



**Finolex Academy of Management & Technology, Ratnagiri**

**Department of Electrical Engineering**

**Academic Year 2025-26**

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## **Introduction to AI & Machine Learning in Electrical Engineering Using MATLAB Tools and Apps”**

### **Date & Venue:**

17 September 2025 | Electrical Engineering Department, FAMT, Ratnagiri

### **Resource Person:**

**Mr. Ankit Kumar**, Application Engineer, Design Tech Pvt. Ltd., Pune

**Coordinator:** D. Rajeshkumar

### **Overview:**

The Electrical Engineering Department of FAMT conducted a **one-day workshop for teaching staff** to enhance their skills in **Artificial Intelligence (AI) and Machine Learning (ML)** using **MATLAB tools and apps**. The workshop focused on **Artificial Neural Networks (ANN), Convolutional Neural Networks (CNN), and Reinforcement Learning (RL)**, demonstrating how MATLAB's **built-in apps and toolboxes** can simplify AI/ML modeling and simulation for electrical engineering applications.

### **Topics Covered:**

#### **1. Introduction to MATLAB AI & ML Tools**

Overview of MATLAB AI/ML toolboxes such as Deep Learning Toolbox, Reinforcement Learning Toolbox, and Neural Network Toolbox.

Using MATLAB apps like **App Designer, Deep Network Designer, and Reinforcement Learning Designer** for simulations.

#### **2. Artificial Neural Networks (ANN) Using MATLAB**

Creating, training, and testing ANN models using **Neural Network Toolbox**.

Applications in load forecasting, fault detection, and predictive control.

#### **Convolutional Neural Networks (CNN) Using MATLAB Apps**

Designing CNN models with **Deep Network Designer** for pattern recognition and signal classification.

Hands-on exercises demonstrating image and signal processing applications.

#### **3. Reinforcement Learning (RL) Using MATLAB Toolbox**

Designing RL agents for adaptive control of electrical systems.

Using **Reinforcement Learning Designer** to implement reward-based learning strategies.

#### 4. Hands-On Demonstration

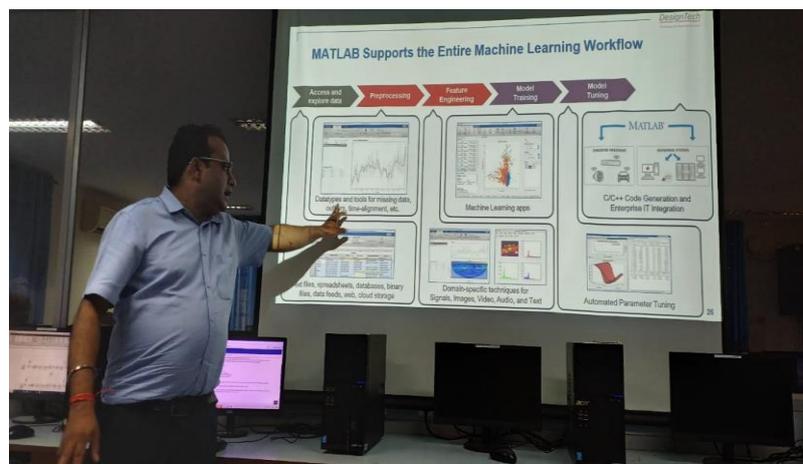
Faculty practiced model creation, training, and simulation in MATLAB apps.

Examples included ANN for battery SOC prediction, CNN for pattern recognition, and RL for optimal motor control.

#### Highlights of the Workshop:

- Practical exposure to MATLAB AI/ML apps for teaching and research.
- Hands-on coding and GUI-based modeling exercises.
- Discussions on real-world applications in smart grids, electric drives, and EV systems.
- Encouragement for integrating MATLAB-based AI/ML tools into curriculum and research projects.

#### Event Photos:



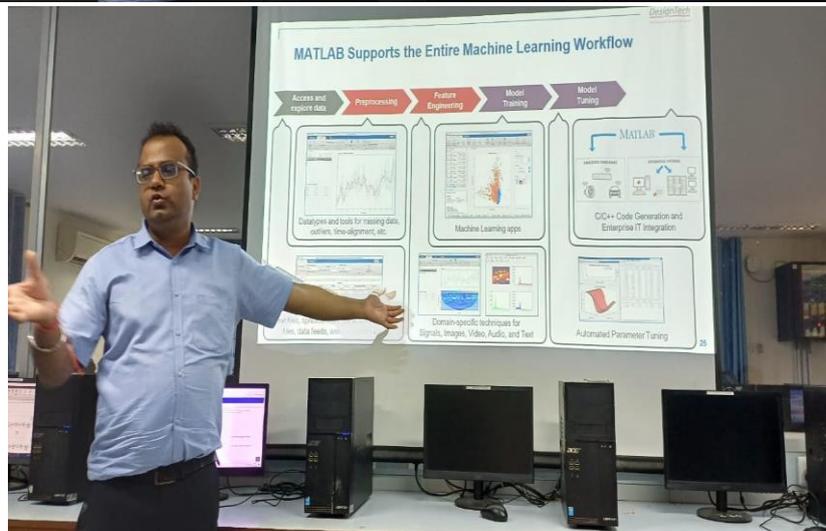
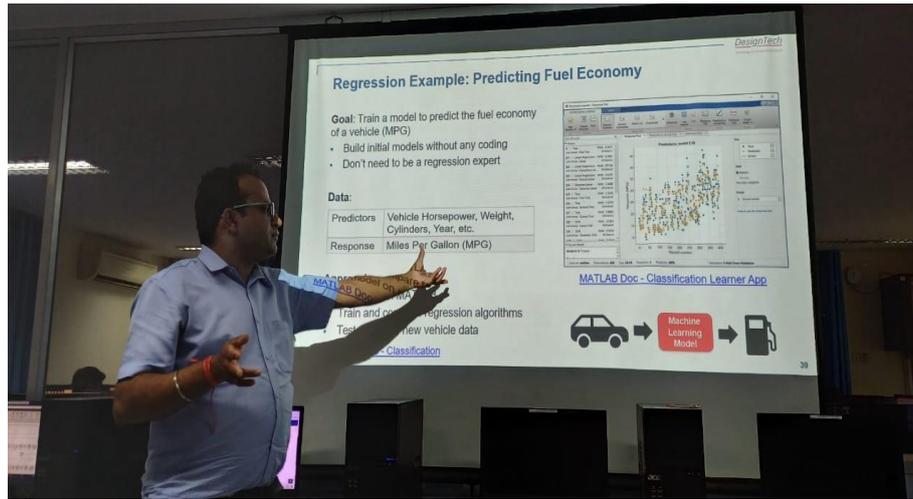


Figure: The workshop for faculty with Mr. Ankit Kumar. Faculty exploring Artificial Neural Network modeling using MATLAB Neural Network Toolbox.

### Outcome:

The workshop enhanced the **faculty's practical skills in AI and ML** using MATLAB apps and toolboxes. The participants gained hands-on experience in designing, training, and testing ANN, CNN, and RL models for electrical engineering applications, which will aid in **research, teaching, and curriculum development**.

### Executive summary

Sr. No.	Title	Content
1	Title of Program	Introduction to AI & Machine Learning in Electrical Engineering Using MATLAB Tools and Apps”
2	Nature of the program	Technical
3	Name of organizing committee	Electrical Department, FAMT.
4	Date of activity	17/09/2025

5	No of resource persons	1
6	No of faculty participants from another institute	NIL
7	No of staff participants from FAMT	12
8	No of student participants from another institute	0
9	No of participants from society	NIL
10	Total no of participants	12
11	No of judges (if any)	NA
12	Budget sanctioned	NIL
13	Budget utilized	NA
14	Average feedback on scale of 10(if applicable)	9
15	No of students placed/won	NA
16	Other information, if any	Resource Person: Ankitkumar Application Engineer DesignTech, Pune Coordinated by Mr. D Rajeshkumar

Signature and name of convener of authority: HoD/Convener of the committee	
Name of department/committee	EED