



**DEPARTMENT OF MECHANICAL AND INDUSTRIAL ENGINEERING
INDUSTRIAL ENGINEERING PROGRAM, BSC.**

Course Syllabus

1. Course number and name

IE 231 Statistics and Probability I

2. Credits and contact hours

(3+0) 3 credit hours, 3 contact hours

3. Course type

Blended Learning Course (2+1)

4. Instructor's or course coordinator's name

Dr. Mohammad Mansour

5. Textbook information

Ronald, W., Raymond, M., Sharon, M., and Keying, Y. "Probability & Statistics for engineering and scientists", Ninth Edition, Pearson, 2016, ISBN-10: 0134115856, ISBN-13: 978-0134115856

a. Other supplemental materials

Instructor's notes

6. Specific course information

a. Catalog description

Basic concepts and tools for non-deterministic systems. Elementary and conditional probability, random variables, distribution theory, hypothesis testing, confidence intervals and simple regression.

b. Prerequisites or co-requisites

Prerequisite: EE 112 Calculus II

c. The course is:

Required in the Mechanical and Industrial and Civil engineering programs

7. Specific goals for the course

a. Course outcomes:

After completion of the course, students are expected to be able to:



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1. Summarize and present data
2. Describe probability distributions and compute probabilities
3. Conduct point and interval estimation
4. Make inference about populations
5. Conduct hypothesis testing
6. Solve simple regression

b. The following student outcomes are addressed by the course:

SO(a) - ability to apply knowledge of mathematics, science, and engineering.

SO(pc-1) Ability to apply principles of probability, statistics and linear algebra to engineering problems

8. Learning Outcomes and their Alignment with Program Educational Objective (PEO's), Methods of Delivery, and Assessment Methods:

Learning Outcomes	Program PEOs	Method of Delivery	Assessment Method
Course Outcomes			
CO-(1): discuss and apply Descriptive Statistics: data Summary and Presentation	-	Lectures (Example and Problems)	Assignment & Exam
CO-(2): Discuss and apply Probability Theories	-	Lectures (Example and Problems)	Assignment & Exam
CO-(3): discuss and apply Discrete Random Variables and Probability Distributions	-	Lectures (Example and Problems)	Assignment & Exam
CO-(4): discuss and apply Continuous Random Variables and Probability Distributions	-	Lectures (Example and Problems)	Assignment & Exam
CO-(5): Discuss and apply Sampling Distribution	-	Lectures (Example and Problems)	Assignment & Exam
CO-(6): Discuss and apply Estimation Theory	-	Lectures (Example and Problems)	Assignment & Exam



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9. Weekly Teaching Plan

Week	Lecture	Topic	Method of Delivery
1	Lec_1	Couse Introduction and Syllabus overview	Lecture
1	Lec_2	Chapter 1: Introduction to Statistics and probability	Lecture
1	Lec_3	Chapter 1: Introduction to Statistics and probability	Lecture
2	Lec_4	Chapter 2: Probability	Lecture
2	Lec_5	Chapter 2: Probability	Lecture
2	Lec_6	Chapter 2: Probability	Lecture
3	Lec_7	Chapter 2: Probability	Lecture
3	Lec_8	Chapter 2: Probability	Lecture
3	Lec_9	Chapter 2: Probability	Lecture
4	Lec_10	Chapter 3: Random Variables and Probability Distributions	Lecture
4	Lec_11	Chapter 3: Random Variables and Probability Distributions	Lecture
4	Lec_12	Chapter 3: Random Variables and Probability Distributions	Lecture
5	Lec_13	Chapter 3: Random Variables and Probability Distributions	Lecture
5	Lec_14	Chapter 3: Random Variables and Probability Distributions	Lecture
5	Lec_15	Chapter 3: Random Variables and Probability Distributions	Lecture
6	Lec_16	Chapter 4: Mathematical Expectation	Lecture
6	Lec_17	Chapter 4: Mathematical Expectation	Lecture
6	Lec_18	Chapter 4: Mathematical Expectation	Lecture
7	Lec_19	Chapter 4: Mathematical Expectation	Lecture
7	Lec_20	Chapter 4: Mathematical Expectation	Lecture
7	Lec_21	Chapter 4: Mathematical Expectation	Lecture
8	Lec_22	Chapter 5: Some Discrete Probability Distributions	Lecture
8	Lec_23	Chapter 5: Some Discrete Probability Distributions	Lecture
8	Lec_24	Chapter 5: Some Discrete Probability Distributions	Lecture
9	Lec_25	Chapter 5: Some Discrete Probability Distributions	Lecture
9	Lec_26	Chapter 5: Some Discrete Probability Distributions	Lecture
9	Lec_27	Chapter 5: Some Discrete Probability Distributions	Lecture
10	Lec_28	Chapter 6: Some Continuous Probability Distributions	Lecture
10	Lec_29	Chapter 6: Some Continuous Probability Distributions	Lecture



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10	Lec_30	Chapter 6: Some Continuous Probability Distributions	Lecture
11	Lec_31	Chapter 6: Some Continuous Probability Distributions	Lecture
11	Lec_32	Chapter 6: Some Continuous Probability Distributions	Lecture
11	Lec_33	Chapter 6: Some Continuous Probability Distributions	Lecture
12	Lec_34	Chapter 7: Function of random variable	Lecture
12	Lec_35	Chapter 7: Function of random variable	Lecture
12	Lec_36	Chapter 7: Function of random variable	Lecture
13	Lec_37	Chapter 7: Function of random variable	Lecture
13	Lec_38	Chapter 11: Simple linear regression and correlation	Lecture
13	Lec_39	Chapter 11: Simple linear regression and correlation	Lecture
14	Lec_40	Chapter 11: Simple linear regression and correlation	Lecture
14	Lec_41	Chapter 11: Simple linear regression and correlation	Lecture
14	Lec_42	Chapter 12: Multiple Linear regression and certain nonlinear regression model	Lecture
15	Lec_43	Chapter 12: Multiple Linear regression and certain nonlinear regression model	Lecture
15	Lec_44	Chapter 12: Multiple Linear regression and certain nonlinear regression model	Lecture
15	Lec_45	Chapter 12: Multiple Linear regression and certain nonlinear regression model	Lecture

1. Grade Distribution:

Assessment	Grade	Week No.
First Exam	20%	5 th Week
Second Exam	20%	10 th Week
-Assignments (Reports /Quizzes/ Seminar / Tutorials/ Home works)	10%	1-16 th Week
- Final Examination	50%	16 th Week

Note: Make-up exams will be offered for valid reasons. It may be different from regular exams in content and format.