BSc Data Science

Programme Specific Outcomes (PSO)

1. PSO1: Understand and apply fundamental principles, concepts and methods in critical areas of science and multidisciplinary fields
2. PSO2:Apply mathematical and statistical principles to the analysis of data and analyse very large data sets in the context of real world problems
3. PSO3: Demonstrate problem-solving, analytical and logical skills to provide solutions for scientific requirements
4. PSO4: Develop critical thinking with scientific temper
5. PSO5: Demonstrate knowledge of the underlying principles and evaluation methods for analysing information for financial decision-making, investing capital, budgeting and forecasting

I Semester

DISCRETE MATHEMATICS

Course Outcomes (CO)

CLO1 : Understand the basic principles of sets, operations on sets, relations and functions
CLO2 : Acquire skills in mathematical reasoning techniques including induction and recursion
CLO3 : Gain proficiency to solve problems on differential equations
CLO4 : To develop an understanding of how graph and tree concepts are used to solve problems in Computer Science
CLO5 : Apply mathematics for some applications in Data Science

PYTHON PROGRAMMING
Course Outcomes (CO)

CLO1: Understand various programming constructs in Python
CLO2: Write simple Python programs
CLO3: To learn how to build and package Python modules for reusability
CLO4: Design object-oriented programs with Python classes
CLO5: Understand advanced features of Python and develop applications

DESCRIPTIVE STATISTICS AND PROBABILITY
Course Outcomes (CO)

CLO1: Identify different types of data and scales of measurement
CLO2: Decide on the most appropriate method of presentation of any given data
CLO3: Compute appropriate descriptive measures for any specific data type
CLO4: Understand and interpret the relationship between variables in bivariant data and use it for prediction
CLO5: Calculate, interpret and utilize basic concepts of probability

II Semester

DIFFERENTIAL CALCULUS

Course Outcomes (CO)

CLO1: Understand and use the notion of Derivative of the function of one variable
CLO2: Demonstrate a working knowledge of vectors and vector functions
CLO3: Determine partial derivatives of the functions of two or more variables
CLO4: Illustrate the computational skills in finding the directional derivatives- Gradient vectors and Differentials
CLO5: Understand the applications of Tangents for data analysis

DATA STRUCTURES

Course Outcomes (CO)

CLO1: Understand the importance of algorithm analysis
CLO2: Design algorithms for operations on linear data structures
CLO3: Understand the applications of Stack and Queue
CLO4: Design algorithms for operations on non-linear data structures
CLO5: Understand and apply searching and sorting techniques

PROBABILITY DISTRIBUTIONS AND ESTIMATION

Course Outcomes (CO)

CLO1: Construct probability distributions of univariate and bivariate discrete random variables
CLO2: Use discrete and continuous probability distributions, including requirements, mean and variance, and making decisions.
CLO3: Describe the abstract idea of sampling distribution and how it reflects the sample to sample variability of a statistic and apply central limit theorem
CLO4: Understand the informal and formal explanation of any confidence interval and construct intervals for common population parameter
CLO5: Identify the appropriate statistical test that should be applied to analyse a study and use P- values to make decisions about hypotheses under test