Jordan University of Science and Technology
Faculty of Engineering
Chemical Engineering Department

CHE450 Experimental Design And Data Analysis - JNQF Level: 7
Second Semester 2021-2022

Course Catalog
3 Credit Hours. Review of statistical distributions, simple comparative experiments, experiments with a single factor, analysis of variance, randomized blocks, latin squares, and related designs, incomplete block designs, Factorial designs, confounding in factorial designs, Two-level fraction factorial designs, Multi-factor experiment and nested designs.

Text Book	
Title	Design and Analysis of Experiments;
Author(s)	DOUGLAS C. MONTGOMERY
Edition	6th Edition
Short Name	text
Other Information	

Instructor	
Name	**Prof. Majdi Al-Mahasneh**
Office Location	CH2 L2 / Faculty Offices
Office Hours	
Email	mmajdi@just.edu.jo

Class Schedule & Room

Section 4:
  Lecture Time: Sun, Tue : 13:00 - 14:30
  Room: CH2109

Prerequisites		
Line Number	**Course Name**	**Prerequisite Type**
222060	CHE206 Engineering Statistics	Prerequisite / Study

Tentative List of Topics Covered		
Weeks	**Topic**	**References**
Week 1	Introduction to Design of Experiment and Data Analysis	**Chapter 1** From **text**
Week 2	Review of fundamentals of statistical concepts and distributions.	**Handouts** From **text**
Weeks 3, 4	Simple comparative experiments, experiments with a single factor, analysis of variance	**Chapter 2, 3** From **text**
Weeks 5, 6, 7	Randomized blocks designs, Latin squares, and related designs	**Chapter 4,5** From **text**
Weeks 8, 9, 10	Factorial designs, confounding in factorial designs, two-level fraction factorial designs.	**Chapter 5,6 and 7** From **text**
Weeks 11, 12, 13	Introduction to linear regression analysis	**Handout** From **text**
Weeks 14, 15	Introduction to nonlinear regression analysis	**Handout** From **text**

Mapping of Course Outcomes to Program Outcomes and NQF Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
Perform summary statistical testing. (1) [11] [1L7K1]	20%	1st exam, HW and CW, Final Exam
Identify significantly different samples means and populations based on simple comparative and ANOVA testing. [12, 16] [1L7K1]	20%	1st exam, HW and CW, Final Exam
Analyze the different types of DOEs including but not limited to Randomized block design, Incomplete block designs, Latin squares, Factorial designs and other common statistical DOEs. [12, 16] [1L7S1]	30%	2nd exam, HW and CW, Final Exam
Analyze linear ad nonlinear regression models [11, 12] [1L7S1]	20%	2nd exam, HW and CW, Final Exam
Use Excel and other software packages to perform DOEs and statistical analysis [17] [1L7S1]	10%	HW and CW

Relationship to Program Student Outcomes (Out of 100%)						
1	2	3	4	5	6	7
30	35				25	10

Relationship to NQF Outcomes (Out of 100%)	
L7K1	L7S1
40	60

Evaluation	
Assessment Tool	Weight
1st exam	25%
2nd exam	25%
HW and CW	10%
Final Exam	40%

Policy	
Attendance, HW and Quizzes and Student Conduct	Attendance Attendance will be checked monitored. University regulations will be strictly followed for students exceeding the maximum number of absences (20%) of the total contact hours. HW and Quizzes Homework and Quizzes are important part of this course. HWs assigned by instructor should be solved by student in order to be able to solve exam problems. Student Conduct It is the responsibility of each student to adhere to the principles of academic integrity. Academic integrity means that a student is honest with him/herself, fellow students, instructors, and the University in matters concerning his or her educational endeavors. Cheating will not be tolerated in this course. University regulations will be pursued and enforced on any cheating student.

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