DEPARTMENT OF INDUSTRIAL ENGINEERING
COURSE SYLLABUS

COURSE TITLE	ENGLISH CODE/NO	ARABIC CODE/NO.	CREDITS			
			Th.	Pr.	Tr.	Total
PROBABILITY & ENGINEERING STATISTICS	IE 331	هـ ص ٣٣١	3	2	-	3

Pre-requisites:	STAT 110, MATH 202

Course Role in Curriculum	Required or Elective:	Required Core Course

Catalogue Description:
Descriptive statistics with graphical summaries. Basic concepts of probability and its engineering applications. Probability distributions of random variables. Confidence intervals. Introduction to hypothesis testing. Correlation and linear regression.

Textbooks:
Ronald E. Walpole, Raymond H. Myers, and Sharon L. Myers, Keying Ye, Probability & Statistics for Engineers and Scientists (Ninth edition), Pearson, 2012.

Supplemental Materials:
First day materials, Guide to assignments and Project.

Course Learning Outcomes:
By the completion of the course the student should be able to:

1. Apply the fundamental theories of probability to engineering problems.
2. Understand discrete and continuous behaviour of systems.
3. Identify and apply statistical concepts on real life problems.
4. Perform statistical tests.
5. Perform data analysis using statistical software's.
6. Interpret and communicate results of analysis.

Topics to be Covered:	Duration in Weeks
1	Introduction to Statistics And Data Analysis	1.0
2	Probability	2.0
3	Random Variables and Probability Distributions	2.0
4	Mathematical Expectations	1.0
5	Some Discrete Probability Distributions	2.0
6	Some Continuous Probability Distributions	2.0
7	Fundamental Sampling Distributions and Data Descriptions	1.0
8	One-Sample Estimation Problems	1.5

9	One-Sample Tests of Hypotheses	1.0
10	Simple Linear Regression and Correlation	0.5

Student Outcomes addressed by the course: (Put a √ sign)

(a)	an ability to apply knowledge of mathematics, science, and engineering	√
(b)	an ability to design and conduct experiments, as well as to analyze and interpret data	
(c)	an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability	
(d)	an ability to function on multidisciplinary teams	
(e)	an ability to identify, formulate, and solve engineering problems	√
(f)	an understanding of professional and ethical responsibility	
(g)	an ability to communicate effectively	
(h)	the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context	
(i)	a recognition of the need for, and an ability to engage in life-long learning	
(j)	a knowledge of contemporary issues	
(k)	an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.	√

Key Student Outcomes assessed in the course: (a, e) and (k)

Instructor or course coordinator: Eng. Mohammed Alharkan
Last updated: February 2015