ST. JOSEPH'S DEGREE & PG COLLEGE

(Autonomous) - Affiliated to Osmania University
Re-accredited by NAAC (3rd Cycle)
Basheerbagh, King Koti Road, Hyderabad – 29

ABOUT THE PROGRAMME

B. Sc with Mathematics, Statistics and Computer Sciences is one of the most opted courses, which is aimed at giving an analytical base to a student. This Course integrates all three mathematical sciences namely mathematics, statistics and computer sciences and thus enables the students to develop mathematical skills, paradigms, along with Statistical tools for summarization and interpretation of huge data.

NOMENCLATURE OF THE PROGRAMME: B.Sc (MSCs)

DURATION: 3 Years

ELIGIBILITY CRITERIA:

A student passed in two years of Intermediate Examination or +2 Examinations recognized as equivalent to and with aggregate of 50 % of marks in the concerned Mathematics subject.

PROGRAMME EDUCATIONAL OBJECTIVES (PEO's)

PEO 1	Graduates can pursue PG and Research.
PEO 2	Graduates are provided with domain knowledge to get employed in IT industries, Scientific & Research organizations and allied industries
PEO 3	Graduates are trained to develop and demonstrate creativity and innovation equipped with Collaborative working Skills.
PEO 4	Graduates will develop positive attitude and life skills which enable them to become a multi facet personality with a sense of environmental consciousness and responsible citizen with moral and ethical values

PROGRAMME OUTCOMES (POs)

PO 1	Acquire knowledge in Physical Sciences with a thrust on fundamental principles and theories related to various scientific phenomena and their relevance in day-to-day life.
PO 2	Graduates attain practical knowledge through hands-on training and project experience to meet the industrial needs.
PO 3	Graduates develop critical thinking skills to identify, analyze and solve problems of their core areas using modern tools.
PO 4	To enhance arithmetic skills and logical reasoning for better.
PO 5	Graduates develop lifelong learning skills with interdisciplinary approach towards sustainable development.
PO 6	Ability to communicate effectively the comprehended scientific data and knowledge, write effective reports, design documentation and make effective presentations.
PO 7	Apply ethical, moral and social values in personal and professional life leading to highly cultured and civilized society.
PO 8	Ability to work effectively as an individual or as a member or Team leader in diverse teams and in multidisciplinary environs.

PROGRAMME SPECIFIC OUTCOMES (PSOs)

PSO 1	Students develop problem solving skills and methods and develop logical tools and models used to solve various real life problems.
PSO 2	Students acquire knowledge of traditional and modern techniques of solving algebraic, transcendental equations, differential and integral equations, which have applications in many disciplines.
PSO 3	Apply and analyze data using concepts of probability, statistical models, sampling theory, experimental designs, statistical quality control, reliability, optimization techniques, Indian official statistics and vital statistics with modern applied statistical tools and techniques both in learning and research..
PSO 4	Ability to design and develop software applications to address real time problems using Programming languages, Databases, Operating Systems, and Computer Network Concepts.

Semester-I

Scheme of Instruction	**Scheme of Examination**
Course Code: DSPRV-1-ST-22T	Course Title : Descriptive Statistics, Probability and Random Variables
Credits : 4	Max. Marks : 100 Marks
Category : DSC	Internal Examination : 30 Marks
Hours/Week : 4	SBT :10 Marks
Total duration Hrs : 60 Hrs	External Examination : 60 Marks
Instruction Mode: Lecture + Practical	Exam Duration : 3 Hrs
Course Objectives:	
To equip students with the skills to understand, classify, and analyze diverse data types through comprehensive data collection methodologies, fostering proficiency in descriptive statistics and its real-life applications, while establishing a solid foundation in probability theory.	

Course Outcomes: By the end of the course the student would be able to	**Cognitive Level**
CO1: Apply the knowledge of collection, classification, analysis and interpretation of primary and secondary data and to apply the measures of central tendency and dispersion.	BL4
CO 2: Analyze and solve complex probability problems, conditional probability, independence of events, addition and multiplication theorems, Boole's inequality, Bayes' theorem, and counting methods.	BL5
CO 3: Analyze and manipulate random variables, including understanding discrete and continuous distributions, functions of random variables, bivariate distributions, joint, marginal, and conditional distributions.	BL4
CO 4: Analyze and compute mathematical expectations, moments, covariance, and inequalities, as well as understand and apply the central limit theorem and properties of moment generating functions in practical applications.	BL4

Semester-I

Scheme of Instruction	**Scheme of Examination**
Course Code: DSPRV-1-ST-22P	Course Title : Descriptive Statistics, Probability and Random Variables (Practical)
Credits : 1	Max. Marks : 50 Marks
Category : DSC	Internal Examination : 20 Marks
Hours/Week :3	External Examination : 30 Marks
Total duration Hrs : 45 Hrs	Exam Duration : 3 Hrs
Instruction Mode: Practical	
Course Objectives:	
To proficiently analyze and present data using diagrammatic and graphical techniques in MS Excel and SPSS, while mastering computation methods for measures of central tendency, dispersion, non-central and central moments, as well as coefficients of skewness and kurtosis.	

Course Outcomes: By the end of the course the student would be able to	**Cognitive Level**
CO1: Analyze, visualize, and interpret data using MS-Excel and SPSS, encompassing diagrammatic and graphical presentations such as bar charts, pie charts, histograms, frequency polygons, and ogives to solve manual and practical problems.	BL4
CO2: Solve problems related to absolute and relative measures of dispersion, central and non-central moments, coefficients of skewness, and kurtosis effectively using MS-Excel and SPSS.	BL5

Semester-II

Scheme of Instruction	**Scheme of Examination**
Course Code: PD-2-ST-22T	Course Title : Probability Distributions
Credits : 4	Max. Marks : 100 Marks
Category : DSC	Internal Examination : 30 Marks
Hours/Week : 4	SBT :10 Marks
Total duration Hrs : 60 Hrs	External Examination : 60 Marks
Instruction Mode: Lecture + Practical	Exam Duration : 3 Hrs.
Course Objectives:	
To equip students with a comprehensive understanding of discrete and continuous probability distributions, emphasizing properties and real-life applications, along with exploring approximations and limiting cases.	

Course Outcomes: By the end of the course the student would be able to	**Cognitive Level**
CO1: Analyze and interpret data related to uniform and Bernoulli distributions, probability mass functions of binomial and Poisson distributions, and their respective properties with real-life applications.	BL4
CO 2: Analyze and interpret data related to negative binomial, geometric, and hyper geometric distributions, exploring their properties with real-life applications.	BL4
CO 3: Analyze and interpret data related to normal distributions, exploring properties with real-life applications.	BL4
CO 4: Analyze and interpret data related to rectangular, exponential, gamma, and beta distributions, exploring with real-life applications.	BL4

Semester-II

Scheme of Instruction	**Scheme of Examination**
Course Code: PD-2-ST-22P	Course Title : Probability Distributions (practical)
Credits : 1	Max. Marks : 50 Marks
Category : DSC	Internal Examination : 20 Marks
Hours/Week : 3 Hrs.	External Examination : 30 Marks
Total duration Hrs : 45 Hrs.	Exam Duration : 3 Hrs.
Instruction Mode: Practical	
Course Objectives:	
To enable students to effectively fit various probability distributions using both direct and recurrence relation methods, incorporating practical applications and utilizing MS Excel for computational analysis.	

Course Outcomes: By the end of the course the student would be able to	**Cognitive Level**
CO1: Solve practical problems manually and also using MS-Excel and SPSS to fit various discrete probability distributions.	BL4
CO 2: Apply manual and practical problem-solving techniques using MS-Excel and SPSS to fit various continuous probability distributions.	BL4

Semester-III

Scheme of Instruction	**Scheme of Examination**
Course Code: SM-3-ST-23T	Course Title : Statistical Methods
Credits : 4	Max. Marks : 100 Marks
Category : DSC	Internal Examination : 30 Marks
Hours/Week : 4	SBT :10 Marks
Total duration Hrs : 60 Hrs	External Examination : 60 Marks
Instruction Mode: Lecture + Practical	Exam Duration : 3 Hrs.
Course Objectives:	
To provide students with a comprehensive understanding of statistical analysis techniques, including correlation analysis, regression analysis, and exact sampling distributions.	

Course Outcomes: By the end of the course the student would be able to	**Cognitive Level**
CO1: Analyze bivariate data, utilize statistical techniques including Pearson's and Spearman's correlation coefficients, and apply the principle of least squares to fit various curves.	BL4
CO 2: Analyze and interpret data, including simple linear regression, properties of regression coefficients, concepts of partial and multiple correlation coefficients, analysis of categorical data, independence of attributes.	BL4
CO 3: Demonstrate advanced proficiency in analyzing fundamental statistical principles and exact sampling distributions.	BL4
CO 4: Evaluate criteria of good estimator, comprehend Neyman’s Factorization theorem, derive sufficient statistics for various distributions, and construct confidence intervals for parameters of normal populations using the Pivot method.	BL5

Semester-III

Scheme of Instruction	**Scheme of Examination**
Course Code: SM-3-ST-23P	Course Title : **Statistical Methods (Practical)**
Credits : 1	Max. Marks : 50 Marks
Category : DSC	Internal Examination : 20 Marks
Hours/Week :3	External Examination : 30 Marks
Total duration Hrs : 45 Hrs	Exam Duration : 3 Hrs
Instruction Mode: Practical	
Course Objectives:	
To equip students with practical skills in fitting mathematical models and computing correlation coefficients and regression lines using advanced statistical tools like MS Excel and SPSS, enabling them to effectively analyze and interpret data.	

Course Outcomes: By the end of the course the student would be able to	**Cognitive Level**
CO1: Apply manual techniques and statistical software tools like MS Excel and SPSS to fit mathematical models (straight lines, parabolas, and power curves).	BL4
CO 2: Analyze and interpret various correlation coefficients and regression lines using statistical software like MS Excel and SPSS for enhanced data analysis proficiency.	BL4

Semester-IV

Scheme of Instruction	**Scheme of Examination**
Course Code: SI-4-ST-24T	Course Title : Statistical Inference
Credits : 4	Max. Marks : 100 Marks
Category : DSC	Internal Examination : 30 Marks
Hours/Week : 4	SBT :10 Marks
Total duration Hrs : 60 Hrs	External Examination : 60 Marks
Instruction Mode: Lecture + Practical	Exam Duration : 3 Hrs.
Course Objectives:	
To develop proficiency in statistical estimation techniques including method of moments and Maximum Likelihood Estimation (MLE), understanding of hypothesis testing, and non-parametric tests, for comprehensive data analysis.	

Course Outcomes: By the end of the course the student would be able to	**Cognitive Level**
CO1: Critically analyze and interpret statistical hypothesis, including formulating null and alternative hypothesis, determining critical regions, evaluating types of errors, and understanding of statistical inference principles.	BL5
CO 2: Analyze and apply Neyman's-Pearson fundamental lemma, conduct large sample tests, and construct confidence intervals for various parameters, enhancing statistical inference.	BL4
CO 3: Conduct tests of significance for small samples and comprehend the principles of order statistics, thereby enhancing analytical abilities in statistical hypothesis testing and data interpretation.	BL5
CO 4: Evaluate the advantages, disadvantages, and distinctions between non-parametric and parametric tests, while demonstrating proficiency in conducting various non-parametric tests across different measurement scales, enhancing analytical capabilities in statistical analysis.	BL5

Semester-IV

Scheme of Instruction	**Scheme of Examination**
Course Code: SI-4-ST-23P	Course Title : Statistical Inference (Practical}
Credits : 1	Max. Marks : 50 Marks
Category : DSC	Internal Examination : 20 Marks
Hours/Week :3	External Examination : 30 Marks
Total duration Hrs : 45 Hrs	Exam Duration : 3 Hrs
Instruction Mode: Practical	
Course Objectives:	
To develop proficiency in conducting a wide range of statistical tests for both large and small samples, including parametric and non-parametric methods, using MS Excel and SPSS for comprehensive data analysis.	

Course Outcomes: By the end of the course the student would be able to	**Cognitive Level**
CO1: Proficiently conduct and interpret a variety of statistical tests for large and small samples, using MS Excel and SPSS, thereby enhancing analytical capabilities in data analysis and decision-making processes.	BL5

CO 2: Conduct and interpret various nonparametric tests for both single and related samples, as well as two independent samples, using statistical software like MS Excel and SPSS for comprehensive data analysis.	BL5

Semester-V

Scheme of Instruction	**Scheme of Examination**
Course Code: AS1-5-ST-24T	Course Title : Applied Statistics-I
Credits : 4	Max. Marks : 100 Marks
Category : DSC	Internal Examination : 30 Marks
Hours/Week : 4	SBT :10 Marks
Total duration Hrs : 60 Hrs	External Examination : 60 Marks
Instruction Mode: Lecture + Practical	Exam Duration : 3 Hrs.
Course Objectives:	
To develop comprehensive understanding and practical skills in sample surveys, sampling methods, time series analysis, and statistical quality control principles for effective application in research and industry settings.	

Course Outcomes: By the end of the course the student would be able to	**Cognitive Level**
CO1: Analyze and implement various sampling methods, estimate population parameters, and, enhancing proficiency in designing and conducting effective sampling strategies.	BL5
CO 2**:** Analyze and compare the efficiency of various sampling methods, including Stratified Random Sampling and Systematic Sampling, for population parameter estimation.	BL4
CO 3: Analyze time series data, identify components, determine trends using various methods, calculate seasonal indices, and fit growth curves.	BL5
CO 4: Understand the significance of Statistical Quality Control in industry, interpret Shewart control charts, and utilize control charts for variables and attributes.	BL4

Semester-V

Scheme of Instruction	**Scheme of Examination**
Course Code: AS1-5-ST-24P	Course Title : Applied Statistics-I (Practical)
Credits : 1	Max. Marks : 50 Marks
Category : DSC	Internal Examination : 20 Marks
Hours/Week :3	External Examination : 30 Marks
Total duration Hrs : 45 Hrs	Exam Duration : 3 Hrs
Instruction Mode: Practical	
Course Objectives:	
To develop proficiency in various sampling techniques, trend analysis, seasonal index determination, and statistical quality control methods, using MS Excel and SPSS for enhanced data analysis and interpretation.	

Course Outcomes: By the end of the course the student would be able to	**Cognitive Level**
CO1: Develop proficiency in various sampling techniques, trend analysis, seasonal index determination, and statistical quality control methods, utilizing MS Excel and SPSS for enhanced data analysis and interpretation.	BL5
CO 2: Analyze time series data, determine trends using least squares and moving averages, and calculate seasonal indices through various methods, enhancing proficiency in time series analysis techniques.	BL5
CO 3: Construct and interpret statistical control charts for variables and attributes using both manual methods and statistical software tools like MS Excel and SPSS for enhanced data analysis and quality control.	BL5

SEMESTER-V

Scheme of Instruction	**Scheme of Examination**
Course Code: OR-5-ST-24T	Course Title : Operations Research
Credits : 2	Max. Marks : 50 Marks
Category : SEC	Internal Examination : 20 Marks
Hours/Week :3	External Examination : 30 Marks
Total duration Hrs : 30 Hrs	Exam Duration : 2 Hrs
Instruction Mode: Lecture+ Practical	
Course Objective:	
To develop proficiency in solving linear programming problems, transportation problems, assignment problems, and sequencing problems, using graphical methods, algorithms, and optimization techniques to address real-world applications in operations research.	

Course Outcomes: By the end of the course the student would be able to	**Cognitive Level**
CO 1: Formulate and solve linear programming problems and transportation problems using various methods and their applications in real-world scenarios.	BL4
CO2: Solve assignment problems, the Travelling Salesman Problem, and optimize sequencing of jobs on multiple machines without passing, facilitating effective problem-solving in operations research.	BL4

Semester-V

Scheme of Instruction	**Scheme of Examination**
Course Code: BS-5-ST-24T	Course Title : Basic Statistics
Credits : 4	Max. Marks : 100 Marks
Category : GE	Internal Examination : 30 Marks
Hours/Week : 4	SBT :10 Marks
Total duration Hrs : 60 Hrs	External Examination : 60 Marks
Instruction Mode: Lecture + Practical	Exam Duration : 3 Hrs.
Course Objectives:	
To develop proficiency in data collection, presentation, and analysis, including statistical measures of central tendency, dispersion, moments, skewness, kurtosis, correlation, and regression, for comprehensive understanding and application in various fields.	

Course Outcomes: By the end of the course the student would be able to	**Cognitive Level**
CO1: Effectively collect, present, and represent data using various statistical methods and graphical techniques, enhancing analytical capabilities in data interpretation.	BL4
CO2: Apply measures of central tendency, including mean, median, mode, geometric mean, and harmonic mean, considering their merits, demerits, and real-world applications.	BL4
CO3: Apply measures of dispersion, moments, skewness, and kurtosis, and practical applications in data analysis and interpretation.	BL4
CO4: Interpret correlations, using Karl-Pearson and Spearman's coefficients, and perform simple linear regression, and their respective applications in data analysis.	BL4

Semester-V

Scheme of Instruction	**Scheme of Examination**
Course Code: OT-5-ST-24T	Course Title : Optimization Techniques
Credits : 4	Max. Marks : 100 Marks
Category : GE	Internal Examination : 30 Marks
Hours/Week : 4	SBT :10 Marks
Total duration Hrs : 60 Hrs	External Examination : 60 Marks
Instruction Mode: Lecture + Practical	Exam Duration : 3 Hrs.
Course Objectives:	
To develop proficiency in solving linear programming problems, transportation problems, assignment problems, and sequencing problems, using graphical methods, algorithms, and optimization techniques to address real-world applications in operations research	

Course Outcomes: By the end of the course the student would be able to	**Cognitive Level**
CO 1: Formulate and apply various methods like graphical, simplex, and Big-M algorithms, to solve Linear Programming Problems	BL4
CO2: Apply North-West, Matrix Minimum, and Vogel's Approximation Methods to Transportation Problems and optimize the solution through MODI algorithm	BL4
CO 3: Solve Assignment Problems using the Hungarian method for optimal solutions, and addressing related optimization challenges like the Travelling Salesman Problem	BL4
CO 4: Determine optimal sequences for N jobs on two and three machines without passing	BL4

Semester-VI

Scheme of Instruction	**Scheme of Examination**
Course Code: AS2-6-ST-24T	Course Title : Applied Statistics-II
Credits : 4	Max. Marks : 100 Marks
Category : DSC	Internal Examination : 30 Marks
Hours/Week : 4	SBT :10 Marks
Total duration Hrs : 60 Hrs	External Examination : 60 Marks
Instruction Mode: Lecture + Practical	Exam Duration : 3 Hrs.
Course Objectives:	
To understand and apply statistical techniques, including Analysis of Variance and Design of Experiments, and grasp key concepts such as index numbers, vital statistics, and Indian official statistics, fostering analytical skills essential for real-world applications.	

Course Outcomes: By the end of the course the student would be able to	**Cognitive Level**
CO1: Apply Analysis of Variance techniques and classifications to enhance both statistical analysis depth and practical comprehension of ANOVA.	BL4
CO2**:** Apply Completely Randomized Design, Randomized Block Design, and Latin Square Design, to real-life scenarios with missing observations, and critically evaluate the efficiency of these designs.	BL4
CO3: Develop index numbers, utilize various index number formulas in real-world contexts, and address the challenges inherent in their construction.	BL4
CO4: Calculate Mortality, Fertility rates and population growth using standard methods, construct life tables Understand the functions and organization of CSO and NSSO and utility and difficulties in estimation of National Income.	BL4

Semester-VI

Scheme of Instruction	**Scheme of Examination**
Course Code: AS2-6-ST-24P	Course Title : Applied Statistics-II (Practical)
Credits : 1	Max. Marks : 50 Marks
Category : DSC	Internal Examination : 20 Marks
Hours/Week :3	External Examination : 30 Marks
Total duration Hrs : 45 Hrs	Exam Duration : 3 Hrs
Instruction Mode: Practical	
Course Objectives:	
To equip students with advanced skills in statistical analysis and demographic methodologies, analyze various experimental designs, compute index numbers, mortality, fertility, and reproductive rates, construct life tables, and apply MS Excel & SPSS for comprehensive analysis, fostering proficiency in experimental design and statistical analysis techniques.	

Course Outcomes: By the end of the course the student would be able to	**Cognitive Level**
CO1: Conduct one-way and two-way classification analyses, evaluate Completely Randomized Design, Randomized Block Design, and Latin Square Design with and without missing observations, and utilize MS Excel and SPSS for statistical analysis	BL5
CO2: Compute various index numbers, conduct time and factor reversal tests, construct cost of living and wholesale index numbers, implement base shifting, splicing, and deflation techniques, and utilize MS Excel for comprehensive analysis.	BL4
CO 3: Compute mortality, fertility, and reproductive rates, construct life tables, and utilize MS-Excel for comprehensive analysis, fostering deeper understanding and application of demographic analysis methodologies.	BL4

SEMESTER-VI

Scheme of Instruction	**Scheme of Examination**
Course Code: RP-6-ST-24P	Course Title : R-Programming
Credits : 2	Max. Marks : 50 Marks
Category : SEC	Internal Examination : 20 Marks
Hours/Week :3	External Examination : 30 Marks
Total duration Hrs. : 45 Hrs	Exam Duration : 2 Hrs
Instruction Mode: Lecture+ Practical	
Course Objective:	
To enable students to proficiently utilize data visualization techniques, including plotting various graphs, and apply descriptive statistics methods, including generating automated reports containing detailed statistical measures such as mean, median, standard deviation, variance, correlation, and regression lines, fostering a deeper understanding and practical application of data exploration and analysis techniques.	

Course Outcomes: By the end of the course the student would be able to	**Cognitive Level**
CO1: Demonstrate advanced proficiency in data visualization techniques, including plotting various graphs, and applying them to summarize data and address practical applications.	BL4
CO2: Generate automated reports containing detailed descriptive statistics, correlation, and regression lines, with practical applications	BL5

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LEARNING OUTCOMES BASED CURRICULUM FRAMEWORK (LOCF)

FOR UNDERGRADUATE PROGRAMMES

FACULTY OF SCIENCES

DEPARTMENT OF MATHEMATICS & STATISTICS

COURSE: STATISTICS

B.Sc (MSDs)
(w.e.f. 2024 – 2025)

Semester-I

Scheme of Instruction	**Scheme of Examination**
Course Code: BSP-1-ST-24T	Course Title : Basic Statistics and Probability
Credits : 4	Max. Marks : 100 Marks
Category : DSC	Internal Examination : 30 Marks
Hours/Week : 4	SBT :10 Marks
Total duration Hrs : 60 Hrs	External Examination : 60 Marks
Instruction Mode: Lecture + Practical	Exam Duration : 3 Hrs
Course Objectives:	
To equip students with the skills to understand, classify, and analyze diverse data types through comprehensive data collection methodologies, fostering proficiency in descriptive statistics and its real-life applications, while establishing a solid foundation in probability theory.	

Course Outcomes: By the end of the course the student would be able to	**Cognitive Level**
CO1: Apply the knowledge of collection, classification, analysis and interpretation of primary and secondary data and to apply the measures of central tendency and dispersion.	BL4
CO 2: Analyze and solve complex probability problems, conditional probability, independence of events, addition and multiplication theorems, Boole's inequality, Bayes' theorem, and counting methods.	BL5
CO 3: Analyze and manipulate random variables, including understanding discrete and continuous distributions, functions of random variables, bivariate distributions, joint, marginal, and conditional distributions.	BL4
CO 4: Analyze and compute mathematical expectations, moments, covariance, and inequalities, as well as understand and apply the central limit theorem and properties of moment generating functions in practical applications.	BL4

Semester-I

Scheme of Instruction	**Scheme of Examination**
Course Code: BSP-1-ST-24P	Course Title : Basic Statistics and Probability (Practical)
Credits : 1	Max. Marks : 50 Marks
Category : DSC	Internal Examination : 20 Marks
Hours/Week :3	External Examination : 30 Marks
Total duration Hrs : 45 Hrs	Exam Duration : 3 Hrs
Instruction Mode: Practical	
Course Objective:	
To proficiently analyze and present data using diagrammatic and graphical techniques in MS Excel and SPSS, while mastering computation methods for measures of central tendency, dispersion, non-central and central moments, as well as coefficients of skewness and kurtosis.	

Course Outcomes: By the end of the course the student would be able to	**Cognitive Level**
CO1: Analyze, visualize, and interpret data using MS-Excel and SPSS, encompassing diagrammatic and graphical presentations such as bar charts, pie charts, histograms, frequency polygons, and ogives to solve manual and practical problems.	BL4
CO 2: Solve problems related to absolute and relative measures of dispersion, central and non-central moments, coefficients of skewness, and kurtosis effectively using MS-Excel and SPSS.	BL5

Semester-II

Scheme of Instruction	**Scheme of Examination**
Course Code: DCPD-2-ST-24T	Course Title :Discrete and Continuous Probability Distributions
Credits : 4	Max. Marks : 100 Marks
Category : DSC	Internal Examination : 30 Marks
Hours/Week : 4	SBT :10 Marks
Total duration Hrs : 60 Hrs	External Examination : 60 Marks
Instruction Mode: Lecture + Practical	Exam Duration : 3 Hrs.
Course Objectives:	
To equip students with a comprehensive understanding of discrete and continuous probability distributions, emphasizing properties and real-life applications, along with exploring approximations and limiting cases.	

Course Outcomes: By the end of the course the student would be able to	**Cognitive Level**
CO1: Analyze and interpret data related to uniform and Bernoulli distributions, probability mass functions of binomial and Poisson distributions, and their respective properties with real-life applications.	BL4
CO 2: Analyze and interpret data related to negative binomial, geometric, and hyper geometric distributions, exploring their properties with real-life applications.	BL4
CO 3: Analyze and interpret data related to normal distributions, exploring properties with real-life applications.	BL4
CO 4: Analyze and interpret data related to rectangular, exponential, gamma, and beta distributions, exploring with real-life applications.	BL4

Semester-II

Scheme of Instruction	**Scheme of Examination**
Course Code: DCD-2-ST-24P	Course Title : Discrete and Continuous Distributions (practical)
Credits : 1	Max. Marks : 50 Marks
Category : DSC	Internal Examination : 20 Marks
Hours/Week : 3 Hrs.	SBT :NA
Total duration Hrs : 45 Hrs.	External Examination : 30 Marks
Instruction Mode: Practical	Exam Duration : 3 Hrs.
Course Objectives:	
To equip students with a comprehensive understanding of discrete and continuous probability distributions, emphasizing properties and real-life applications, along with exploring approximations and limiting cases.	

Course Outcomes: By the end of the course the student would be able to	**Cognitive Level**
CO1: Solve practical problems manually and also using MS-Excel and SPSS to fit various discrete probability distributions.	BL4
CO 2: Apply manual and practical problem-solving techniques using MS-Excel and SPSS to fit various continuous probability distributions.	BL4