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Course Code	6CS155
Course Title	Probability and Statistics

Course Outcomes:
At the end of the course, students will be able to -
1. comprehend prerequisite knowledge to apply the concepts of probability in simulation and modeling of various computer science problems
2. apply statistical methods in various computer science related projects and research
3. simulate the concepts of statistics for real world problems

Syllabus:
Teaching hours:30

Unit I   07
Basic concepts of probability: permutations & combinations, definitions of probability, application of permutations and combination to probability problems, conditional probability, Baye's theorem.

Unit II   06
Descriptive statistics - graphs and tables: graphical descriptions of data: pie graphs, bar graphs, histograms and polygons, tabular descriptions of data: frequency tables, relative frequency tables, cumulative frequency tables, class intervals, percentiles, cross-tabulations.

Unit III   09
Descriptive statistics - numerical measures: Different distributions, Uniform, Binomial, Poisson and Normal probability distributions measures of central tendency, measures of dispersion, normal curve, correlation and regression, multiple regression.

Unit IV   08
Inferential statistics: sampling distributions, hypothesis testing and one sample z-test for a mean, t-test for a mean, inference using estimation and confidence level, two-sample t-test for equality of means, one way analysis of variance f-test, chi-square test for independence.

Self-Study:
The self-study contents will be declared at the commencement of semester. Around 10% of the questions will be asked from self-study contents.

Suggested Readings^:

w.e.f. Academic Year 2020-21 onwards

1. George Argyrous, Statistics for research-with a guide to SPSS, Sage South Asia Edition
2. Yogesh Jaluria, Computer Methods for Engineering, Allyn and Bacon. Inc.
3. Jay I. Devore, Probability and Statistics for Engineers and Scientists; Pearson
4. S. P. Gupta, Statistical Methods, S.Chand & Sons
5. A Papoulis and S Unnikrishna Pillai, Probability, Random variables and Random Processes, Tata McGraw Hill.

L = Lecture, T = Tutorial, P = Practical, C = Credit
^ this is not an exhaustive