



# LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING

(AUTONOMOUS)

Accredited by NAAC with 'A' Grade, ISO 9001:2015 Certified Institution

Approved by AICTE, New Delhi and Affiliated to JNTUK, Kakinada

L.B. REDDY NAGAR, MYLAVARAM, NTR DIST., A.P.-521 230.

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**DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE**

## Event Report on

### **Internet of Things (IoT) and Machine Learning Leveraging Applications**

The Department of Artificial Intelligence & Data Science had organized a 5-day workshop on “**Internet of Things (IoT) and Machine Learning Leveraging Applications**” for III Year B. Tech Students(V-sem). The session was inaugurated by Dr. O Rama Devi, HoD, Dept. of AI & DS and the resource person **Mr. K.Saketh Reddy CMO, Codegnan IT Solutions Pvt.Ltd.,**

**Resource Person:** Mr. K.Saketh Reddy CMO, Codegnan IT Solutions Pvt.Ltd.,

**Convener:** Dr. O. Rama Devi, Professor & HoD, Dept. of AI & DS

**Coordinators:** Mr.K.Sudhakar, Sr.Asst.Professor,

Mr.P.Narendra Babu, Senior Assistant Professor,

Mr.M.Kishore Kumar, Assistant Professor

**Target Audience:** III Year B.Tech. Students

**Total no of Participants:** 140

**Venue:** Data Science Lab (First Floor, Admin-Block)

**Dates:** 20.09.2023 to 22.09.2023

**Timings:** 09.00 am – 04.00 PM

**Objective:** - Providing students the technology beyond the curriculum, which is Internet of Things with hands-on sessions for 3 days.

#### **Resource Person Spot light on the topics and implementation:**

- Teaching ML in a project oriented approach to deal with experiments and also in depth concepts of ML
- All projects to be executed during the stipulated time for both sections.
- ML & IoT combination projects will be taught to the students

# Machine Learning using Python

## 3 Day Schedule

### Day-1 : Introduction to Data Science and Artificial Intelligence

- Importance of Data in 21st Century
- Types of Data and its usage
- Difference between Data Science and Artificial Intelligence ● How does Machine Learning work?
- Different stages of Machine Learning projects.
- Usage of Different Python IDEs and Importance of Jupyter Notebook
  - Setting up Environment for Machine Learning Project

### Understanding Importance and Types of Data Analysis

- Understanding types of Data
- Understanding Importance of Visualization and Types of Graphs
- Python Packages for Data Analysis - Numpy,Pandas,Matplotlib,Plotly
- Working on Numpy and interesting use cases
- Usage of Pandas - Data Loading,Data Cleaning and Data Wrangling
- Python Interactive Visualization using Plotly
- Loading Plotly and Cufflinks

### Hands-on: Case Study - Exploratory Data Analysis on Titanic Dataset

### Day 2 : Data Pre-processing and Modelling using Scikit-learn

- Handling Numeric Features
- Feature Scaling and its importance

- Standardization and Normalization
- Handling Categorical Features - One Hot Encoding, Label Encoding
- Understanding Overfitting vs Underfitting, Bias & Variance
- Train, Test Split methods and importance

## Understanding and Working on Supervised Learning Algorithms

- Introduction to Regression
- Understanding How Linear Regression works and its Metrics
- Maths behind Linear Regression and its Implementation
- Linear Regression implementation using scikit-learn
- Evaluation Metrics for Regression Model

## Day-3 : Understanding and Working on Polynomial Regression

- Approach for Polynomial Regression
- Building Model for Polynomial Regression
- Performance Measures - MSE, RMSE, MAE, R-Squared Value

## Building and Deployment of Machine learning model - Flask, Git, GitHub & PythonAnywhere

- Understanding steps in end-to-end ML projects.
- Importance and Installation of Python Web Frameworks - Flask
- Building a web service for Machine Learning Model
- Git and GitHub Usage



- Deploying the Final Trained Model on Pythonanywhere

## Based on the above End to End Machine Learning Model

Development part students will be able to integrate with IoT

Projects such as below after the Workshop.

- **Water Quality Monitoring:** Design an IoT network to monitor water quality in rivers, lakes, or reservoirs. Use ML to analyze water quality data and provide early warnings for pollution events.
- **Crop Monitoring and Precision Agriculture:** Develop an IoT system for monitoring soil moisture, weather conditions, and crop health. Use ML to provide recommendations for optimising crop yield and resource usage.
- **Health Monitoring Wearables:** Create a wearable device that collects health data such as heart rate, temperature, and activity levels. Use ML to analyze the data and provide health insights and alerts.
- **Environmental Monitoring:** Design an IoT network for monitoring environmental conditions like air quality, temperature, and humidity. Use ML to analyze the data and provide insights into pollution patterns or weather forecasts.
- **Security Surveillance:** Build a smart security camera system that uses





ML to detect and classify objects and activities. The system can send alerts for suspicious behavior.

- **Wearable Gesture Recognition:** Develop a wearable device that uses IoT sensors to recognize hand gestures. Use ML to interpret gestures for controlling smart devices or playing games.







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**DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE**

## PHOTOS OF THE EVENT



**LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING**  
(An Autonomous Institution since 2010)

Approved by AICTE, New Delhi and Permanently Affiliated to JNTUK, Kakinada  
L.B. Reddy Nagar, Mylavaram, NTR District, Andhra Pradesh - 521230



### Department of Artificial Intelligence & Data Science




**3 Day Workshop on**  
“Internet Of Things and  
Machine Learning- Leveraging  
Applications”

**Venue:** Data Science Lab  
**Date:** 20-22 Sept 2023

In Association with SPIRIT OF AI CLUB & IEEE SB-LBRCE(A)



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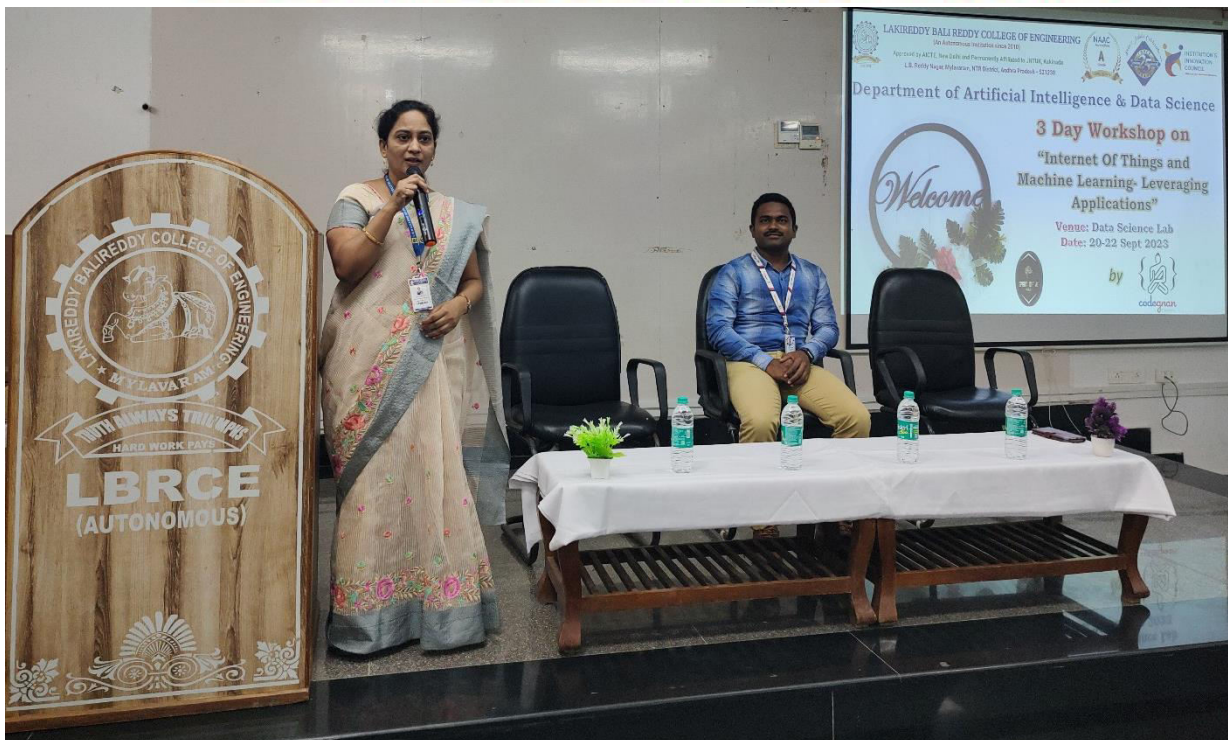
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**HoD Dr.O.Rama Devi, Addressing the congregation,  
Resource Person K.Saketh Reddy**



**Students of AI&DS in the workshop.**

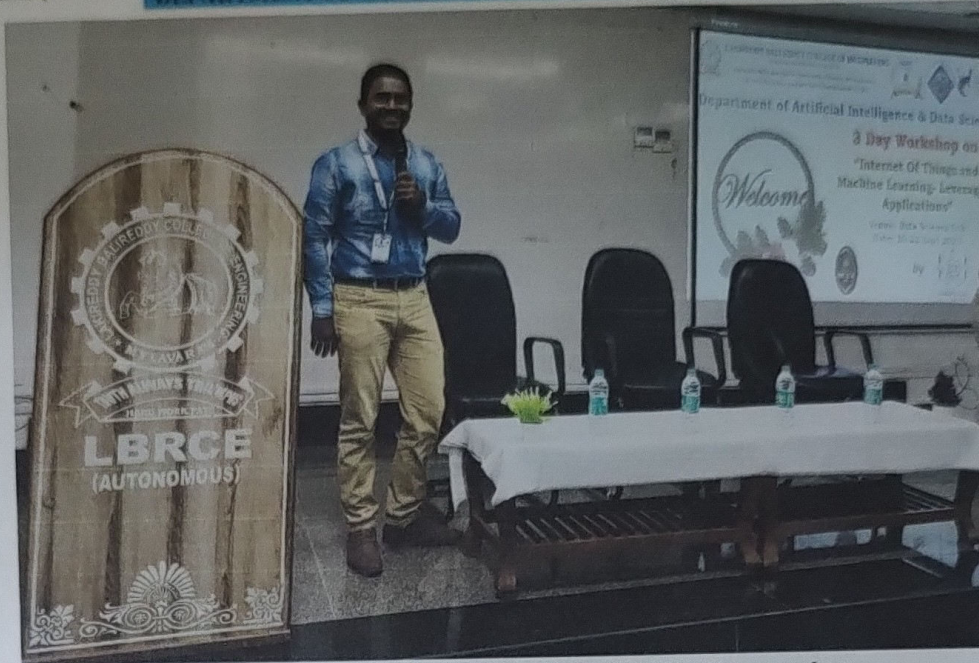




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DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND DATA SCIENCE



**Resource Person Sri K.Saketh Reddy in the session**

**Dr. O. Rama Devi**  
Head of the Department