assistant Professor, Department of ECE

Objectives of the Workshop

The workshop was organized with the following objectives:

- To familiarize faculty members with the latest MATLAB environment and workflow.
- To demonstrate MATLAB applications in Signal Processing, Artificial Intelligence, Robotics, RF Engineering, and Wireless Communication.

- To introduce MATLAB Copilot and Python interoperability for advanced engineering applications.
- To encourage faculty members to integrate MATLAB and Simulink into teaching, laboratory courses, research, and consultancy projects.
- To provide hands-on exposure to emerging MATLAB toolboxes and simulation techniques.

Inaugural Session

The workshop commenced with a **welcome address by Dr. I. Govardhani, Head, Department of Electronics and Communication Engineering, KLEF Deemed to be University**, who warmly welcomed the resource person, dignitaries, and participants. He emphasized the significance of MATLAB in modern engineering education, research, and industry-oriented applications, and encouraged faculty members to leverage MATLAB and Simulink for innovative teaching and research activities.

The workshop was conducted under the guidance of:

- **Program Chair:** Dr. I. Govardhani, Head, Department of ECE
- **Co-Chairs:**
 - Dr. Ch. Radhika Rani, Principal, Academic Staff College, KLEF
 - Dr. M. S. G. Prasad, Alternate Head, Department of ECE

The dignitaries highlighted the importance of MATLAB in engineering education, interdisciplinary research, and industrial applications.

Technical Sessions

Session 1: Introduction to MATLAB

The workshop began with an overview of the MATLAB environment, interface, scripting techniques, workspace management, data visualization, and programming fundamentals.

Topics covered included:

- MATLAB Desktop
- Variables and Data Types
- Scripts and Functions
- Matrix Operations
- Data Import and Export
- Visualization Tools

Session 2: Signal Processing Using MATLAB

The resource person demonstrated practical implementation of signal processing techniques, AI workflows using MATLAB.

The session covered:

- Signal generation
- Time and Frequency Domain Analysis
- FFT
- Digital Filtering
- Signal Visualization
- 5G Toolbox Introduction
- Data preprocessing
- Machine Learning Apps
- Classification Models
- Regression
- Deep Learning Overview
- Model Training

- Performance Evaluation

Participants gained hands-on experience using MATLAB Signal Processing Toolbox.

Session 3: Python Interoperability, MATLAB Copilot

The latest AI-assisted coding environment in MATLAB was demonstrated. Participants learned how MATLAB interacts with Python.

Topics included:

- Calling Python scripts from MATLAB
- Data exchange
- MATLAB Engine API
- Integration of Python libraries
- Code generation
- Debugging assistance
- Automated suggestions
- Productivity enhancement

Session 4: Robotics, Electric Vehicle (EV) System Modelling and Simulation Using MATLAB

The resource person explained robotics modelling and simulation using MATLAB and Simulink.

Topics covered:

- Robot Modelling
- Motion Planning
- Simulation
- Control Design
- Simscape
- Robotics Toolbox
- Introduction to Electric Vehicle architecture
- Battery modelling and State of Charge (SoC) estimation
- Electric motor modelling and drive systems
- Power electronics and motor control

Session 5: RF and Antenna Design

Participants were introduced to MATLAB RF Toolbox and Antenna Toolbox.

The session covered:

- Antenna Design
- S-Parameters
- RF Components
- Wireless System Modelling
- Antenna Performance Analysis

Session 6: Interactive Discussion

The workshop concluded with an interactive question-and-answer session where participants discussed:

- MATLAB licensing and campus-wide deployment
- Research opportunities using MATLAB
- Integration of AI and machine learning into engineering curricula
- Applications of MATLAB in Electric Vehicle (EV) technologies
- Signal processing, RF systems, and robotics applications

- Industry-oriented project development and collaborative research

The participants appreciated the practical demonstrations and expressed keen interest in adopting MATLAB for teaching, research, consultancy, and student innovation projects.

Participation

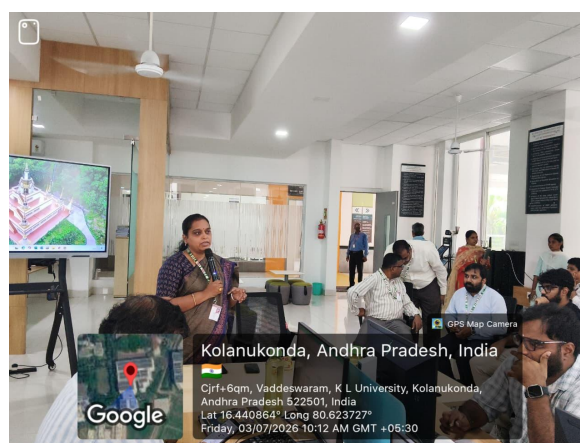
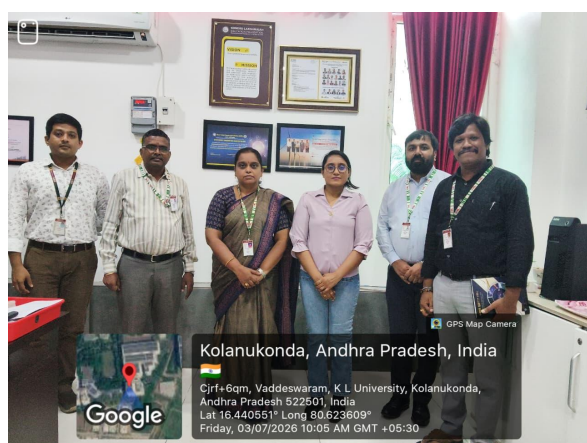
The workshop witnessed **enthusiastic participation from more than 60 faculty members** representing various departments of KLEF Deemed to be University. Participants actively engaged in the technical sessions, practical demonstrations, and interactive discussions throughout the workshop. Their active involvement and inquisitive interactions contributed significantly to the success of the event.

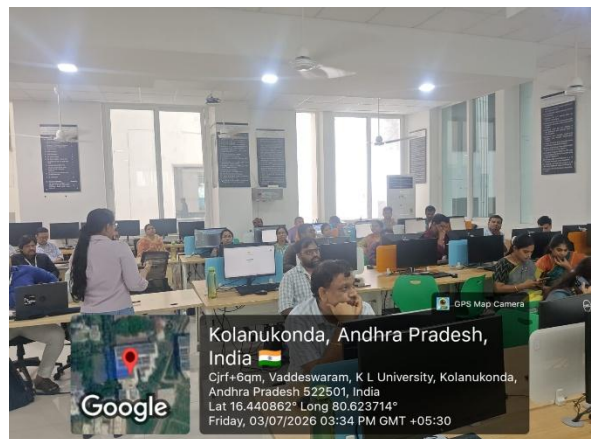
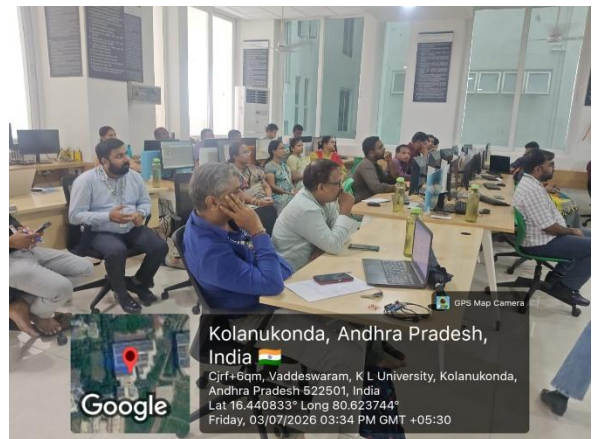
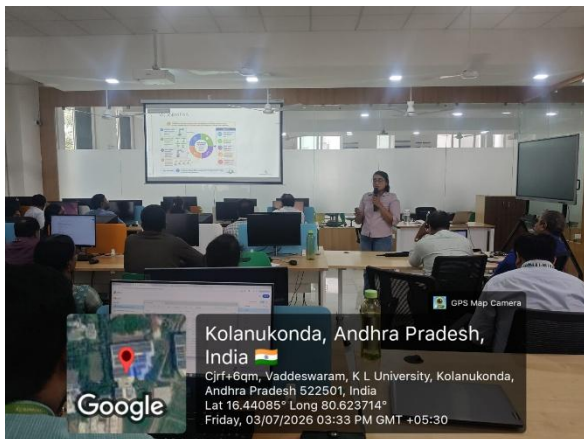
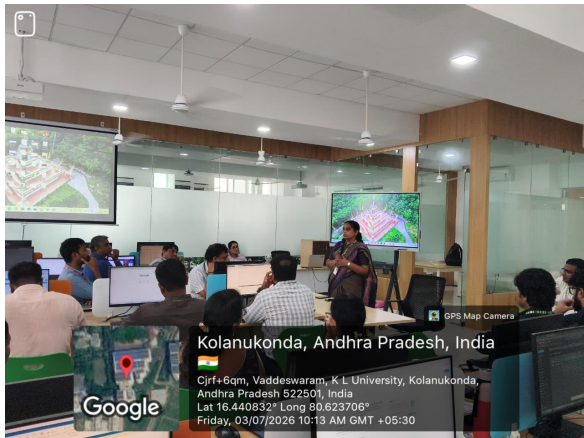
Vote of Thanks

The workshop concluded with a **Vote of Thanks delivered by Dr. M. S. G. Prasad, Alternate Head, Department of Electronics and Communication Engineering, KLEF.** He expressed his sincere gratitude to the resource person, the Academic Staff College, the Department of Electronics and Communication Engineering, the university administration, the organizing committee, and all the participants for their enthusiastic participation and valuable contributions in making the workshop a grand success.

As a token of appreciation, **Dr. M. Sujatha, Professor, Department of Electronics and Communication Engineering, and Mrs. Ch. Manjusha, Assistant Professor, Academic Staff College,** felicitated the resource person by presenting a **shawl and a memento** on behalf of KLEF Deemed to be University.

He also appreciated the efforts of the organizing team and conveyed his hope that such industry-oriented training programmes would continue to enhance the teaching, research, and professional competencies of the faculty members.







GPS Map Camera

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India 🇮🇳
Cjrf+6qm, Vaddeswaram, K L University,
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Lat 16.440845° Long 80.623662°
Friday, 03/07/2026 10:31 AM GMT +05:30