Department of Statistics Course Outcomes

Sl.No.	Semester	Course Code	Course Title		Course Outcomes(COs)
			Descriptive Statistics and Probability Course	CO1	By using descriptive statistics we can summarize data in a useful and informative manner, estimate and population, characteristic based on a sample and determine if the data adequately represents the population. Probability in Statistics : Use probability to predict results of experiment under assumptions. Compute probability of given departure between prediction and results under assumption.
				CO2	There are three major measures of dispersion : range, interquartile range and standard deviation. These various strength and complexity but share one thing in common : The lower the score, the stronger the central tendency and the lower the dispersion of the data set.
				CO3	The outcome of probability is probability is used to determine the occurrence of an event in which can be applied in any aspect of life. An example would be the probability of it raising today. Using factors such as wind, cloud coverage, etc. Weather forecaster are able to predict the likeness of it to rain and convert it into a percentage.
				CO4	Random variables allows us to ask questions in mathematical way. Random variables are used to understand probability distributions. In probability and statistics, random variable, random quantity variable is a variable whose possible values are the outcomes of a random phenomenon.
			Mathematical Expectation and Probability Distributions	CO1	The expectation plays important rules in a variety of contexts. In regression analysis, are desires a formula in term of observed data that will give a good estimate of the parameter giving the effect of some Explanatory variable upon a dependent variable.
				CO2	The concepts of discrete and continues probability distributions and the random variables they describe are the underpinnings of probability theory and statistical analysis.
				CO3	The concept of continuous probability distribution and the random variable they describe are the underpinnings of probability theory and statistical analysis.
				CO4	Many numerical Population can be approximated very closely by a normal distribution.
			Statistical Methods	CO1	There are three possible results of a correlation study. A positive correlation, a negative correlation and no correlation.
				CO2	Regression analysis generates an equation to describe the statistical relationship b/w one (or) more predictor variables and the response variable.
				CO3	Curve fitting examines the relationship b/w one (or) more predictors and a response variable with the goal of defining a best fit model of the relationship.
				CO4	An attribute refers to the quality of characteristic the theory of attributes deals with qualitative types of characteristics that are calculated by using quantitative measurements.
				CO5	Sampling distributions provide a major simplification route to statistical inference. They allow analytical considerations to be based on the probability distribution of a statistics rather than on the joint probability distribution of all the individual sample values.
				CO1	Numerous fields require the use of estimation theory. Some of these fields include: (1) Interpretation of scientific experiments. (2) Signal processing (3) Clinical Trails (4) Tele communications (5) Project management (6) Software engineering etc.

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			(Statistical Inference)	CO2	Hypothesis testing is an essential procedure in statistics. A hypothesis test evaluates two mutually exclusive statements about a population to determine which statement is best supported by the sample data. To kick things off highlight the rationale for using hypothesis tests.
				CO3	A Z – test is a statistical test used to determine whether two population means are different where the various are known and the sample size is large.
				CO4	Test the hypothesis about the population mean. Test the hypothesis about coefficient of correlation. Test the hypothesis about the difference between two means.
				CO5	No-parametric methods are widely used for studying populations that take on a ranked order. The use of non-parametric methods may be necessary when data have a ranking but no clear numerical interpretation, such as when assessing preferences. In terms of levels of measurement, non-parametric methods result in ordinal data.
			Sampling Techniques and Design of Experiments	CO1	Sampling enables the selection of right data points from within the larger data set to estimate. The characteristics of the whole population.
				CO2	The advantage of simple random sample include its ease of use and it's accurate representation of larger population.
				CO3	Stratified random sampling is used when the res
				CO4	The one – way ANOVA compares the means b/w the groups you are interested in and determines whether any of those means are statistical significantly different from each other. Specifically it tests the used hypothesis.
				CO5	Design of experiment is multipurpose tool that can be used in various situations for identification of important input factors and how they are related to the out puts.
			Quality and Reliability	CO1	SQC is used to analyze the quality problems and solve them. Statistical quality control refers to the use of statistical methods in the monitoring and maintaining of the quality of products and services.
				CO2	The control chart is a graph used to study how a process changes over time. Data are platted in time order by comparing current data to the lines, you can draw conclusions about whether the process variation is in control (or) out of control.
				CO3	It is used in industry. It is assault done as products leaves the factors (or) in some cases even within the factors.
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				CO5	It is the characteristics of a set of test scores that relates to the amount of random error from the measurement process that might be embedded in the scores.
			Optimization Techniques	CO1	Operations research is important because it is a helpful tool used to solve complex problems under uncertainty. In business, very few things are certain, and managers must after make decisions based on their instructs instead of being able to use reliable data.
				CO2	Linear programming can be applied to various fields of study. It is widely used in mathematics, and to a lesson extent in business, economics, and for some engineering problems, Industries that use linear programming models include transportation, energy tele communications, and manufactories. It has proven useful in modeling diverse types of problems in planning, routing, scheduling assignment and design.

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				CO3	It is used to make processes more efficient and cost effective some areas of applications for linear programming include food and agriculture engineering, and energy.
			Operation Research - 1	CO1	Linear programming can be applied to various fields of study. It is widely used in mathematics and a lesser extent in business, economics and for some engineering problems. Industries that use linear programming models include transportation, energy tele communicates and manufacturing.
				CO2	It is used to (1) Minimize shipping cost (2) Determine low cost location (3) Find minimum cost production schedule. (4) Military distribution system.
				CO3	Assignment problem is used in assigning machines to factory orders. In assigning sales to sales territories. In assigning accouters to accounts of the clients.
				CO4	Sequencing techniques plays a vital role in the field of network and airline network etc.
			Operation Research - II	CO1	Game theory is widely applied in the real world, major areas of application, include economics, diplomacy, and military strategy, game theory can also be applied in fields such as psychology, biology, political science, computer science, sociology etc.
				CO2	To minimize project cost. It uses network analyses for scheduling production construction projects as well as research and development activities.