Faculty of Engineering & Technology

Probability and Statistics (Math 6)

Information :

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

Department : Department of Mechanical 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	TAREK ALI ABDALLAH TEAMA	2
Assistant Lecturer	TAREK ALI ABDALLAH TEAMA	2

Area Of Study :

Demonstrate a conscious understanding of the concepts of mathematical expressions of statistical Science.
Develop studentsômathematical 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 -	Recognize the fundamental features of the probability theory, and other statistical topics.
2 -	Distinguish the meaning of conditional probability and its application.
3 -	Describe random variables, discrete and continuous distributions.
4 -	Define samples and population measures (point and interval estimate).
b.Intellectual Skills: :	
1 -	Summarize Statistical concepts essential and necessary for applications in mechanical engineering problems
2 -	Think logically and creatively to apply random theory in the solution of mechanical 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 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
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 the estimation and tests of hypothesis.	10	6	4
Correlation analysis.	5	3	2
Random variables and probability distribution: Discrete and continuous random variables	10	6	4

Teaching And Learning Methodologies :

Interactive Lecture
Problem-based Learning
Discussion
Report

Course Assessment :

Methods of assessment	Relative weight %	Week No	Assess What
Participation	10.00		To assess understanding and problem solving skills
Assignments	5.00		To assess lecture material comprehension
Final exam	40.00	16	
First Exam	20.00	5	To assess understanding and problem solving skills
Quizzes	5.00		To assess material comprehension & self study.
Second Exam	20.00	10	To assess understanding and problem solving skills

Recommended books :

ÅWARREN S. WRIGHT, DENNIS G. ZILL, ñAdvanced Engineering Mathematics ñ¸ Jones &Bartlett Learning Publisher Fifth Edition.
ÅEARL W. SWOKOWSKI, ñCalculus with Analytic Geometryò¸ PWS Publishers, alternate Edition, 1983.