Subject Code	Subject Name	Credits
26CS101	DATA SCIENCE	4

Course Objectives:

1. Apply principles of Data Science to the analysis of business problems.
2. Apply quantitative modeling and data analysis techniques to the solution of real-world business problems, communicate findings, and effectively present results using data visualization techniques.

Learning Objectives:

On successful completion of the course, students will be able to:

1. Demonstrate knowledge of statistical data analysis techniques utilized in business decision making.

Unit 1 - Introduction to Data Science (12 hrs.):
Introduction to Computer Science, Data Science, Real Science– Properties of Data– Classification and Regression

Unit 2 - Mathematical Preliminaries (12 hrs.):
Mathematical Preliminaries: Probability – Descriptive Statistics – Correlation Analysis

Unit 3 - Data Munging (12 hrs.):
Collecting Data – Cleaning Data. Score and Rankings: Developing Scoring Systems - Z-Scores and Normalization – Advanced Ranking Techniques

Unit 4 - Statistical Analysis (12 hrs.):
Statistical Analysis: Statistical Distribution – Sampling from Distributions – Statistical Significance.

Unit 5 - Visualizing Data (12 hrs.):
Visualizing Data - Exploratory Data Analysis – Developing a Visualization Aesthetic – Chart Types

Reference Books:

1. The Data Science Design Manual, Steven S. Skiena, Springer, 2017
2. An Introduction to Data Science, SAGE Publishing, Jeffrey S Saltz
3. Introduction to Data Science, A Python Approach to Concepts, Techniques and applications, Springer, Laura Igual
4. Data Science for Dummies, A Wiley Brand, Lillian Pierson

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