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

Course Syllabus

1. **Course number and name**

   IE 232 Statistics and Probability 2

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. Fadwa Dababneh

5. **Textbook information**
   Probability & Statistics for Engineers & Scientists, 9th Edition by Ronald E. Walpole , Raymond H. Myers, Sharon L. Myers, Keying E. Ye
   ISBN:9780134115856 (Required)

   a. **Other supplemental materials**
      Instructor's notes

6. **Specific course information**
   a. **Catalog description**
      Random Variables, Probability Distribution functions, Sampling Distributions, Correlation, One- and Two-Sample Estimation, One- and Two-Samples Tests of Hypotheses, Goodness of fit tests, One-Factor Experiments, Nonparametric statistics, reliability and hazard rate functions.

   b. **Prerequisites or co-requisites**
      Prerequisite:
      IE 231 Statistics and Probability I

   c. **The course is:**
      Required in the Industrial Engineering program.

7. **Specific goals for the course**
   a. **Course outcomes:**

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

1. Discuss and apply distributions of functions of random variables
2. Discuss and apply sampling from distributions or populations
3. Examine statistical inference-estimation of population parameters.
4. Interpret Data-based decision-statistical hypotheses
5. Calculate and understand correlation.
6. Understand Nonparametric statistics
7. Perform hypothesis testing and goodness-of-fit tests

b. The following student outcomes are addressed by the course:
SO-(a) an ability to apply knowledge of mathematics, science, and engineering.
SO-(pc-2) ability to apply advanced statistics and probability 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 distributions of functions of random variables	-	Lectures (Example and Problems)	Assignment & Exam
CO-(2): Discuss and apply sampling from distributions or populations	-	Lectures (Example and Problems)	Assignment & Exam
CO-(3): Examine statistical inference-estimation of population parameters.	-	Lectures (Example and Problems)	Assignment & Exam
CO-(4): Interpret Data-based decision-statistical hypotheses	-	Lectures (Example and Problems)	Assignment & Exam
CO-(5): Calculate and understand correlation.	-	Lectures (Example and Problems)	Assignment & Exam

CO-(6): Understand Nonparametric statistics	-	Lectures (Example and Problems)	Assignment & Exam
CO-(7): Perform hypothesis testing and goodness-of-fit tests	-	Lectures (Example and Problems)	Assignment & Exam
Student Outcomes			
SO-(a) an ability to apply knowledge of mathematics, science, and engineering.		Lectures (Example and Problems)	Assignment & Exam
SO-(pc-2) ability to apply advanced statistics and probability to engineering problem		Lectures (Example and Problems)	Assignment & Exam

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 Data Analysis	Lecture
1	Lec_3	Chapter 1: Introduction to Statistics and Data Analysis	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

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6	Lec_18	Chapter 4: Mathematical Expectation	Lecture
7	Lec_19	Chapter 5: Some Discrete Probability Distributions	Lecture
7	Lec_20	Chapter 5: Some Discrete Probability Distributions	Lecture
7	Lec_21	Chapter 5: Some Discrete Probability Distributions	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 6: Some Continuous Probability Distributions	Lecture
9	Lec_25	Chapter 6: Some Continuous Probability Distributions	Lecture
9	Lec_26	Chapter 6: Some Continuous Probability Distributions	Lecture
9	Lec_27	Chapter 6: Some Continuous Probability Distributions	Lecture
10	Lec_28	Chapter 6: Some Continuous Probability Distributions	Lecture
10	Lec_29	Chapter 8: Fundamental Sampling Distributions and Data Descriptions	Lecture
10	Lec_30	Chapter 8: Fundamental Sampling Distributions and Data Descriptions	Lecture
11	Lec_31	Chapter 8: Fundamental Sampling Distributions and Data Descriptions	Lecture
11	Lec_32	Chapter 8: Fundamental Sampling Distributions and Data Descriptions	Lecture
11	Lec_33	Chapter 8: Fundamental Sampling Distributions and Data Descriptions	Lecture
12	Lec_34	Chapter 9: One- and Two-Sample Estimation Problems	Lecture
12	Lec_35	Chapter 9: One- and Two-Sample Estimation Problems	Lecture
12	Lec_36	Chapter 9: One- and Two-Sample Estimation Problems	Lecture
13	Lec_37	Chapter 9: One- and Two-Sample Estimation Problems	Lecture
13	Lec_38	Chapter 9: One- and Two-Sample Estimation Problems	Lecture
13	Lec_39	Chapter 10: One- and Two-Sample Tests of Hypotheses	Lecture
14	Lec_40	Chapter 10: One- and Two-Sample Tests of Hypotheses	Lecture
14	Lec_41	Chapter 10: One- and Two-Sample Tests of Hypotheses	Lecture
14	Lec_42	Chapter 10: One- and Two-Sample Tests of Hypotheses	Lecture
15	Lec_43	Chapter 10: One- and Two-Sample Tests of Hypotheses	Lecture
15	Lec_44	Reliability and Hard Rate Function	Lecture
15	Lec_45	Reliability and Hard Rate Function	Lecture

1. **Grade Distribution:**

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

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