Department of Mathematics
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Course	**Course Name**	**: Probability Theory**
	Course Code	**: KM184901**
	Credit	**: 3**
	Semester	**: 4**

Description of Course

In this lecture will be explained about the definition, basic concepts, the properties of opportunities and calculation techniques. It then discusses random variables, distribution functions, random variable functions and limited distribution. Basics of opportunity theory are used to represent and interpret basic populations and mathematics probabilistic models.

Learning Outcome

PLO 1	[C2] Students are able to identify and explain foundations of mathematics that include pure, applied, and the basic of computing
PLO 2	[C3] Students are able to solve simple and practical problems by applying basic mathematical statements, methods and computations
PLO 3	[C4] Students are able to analyze simple and practical problems in at least one field of analysis, algebra, modeling, system optimizations and computing sciences

Course Learning Outcome

1. Students are able to explain, understand the basic concept of opportunity, random variable, distribution of random variable and its nature
2. Students are able to identify and analyze the modeling of an event and the development of statistical Mathematics related to the concept of opportunity and random variable

Main Subject

Review of Set theory, sample space, event, algebraic sigma, Opportunity size, Opportunity definition, Opportunity properties, Conditional probability, Bayes theory, discrete and continuous distribution random variables, expected values, Moments, Moment Generating Function (MGF), discrete and special distributions continuous, discrete and continuous shared distribution, free random variable, conditional distribution, expected value properties, correlation, Conditional expectancy value, MGF joint, CDF technique, transformation method of the number of random variables, Understanding rows of random variables, central limit theorem (CLT) and approximation for Binomial distribution

Prerequisites

Statistical Methods
Mathematics II

Reference

1. Bain, L.J., Engelhardt, M.1992 , " Introduction to Probability and Mathematical statistics", Duxbury Press, 2nd.

Supporting Reference

1. Kreyszig, Introductory to Mathematical Statistic, Principles and Methods, John Wiley, 1970
2. Ross, SM, Introduction to Probability Models, Academic Pres, 1980