



# RajaRajeswari College of Engineering

(An Autonomous Institute, Affiliated Visvesvaraya Technological University, Belagavi,

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## Department of Computer Science & Engineering

[IoT, Cybersecurity including Blockchain Technology]



RAJARAJESWARI COLLEGE OF ENGINEERING,  
BENGALURU-74

(AN AUTONOMOUS INSTITUTION),  
AFFILIATED VTU, APPROVED BY AICTE , UGC & GOK

**ARTIFICIAL INTELLIGENCE & MACHINE LEARNING**

**&**

**CSE [IoT, CYBERSECURITY INCLUDING BLOCKCHAIN  
TECHNOLOGY]**



**FIVE Days FDP On  
Enrichment of Lab Skills**

**22/7/2025 to 26/7/2025**

**Coordinator: Address for communication**

**All Dept. Staffs Mamatha K R-9036071887**

**Renuka H N-9482019201**

**Dr. Rajesh K S**

**HOD, AI&ML**

**Dr. R Balakrishna**

**Principal**

**Dr. Shashidhar V**

**HOD, CSE(IC)**



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### [IoT, Cybersecurity including Blockchain Technology]

### **Report on Five Days Faculty Development Program**

## **on** **Program on Enrichment of Lab Skills**

**22<sup>nd</sup> July to 26<sup>th</sup> July2025**

**Resource Person :** Mr.SreedharaReddy, Technical Engineer, IobiT Solutions  
Faculties of AI&MLand CSE[IC] Department

**Date of the event :** 22<sup>nd</sup>Julyto26<sup>th</sup>July2025.

**Venue :** Room No 217,2<sup>nd</sup> floor and Ground floor Lab, RRCE

**Target Participants:** AI&ML and CSE[IC]faculties

#### **Over view of the FDP:**

The event started with the formal Inaugural function at 9.30a.m in Room No 217. On the dais Our Chief guest Mr. Sreedhara Reddy Technical Engineer, IobiT Solutions, Dr Rangaih L Academic Dean, Dr. Amudraj Dean Admistrative, Dr. Rajesh K S HOD AI & ML, Dr. Shashidhar HOD CSE(IC) , Dr. Manjunath T C Dean R&D and Dr S Jagannathan Dean Current affair, The function started with Invocation Song, followed by the welcome speech, followed by Presidential address given by Academic Dean and Dean Admistrative. Followed by Vote of Thanks.

#### **Day1:Internet of Things (IOT)using raspberrypi and python**

The Internet of Things (IoT) refers to the network of physical devices, vehicles, home appliances, and other items that are embedded with sensors, software, and connectivity, allowing them to collect and exchange data with other devices and systems over the internet. Hands on session with real time IOT sensor Applications.

#### **Day2:Introduction to Data Structures**

A data structure is a way to organize and store data in a computer so that it can be efficiently accessed and modified. Data structures provide a way to manage large amounts of data, making it possible to perform operations such as sorting, searching, and inserting data efficiently.

Hands on session Types of Data Structures and its operation, Importance of Data Structures

1. Efficient Data Management: Datastructures enable efficient storage and retrieval of data.
2. Improved Algorithm Performance: Choosing the right data structure can significantly improve algorithm performance.
3. Scalability: Datastructures can be designed to handle large amounts of data.

Brief insight of LAB programs and handson session on different programs were explained.

Introduction to Cyber Security



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### IoT, Cybersecurity including Blockchain Technology

Cyber security refers to the practices, technologies, and processes designed to protect digital information, computer systems, and networks from unauthorized access, use, disclosure, disruption, modification, or destruction.

Discussed on Key Concepts in Cyber Security – Confidentiality, Integrity, needed.

Types of Cyber Threats- Malware, Phishing, Denial of Service (DoS), Man-in-the-Middle (MitM), SQL Injection

Cyber Security Measures- Firewalls, Antivirus Software, Encryption, Access Control and Regular Updates and Patches

#### **Day 3:**

Dr. Manjunath T C sir gave brief ideas on Research in various fields and Organizations. Insights on Patent and Publications what are the rules, how to apply, concerns for publications

Afternoon session handled by Prof Soniya R

Madam gave a brief Overview of Introduction to Machine learning and its applications. Machine Learning Machine learning is a subset of artificial intelligence (AI) that enables systems to learn from data and improve their performance on a task without being explicitly programmed.

Types of Machine Learning - Supervised Learning, Unsupervised Learning and Reinforcement Learning

Machine Learning Applications-Image Recognition, Natural Language Processing, Predictive Analytics, Recommendation Systems and Speech Recognition

Worked on Machine Learning Algorithms-.Linear Regression, Decision Trees, Neural Networks, Clustering and Support Vector Machines

By leveraging machine learning, organizations can unlock insights from data, automate decision-making, and drive innovation.

**Day 4:** Introduction to Data Visualization types of Data Visualization and Benefits of Data Visualization

Data visualization is the process of creating graphical representations of data to better understand and communicate insights, patterns, and trends.

Handson session conducted on Data Visualization Tools with some programs are executed

By leveraging data visualization, organizations can gain insights, communicate effectively, and make data-driven decisions.

#### **Introduction to Generative AI**

Generative AI refers to a type of artificial intelligence that can generate new, original content, such as images, videos, music, or text, based on patterns and structures it has learned from existing data.

Discussed and handson session conducted on Key Characteristics of Generative AI Creativity,



Learning: Generative AI learns from existing data to generate new content and Pattern

Recognition: Generative AI recognizes patterns and structures in data to generate new content.

#### **Day5:Introduction to Kali Linux for Cyber Security**

Kali Linux is a popular Linux distribution used for cyber security testing, penetration testing, and digital forensics. It provides a comprehensive set of tools for identifying and exploiting vulnerabilities in computer systems.

Pre-installed Tools: Kali Linux comes with a wide range of pre-installed tools for cyber security testing, including Nmap, Metasploit, and Burp Suite. Customizable: Kali Linux can be customized to meet specific needs and requirements. Community Support: Kali Linux has a large and active community of users and developers. Regular Updates: Kali Linux receives regular updates with new tools and features.

A hands on session conducted Tools and Applications in Kali Linux with Nmap, Metasploit, Burp Suite, Wires hark and John the Ripper: A password cracking tool for testing password strength.

Career Opportunities with KaliLinux like Penetration Tester, CyberSecurity Consultant, and Digital Forensics Analyst,

By leveraging Kali Linux, cyber security professionals can identify and exploit vulnerabilities, test the security of computer systems, and develop new cyber security tools and techniques.

#### **Introduction to Operating System**

An Operating System (OS) is a software that manages computer hardware resources and provides a platform for running application software. It acts as an intermediary between computer hardware and user-level applications.

Practical session done on resources of Operating System like Process Management, Memory Management, File System Management, Input/Output (I/O) Management and Security.

By understanding operating systems, users can better appreciate the complexity and functionality of modern computer systems.



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Figure 1: Inaguration of FDP



Figure 2: Felicitation to Resource Person



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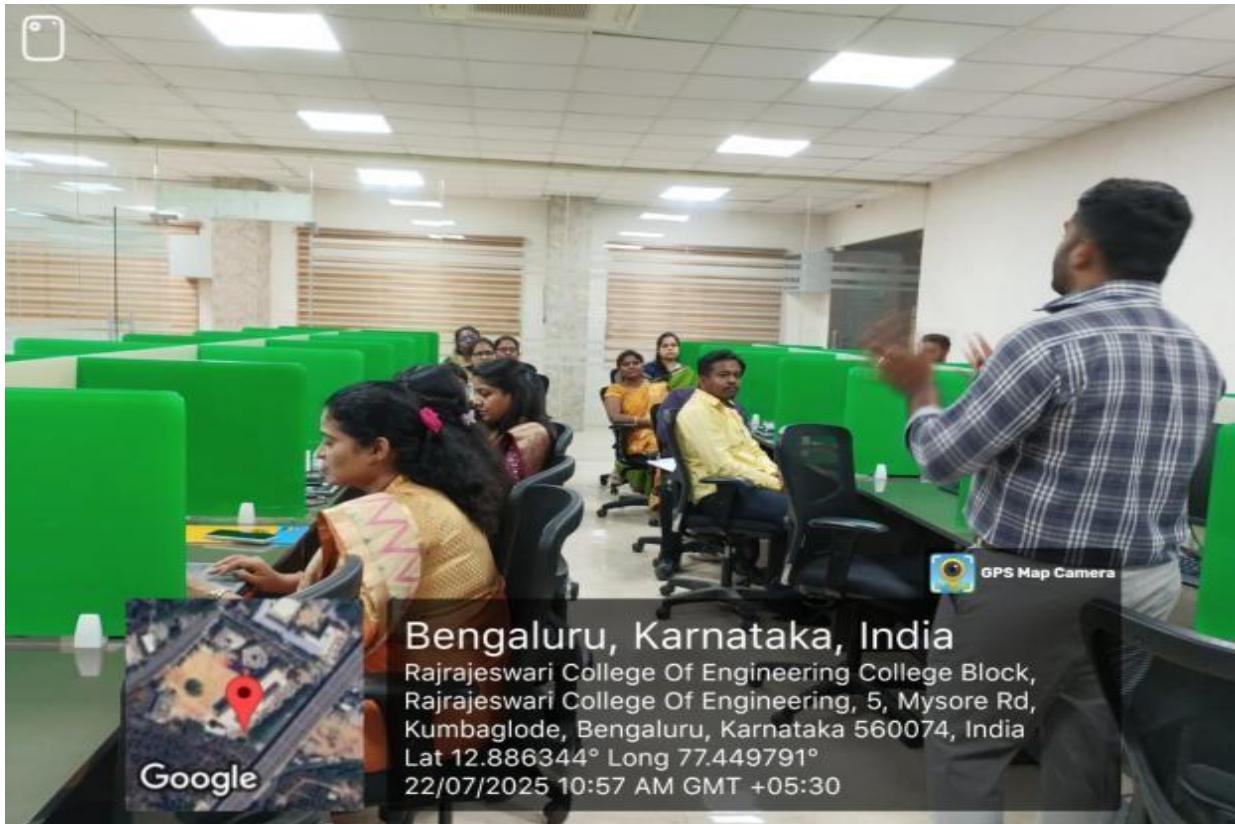


Figure 3:HandsonTraining on IOT Toolkit



Figure 4: Faculties working on IOT Toolkit



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Figure 5: Speaker giving insight of DataStructures



Figure 6: Speaker giving insight of DataStructures



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Figure 7:Speaker giving Handson training about CyberSecurity



Figure 8:Speaker giving Handson training about CyberSecurity



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Figure 9: Speaker giving a brief overview on research oriented

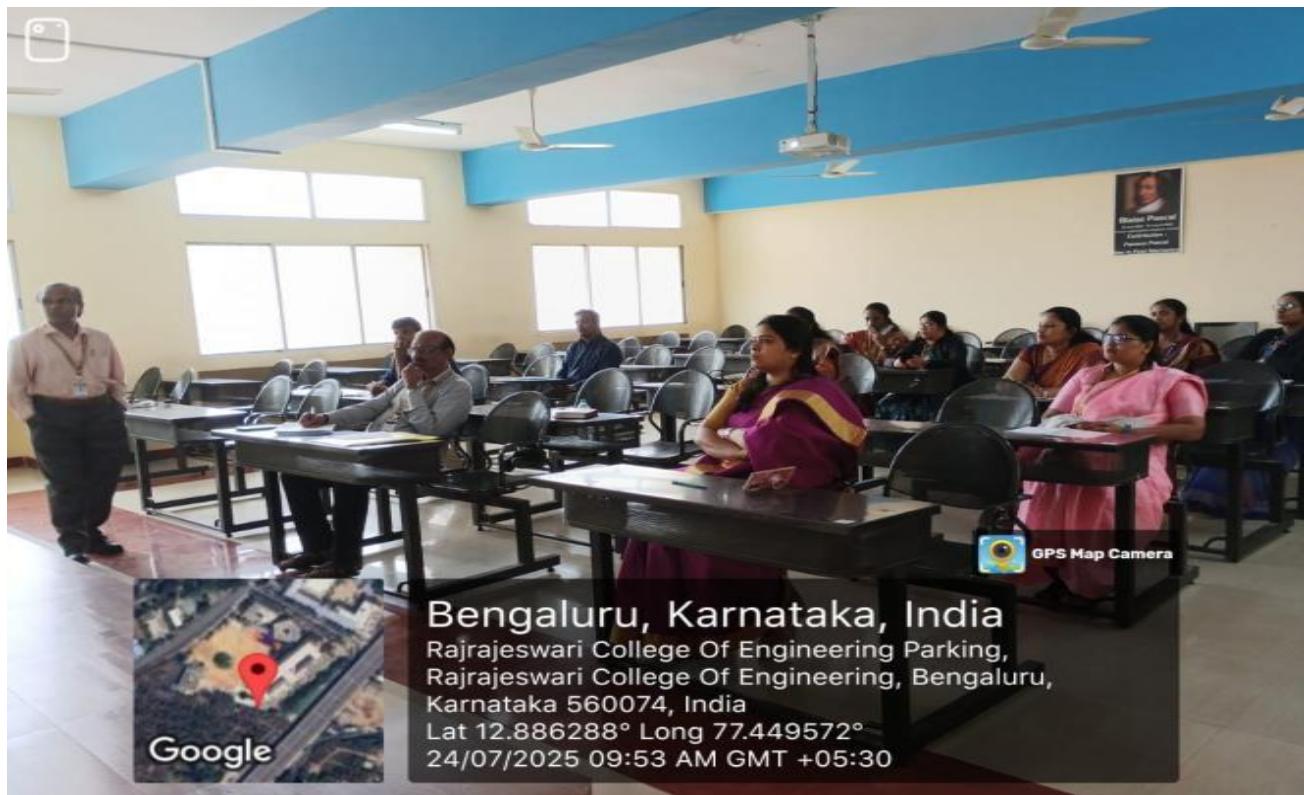


Figure 10: Speaker giving a brief overview on research oriented



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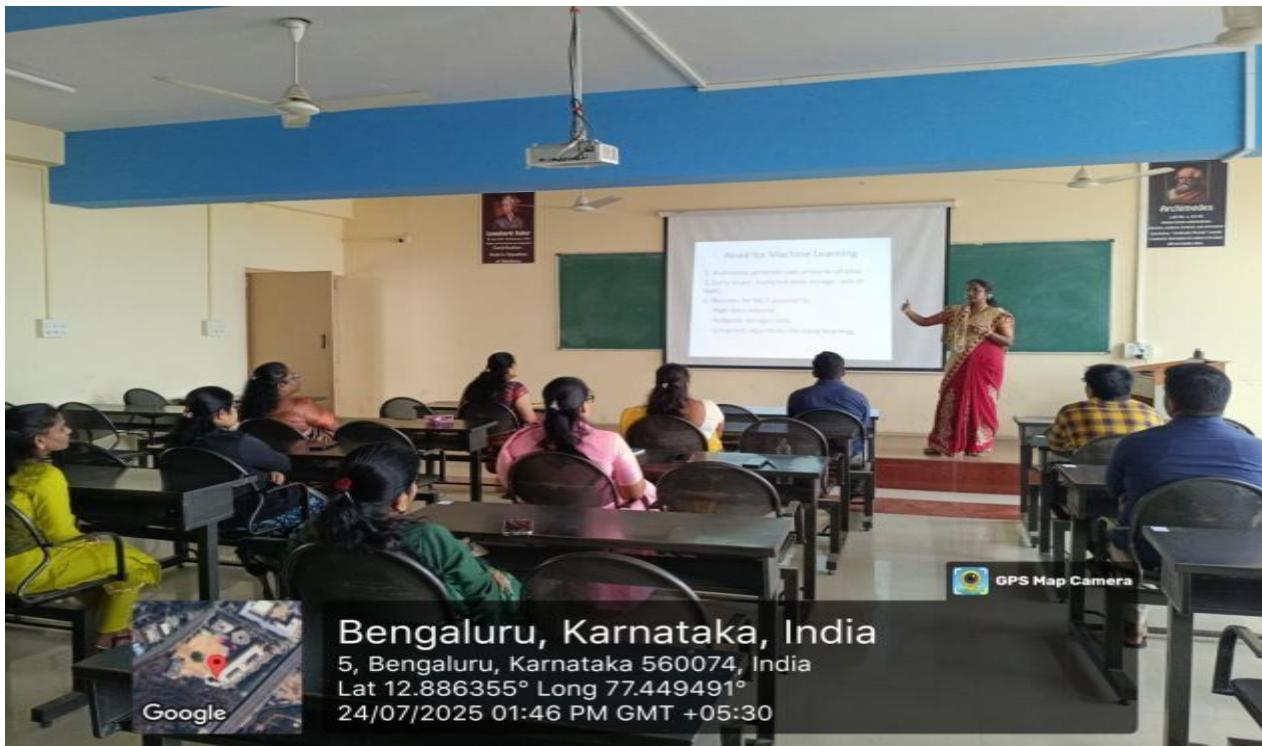


Figure 11: Speaker explaining about Machine learning



Figure 12: Speaker giving insights of Data visualization



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Figure 13: Speaker explaining about Gen AI



Figure 14: Speaker explaining about Operating Systems



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Figure 15: Speaker giving insights to CyberSecurity



Figure 16: Group photos of all the staffs who are participated

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