Sri SAIRAM COLLEGE OF ENGINEERING
Anekal, Bengaluru

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

Report on "Emerging Technologies in Computing, Communication and Intelligent Systems"

"Data Science Fundamentals and Machine Learning Algorithms"

Introduction

I, **Dr. Anitha V** (SCET23EC07), Assistant professor from the **Department of Electronics and Communication Engineering** have completed an **AICTE–QIP PG Programme on "Quantum Computing and Data Science"**. As a follow-up activity to my participation in QIP course that was organized by Atal Bihari Vajpayee - Indian Institute of Information Technology and Management (ABV-IIITM), Gwalior, from February 2026 to June 2026, I presented a Knowledge Sharing Session on **"Data Science Fundamentals and Machine Learning Algorithms"** for students and faculty members on **29.07.2026**. The main objective of the session was to disseminate the knowledge and practical insights gained during the QIP course and create awareness about the significance of Data Science and Algorithms in engineering education, research, and industry applications.

Topics and Knowledge Shared

The session introduced the participants to the fundamentals of Data Science, including the complete data science lifecycle: data collection, data cleaning, preprocessing, exploratory data analysis, feature selection, model development, evaluation, and interpretation. The importance of good-quality data and appropriate preprocessing before applying analytical or machine learning techniques was emphasized. The concepts of Algorithms and Algorithmic Thinking were also discussed. Participants were introduced to problem-solving approaches, searching and sorting techniques, algorithm efficiency, and the importance of time and space complexity. It was explained that selecting an appropriate algorithm is essential for obtaining efficient solutions, particularly when dealing with large datasets.

The session also covered Exploratory data analysis and the use of statistical measures and visualization techniques to understand patterns, relationships, distributions, and outliers in data. Participants were encouraged to analyse and understand the data before directly applying machine learning algorithms. Real-world applications of Data Science in areas such as healthcare, smart agriculture, IoT, cybersecurity, industrial automation, predictive maintenance, smart cities, and environmental monitoring were discussed. These examples helped participants understand that Data Science can be applied across different engineering disciplines.

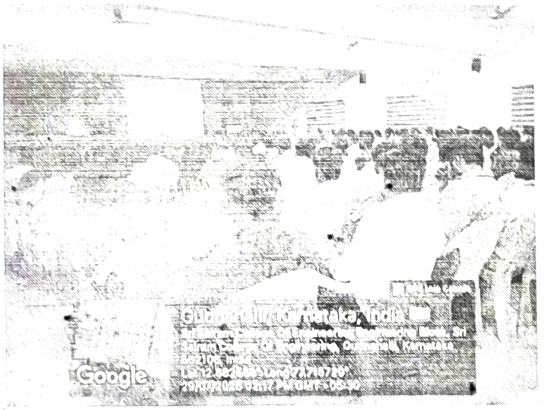
Benefits to Audience

The session provided students with a better understanding of how data can be transformed into meaningful information and knowledge. They gained awareness about the importance of data preprocessing, algorithm selection, computational efficiency,

and data visualization. The session also helped students understand how Data Science can be used for their mini-projects, final-year projects, internships, higher studies, and research activities. They were motivated to explore data-driven approaches for solving real-world engineering problems rather than limiting their projects to conventional hardware or software implementations. The concepts can be applied for analysing experimental data, survey data, and research datasets and for developing interdisciplinary research projects. The session also highlighted the possibility of combining Data Science with domain-specific areas such as Electronics and Communication, IoT, Embedded Systems, Healthcare, Agriculture, Cybersecurity, and Environmental Monitoring.

Outcome and Conclusion

The knowledge sharing session successfully transferred the key learning outcomes from the AICTE QIP programme to students and faculty members. The participants gained an understanding of the importance of data-driven decision-making, algorithmic problem solving, data preprocessing, exploratory analysis, and efficient algorithm selection. Overall, the session served as an effective platform for disseminating the knowledge gained from the QIP course and encouraged the academic community to adopt Data Science and Algorithmic Thinking in teaching, learning, student projects, and research. It also motivated participants to explore emerging data-driven technologies and their applications in solving real-world engineering problems.





17/8/26

HOD/ECE

17/8/26

Yours truly,
Dr. Anitha V

19/08/2026

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ORGANIZES

EXPERT TALK ON

DATA SCIENCE FUNDAMENTALS AND MACHINE LEARNING ALGORITHMS



RESOURCE PERSON

Dr. Anitha V
Assistant Professor, ECE
Sri Sairam College of Engineeing

AN INSIGHTFUL SESSION FOR STUDENTS & FACULTY

DATE	TIME	VENUE
29/07/2026 (Wednenday)	AN (2:00 PM – 4:00 PM)	Seminar Hall, Sri Sairam College of Engineering

SESSION HIGHLIGHTS

- Introduction to Data Science
- Data Types and Data Collection
- Data Preprocessing and Exploratory Data Analysis
- Fundamentals of Machine Learning
- Supervised vs Unsupervised Learning
- Popular Machine Learning Algorithms
- Real-world Applications
- Tools and Platforms
- Career Opportunities in Data Science

LEARNING OUTCOMES

- Understand the fundamentals of Data Science
- Learn and apply key Machine Learning algorithms
- Differentiate between various types of Machine Learning
- Analyze data and build predictive models
- Evaluate model performance and make better decisions
- Gain insight into real-world applications
- Explore career paths in Data Science and AI

TARGET AUDIENCE

Students (All Years)

Faculty Members



Dr. A. Poonguzhali
HOD, ECE

Dr. B. Shadaksharappa
Principal

Dr. Sai Prakash LeoMuthu
Chairman & CEO
Sairam Institutions

IEEE ComSoc | IEEE | CAS | IEEE BANGALORE SECTION | IEEE Reliability Society | IEEE Signal Processing Society

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