DEPARTMENT OF STATISTICS

PROGRAMME OUTCOME, PROGRAMME SPECIFIC OUTCOME AND COURSE OUTCOME

B.A./ B.SC. UNDER CCF

PO (PROGRAMME OUTCOME)

1/ Allows students to develop and deepen statistical knowledge, keeping the course theory and equally application based, adhering to the university's curriculum.

2/Inculcates a deeper intuition of the subject beyond their scope of syllabus so that they can easily apply their knowledge in any other field, as Statistics form a necessary part of almost every subject. Since Statistics is used in vast fields of study, students from various streams involving Economics, Psychology, Geography find it very useful and beneficial.

PSO (PROGRAMME SPECIPIC OUTCOME)

1/ To help students to understand correct usage and interpretation of different measures of descriptive Statistics while handling real life data.

2/To learn different approaches to probability theory to fulfil the main objective of Statistics- "Making decision at the face of uncertainty".

3/ Understand correct usage and interpretation of different measures of descriptive Statistics while handling univariate and multivariate real-life data and properly apply the correct descriptive measures and concepts for diverse real-life data in hand and correctly interpret the results according to the data.

4/ To introduce fundamentals of probability theory and its importance. To help students learn basic concepts of random variables and its related properties and introduce the various probability distributions and its applications.

COURSE OUTCOME OF STATISTICS MINOR(MSTS) COURSE (FOR 4-YEAR B.Sc.(HONOURS) COURSE OF STUDIES),UNDER CCF:

SEMESTER 1 (TH + PR) / SEMESTER 3 (TH + PR)			**4 CREDITS**
COURSE	**COURSE TOPIC**	**CREDIT**	**COURSE OUTCOME**
Descriptive Statistics I and Probability I theory STAT-H-MC1-1-TH STAT-H-MC1-3-TH	**1/DESCRIPTIVE-I** 1.A/Introduction to Statistics and its related concepts, Different types of data, Scales of measurement, Presentation of data, Frequency distribution. Stem and leaf display **1.B/**Measures of central tendency, Measures of dispersion, Moments, skewness, kurtosis. 1.C/ Quantiles and Measures based on them. Box plot, outliers. **2/ PROBABILITY-I** 2.A/ Random Experiment, Event and event algebra. Definitions of probability (Frequentist, Classical, Axiomatic) Conditional Probability, Theorems of Compound and Total probability, Bayes' Theorem.	3	**1/** **a).**Knowledge of Statistics and several related concepts **b)**Understanding types of data and how to handle data **c)**Knowledge of tabular and diagrammatic presentation of data **d)**Understanding the measures of central tendency and dispersion **e)**Knowledge of skewness, kurtosis, moments. f)Knowledge on difference between moment and quantile measures. **2/** a).Visualization of data in hand using quantiles and dealing with outliers. b).Understanding different approaches along with their merits and drawbacks for working with probability. c).To be able to use theorems and concepts in diverse everyday situations for decision making.

COURSE	**COURSE TOPIC**	**CREDIT**	**COURSE OUTCOME**
Descriptive Statistics I and Probability I Practical STAT-H-MC1-1-P STAT-H-MC1-3-P	**DESCRIPTIVE –I** Practical on diagrammatic representation of data. Problems on frequency distribution. Stem and leaf display. Practical on measures of central tendency, dispersion. Problem on combined mean and variance, coefficient of variation. Problem on moments, skewness, kurtosis. Problems related to quantiles and measures based on them and construction of Box- Plot. **PROBABILITY-I** Application of problems based on classical definition of Probability. Application of problems based on Bayes' Theorem	1	Using the theoretical concepts to solve real-life problems. Grow practical problem skills. Gain the knowledge of understanding the data structure and have an introductory idea to analysis of data. Be properly able to use theoretical concepts in practical data and interpret the results according to data in hand. To be able to use theorems and concepts in diverse everyday situations for decision making.

SEMESTER 2 (TH + PR) / SEMESTER 4 (TH + PR)			4 CREDITS
COURSE CODE	**COURSE TOPIC**	**CREDIT**	**COURSE OUTCOME**
Descriptive Statistics II and Probability II Theory STAT-H-MC2-2-TH STAT-H-MC2-4-TH	**1/ DESCRIPTIVE-II** Bivariate data, Scatter plot, correlation, Regression (Linear, exponential, polynomial), correlation ratio, intraclass correlation Rank Correlation- Spearman, Kendal's tau. Analysis of categorical data-contingency table, independence. **2/ PROBABILITY-II** Introduction to random variables. CDF, PMF, PDF Expectation and variance. Discrete distributions: uniform, binomial, poisson. Continuous distribution: normal.	3	1/. Understanding difference of approaches, between dealing with categorical and metric data, while finding an index to measure same characteristics. To be able to use concepts in diverse everyday situations for decision making. 2/. Knowledge of Random variables. Understanding the concept of cdf, pdf and pmf of a probability distribution. Knowledge of expectation and variance. Study several distributions and their relativity to real life.

COURSE CODE	COURSE TOPIC	CREDIT	COURSE OUTCOME
Descriptive Statistics II and Probability II STAT-H-MC2-2-P STAT-H-MC2-4-P	**1/ DESCRIPTIVE-II** Problems based on bivariate data and rank correlation. Problems based on categorical data **2/ PROBABILITY-II** Practical on fitting of binomial and poisson under different conditions. Fitting of normal distribution (with parameters known and unknown) Application problems based on binomial, poisson and normal distribution. Problems on area property of normal.	1	1/ Be properly able to use theoretical concepts in practical data and interpret the results according to varying type of data in hand. To be able to use results and concepts in diverse everyday situations for decision making. 2/ Using the theoretical concepts to solve real-life problems. Grow practical problem skills.