Course Type	Course Code	Name of the Course	L	T	P	Credit
DE	EMSD509	Fundamental of Data Science	3	0	0	3

Course Objective

The course introduces the students with the basic concepts of Data Science. The objective is to understand the applications of Data Science in various business areas and practical hands-on experience learning on the business understanding and analytic approach for any data science problem.

Learning Outcome

Upon completing this course, students will be able to understand the basics of data science and ways that data science helps solve business problems.

Unit No	Topics to be covered	Lecture hours	Learning Outcomes
1	**Introduction to Data Science for Business:** Define Data Science. Importance of Data Science. Data-driven Business. Foundational concepts of Data Science. Data Science Market Analysis.	10	After completing this section students will be able to: • Understand foundational concepts of data science. • Understand market growth of data science. • Understand how data science can be useful in terms of increased business value for organizations.
2	**Data Science Methods for Business:** Data Understanding, Data Preparation, and Modelling and Evaluation stages. Basic approaches for Data Analysis, Statistical Inferences, Regression Models, Practical Machine Learning.	10	After completing this section students will be able to: • How data professionals manage and analyse their data, as well as how data-driven insights can help organizations. • Learn business understanding and analytic approach for any data science problem.
3	**Data Scientist's Toolbox:** Libraries & Packages, Data sets, Machine learning models, and Big Data tools. Utilize languages like Python, R, and SQL. Demonstrate Jupyter notebooks and RStudio. Create source code for data science using Git repositories and GitHub.	10	After completing this section students will be able to: • Learn tools, languages, and libraries used by professional data scientists.
4	**Developing Data Products**: Business Applications and Interactive Graphics. Interactive Annotated Maps. Data Visualization.	12	After completing this section students will be able to: • Create a useful data product for businesses. • Understanding challenges and risks that data-savvy managers must consider when deciding for a data-driven strategy.
	Total	**42**	

Textbooks

1. B. Uma Maheswari, R. Sujatha, Introduction to Data Science: Practical Approach with R and Python, Wiley, 2021.

Reference books

1. Akshay Swaminathan, Howard Steven Friedman, Winning with Data Science: A Handbook for Business Leaders, Columbia Press, 2024.