

# Department of Statistics

## Program Specific Outcome

- Knowledge and use of graphical technique and interpret
- Computation of various measures of central tendency, Dispersion, Skewness and Kurtosis.
- Computation of the correlation coefficient for bivariate data and interpret it.
- Analysis of data pertaining to attributes and to interpret the results.
- Summary and analysis of the data using computer.
- Application of statistics in the various field.
- Develop an understanding of various statistical tools, techniques and software.
- Apply critical and contextual approaches across wide variety of subject matter.
- Develop logical thinking to comprehend key facts leading to formulation of the solution process.
- Develop self-confidence and awareness of general issues prevailing in the society.
- Integrate knowledge, skill and attitude that will sustain an environment of learning and creativity.



## Course outcome of Statistics Department

Department of Statistics			
Class	Course	Outcome	
<b>F.Y. B.Sc.</b>	ST-111 Descriptive Statistics- I	<ol style="list-style-type: none"> <li>1. Understand about the collection of the data, condensation and summarisation into a compact form</li> <li>2. Understand about the representation of data in a neat, compact and clear form</li> <li>3. Compare the two or more data sets</li> <li>4. Help in planning, investigation and sample surveys</li> <li>5. Explore about the various Statistical institutes and organizations: ISI, NSS, Bureau of Economics and Statistics in States, Indian Institute of Population Sciences(IIPS)</li> </ol>	
	ST-112 Probability and Probability Distributions-I	<ol style="list-style-type: none"> <li>1. Understand the concepts of Sample space and events, theory of Permutation and Combinations</li> <li>2. Understand the concept of Probability, Conditional probability of an event, Independence of events</li> <li>3. Compute probability and apply Bayes' theorem in real life situations problems</li> <li>4. Understand the concepts of random variable, discrete random variable, Probability mass function</li> <li>5. Fundamental/Basic Statistical Analysis using Statistical Software MS-Excel</li> <li>6. Understand the concepts of median and mode of discrete random variable</li> </ol>	
	ST-121: Descriptive Statistics-II	<ol style="list-style-type: none"> <li>1. Understand the concepts of symmetry and peakedness of frequency distribution</li> <li>2. Understand the concepts of Bivariate data, Correlation, types of correlation</li> <li>3. Estimate, predict and forecast the observed datasets</li> <li>4. Identify the relationship between different factors</li> <li>5. Identify the association of two attributes and Independence (if any)</li> <li>6. Compare two or more data sets using appropriate tools such as correlation, regression, covariance etc.</li> </ol>	

	ST-112 Probability and Probability Distributions-I	<ol style="list-style-type: none"> <li>1. Understand the concepts of Univariate Random Variable and bivariate random variable</li> <li>2. Compute probabilities of events in bivariate probability distribution</li> <li>3. Understand about the application of standard discrete distributions in real life situations</li> <li>4. Model sampling from Discrete Uniform, Binomial and Hypergeometric distributions</li> <li>5. Understand the concept of standardized random variable.</li> <li>6. Able to analyze the data using Statistical Software such as MS-Excel etc.</li> </ol>
S.Y.B.Sc.	ST-231 Probability Distributions-I	<ol style="list-style-type: none"> <li>1. Understand the fundamentals of random variable (Moments and Cumulants)</li> <li>2. Compute Expected value, Finding MGF(Moment), CGF(Cumulant), PGF(Probability), FMGF(Factorial Moment); GF=Generating Functions</li> <li>3. Develops ability to solve gamma-beta functions</li> <li>4. Describe Poisson, Geometric distribution; their real-life situations and other basic relevant properties</li> <li>5. Understand Normal distribution (Continuous); real-life situations and other basic relevant properties</li> <li>6. Develop problem-solving techniques needed to accurately calculate, apply and interpret probability of a given event/selected probability distribution(s)</li> <li>7. Understand underlying assumptions for common probability distributions and their usage.</li> </ol>
	ST-232: Statistical Methods-I	<ol style="list-style-type: none"> <li>1. Understand the notion of multiple linear regression models, Yule's notation</li> <li>2. Compute and interpret Multiple &amp; Partial correlation coefficient; coefficient of Determination; study their properties</li> <li>3. Understand the meaning, usefulness of Time series and its components (trend and other types of variations); study additive and multiplicative models</li> <li>4. Understand the meaning and purpose of Statistical Process Control, quality of a product, need of quality control, chance and assignable causes</li> </ol>

	<p>ST-241: Probability Distributions-II</p>	<p>5. Derive 3s control limits (when standards are given/ not given); Draw control charts for variables and attributes</p> <p>6. Understand meaning of statistical decision theory, acts, states of nature, outcomes, pay-off and opportunity loss (regret)</p> <p>7. Take decisions under certainty, uncertainty and risk using various decision rules</p> <p>1. Understand the fundamentals bivariate continuous probability distribution</p> <p>2. Compute mean, variance, median, mode, MGF, CGF, PGF of Gamma, Exponential, Beta (of both kinds), chi-square, t and F distributions (wherever it exists)</p> <p>3. Distinguish between two kinds of beta variates</p> <p>4. Use of tables for calculation of probabilities</p> <p>5. Understand interrelations among Normal, distribution</p> <p>6. Understand additive property of Gamma, chi-square distribution, Lack of memory property of exponential distribution, reciprocal property of F distribution</p>
	<p>ST-242: Statistical Methods-II</p>	<p>1. Understand the concept of statistic, estimator, sampling distribution of statistic</p> <p>2. Perform test of hypothesis: null Vs alternative, compute error, find critical region</p> <p>3. Carryout Large sample tests (tests based on normal distribution)</p> <p>4. Carryout tests based on distribution</p>