Faculty of Engineering & Technology

Probability and Statistics (Math 6)

Information :

Course Code :	MTH 312	**Level**	: Undergraduate	**Course Hours :**	3.00- Hours

Department :	Department of Electrical Engineering

Instructor Information :

Title	Name	Office hours
Associate Professor	Nashwa Mohamed El Sayed Mohamed	8
Associate Professor	Nashwa Mohamed El Sayed Mohamed	8
Assistant Lecturer	Doaa Nabil Sayed Mohamed Elsayed Khodair	2
Assistant Lecturer	TAREK ALI ABDALLAH TEAMA	4
Assistant Lecturer	Basma Magdy Ahmed Mohamed	2
Teaching Assistant	Ahmed Elsayed Abdellatif Ibrahim Bedeir	

Area Of Study :

Demonstrate a conscious understanding of the concepts of mathematical expressions of statistical Science
Develop studentsʹmathematical skills for basic inferential statistical studies.
Acquire skills for the application of statistic methods to the solution of electrical engineering problems.

Description :

Descriptive statistics and data analysis, Introduction to probability theory, conditional probability, Bayes theorem, Random variables and probability distribution, Discrete and continuous random variables, Mathematical expectation of random variables and some special expectation, Some discrete probability distribution (Binomial and poisson). Some continuous distribution (Normal distribution, t-distribution), Introduction to estimation and tests of hypothesis. Correlation analysis, applied statistics.

Course outcomes :

a.Knowledge and Understanding: :

1 -	Describe random variables, discrete and continuous distributions.
2 -	Define samples and population measures (point and interval estimate).
3 -	Recognize the fundamental features of the probability theory, and other statistical topics.
4 -	Distinguish the meaning of conditional probability and its application.

b.Intellectual Skills: :

1 -	Summarize Statistical concepts essential and necessary for applications in electrical engineering problems.
2 -	Think logically and creatively to apply random theory in the solution of Electrical Engineering Problems.
3 -	Analyze the appropriate method for the solutions of statistical engineering problems using convenient methods.

c.Professional and Practical Skills: :

1 -	Use the different data to obtain objective conclusions.
2 -	Apply a mathematical technique to solve electrical engineering problems.

d.General and Transferable Skills: :

1 -	Communicate effectively.
2 -	Effectively manage tasks, time and resources

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
Descriptive statistics and data analysis. Definitions and concepts.	10	6	4
Probability Introduction to probability theory, conditional probability, Bayes theorem	10	6	4
Random variables and probability distribution: Discrete and continuous random variables	10	6	4
Mathematical expectation of random variables and some special expectation.	10	6	4
Some discrete probability distribution (Binomial and Poisson).	10	6	4
Some continuous distribution (Normal distribution).	10	6	4
Introduction to Estimation and Tests of Hypothesis	10	6	4
Correlation analysis	5	3	2

Teaching And Learning Methodologies :

Interactive Lecture
Discussion
Problem-based Learning
Report

Course Assessment :

Methods of assessment	Relative weight %	Week No	Assess What
Assignment	10.00	1	To assess lecture material comprehension
Final Exam	40.00	16	To assess understanding and problem solving skills
Mid- Exam I	15.00	7	To assess understanding and problem solving skills
Mid- Exam II	15.00	12	To assess understanding and problem solving skills
Quizzes	10.00	2	

Course Notes :

Handout

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Recommended books :

WARREN S. WRIGHT, DENNIS G. ZILL, "Advanced Engineering Mathematics ", Jones &Bartlett Learning Publisher Fifth Edition.

EARL W. SWOKOWSKI, "Calculus with Analytic Geometry", PWS Publishers, alternate Edition, 1983.