



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

IE710 Design Of Engineering Experiments

First Semester 2023-2024

Course Catalog

3 Credit Hours. This course aims to provide students with the details of the design of engineering experiments for manufacturing process analysis, human factors experimentation, and life testing. Topics include basic experimental design models, blocking, factorial experiments, nested designs, covariance analysis, response surface analysis, and estimation of effects.

Teaching Method: On Campus

Text Book

Title	Response Surface Methodology-Process and Product Optimization Using Designed Experiments
Author(s)	Raymond H. Myers, Douglas C. Montgomery, and Christine-Anderson Cook
Edition	3rd Edition
Short Name	Ref#1
Other Information	

Course References

Short name	Book name	Author(s)	Edition	Other Information
Ref#2	Design and Analysis of Experiments John	Montgomery, D. C.	8th Edition	

Instructor

Name	Dr. MOHAMMED OBEIDAT
Office Location	C5 L-2
Office Hours	
Email	msobeidat1@just.edu.jo

Class Schedule & Room

Section 1:
 Lecture Time: Mon : 14:30 - 17:30
 Room: M5124

Tentative List of Topics Covered

Weeks	Topic	References
Week 1	Introduction and Review of statistics	From Ref#1 , From Ref#2
Weeks 2, 3	Introduction to Response Surface Methodology (RSM) and Review of Important aspects of Linear Models.	Chapter 1 and 2 From Ref#1
Weeks 5, 6, 7	Two-Level Factorial and Fractional Factorial Designs.	Chapter 3 and 4 From Ref#1
Weeks 6, 7	Sequential Region Seeking	Sections 5.1-5.3 of Chapter 5 From Ref#1
Weeks 7, 8	The Analysis of Response Surfaces.	Sections 6.1-6.4 of Chapter 6 From Ref#1
Week 9	Response Surface Designs.	Chapter 7 From Ref#1
Weeks 12, 13, 14	Analysis of Dispersion Effects and other analysis technique.	From Ref#1
Week 4	Blocked designs	From Ref#1

Mapping of Course Outcomes to Program Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
Design experiments to address problems that are important to engineers. [1SO1]	25%	MidTerm Exam, Project, Final Exam
Construct appropriate statistical models to form the framework for analyzing the resulting data. [1SO6]	25%	MidTerm Exam, Project, Final Exam
Use regression methods to find point and interval estimates of model parameters, and to test hypotheses about them. [1SO7]	25%	Project, Final Exam
Use computer software to carry out the analysis. [1SO6, 1SO7]	25%	Project, Final Exam

Relationship to Program Student Outcomes (Out of 100%)

SO1	SO2	SO3	SO4	SO5	SO6	SO7
25					37.5	37.5

Evaluation

Assessment Tool	Weight
MidTerm Exam	20%

Project	30%
Final Exam	50%

Policy	
Attendance	Attendance will be checked at the beginning of each class. University regulations will be strictly followed for students exceeding the maximum number of absences. No make-up test will be given without an official university-approved excuse.

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