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

CE741 Analytical Techniques In Transportation - JNQF Level: 6
First Semester 2024-2025

Course Catalog
3 Credit Hours. It is one of the compulsory courses in the Master program in the department of civil engineering ? Transportation engineering specialization. It includes the Common analytical evaluation that can be used by the graduate students to improve their research capabilities and prepare their master theses in a proper and effective way. This course is divided into two major parts: statistical analysis and linear programming. In addition to the distributed course instructions and notes, the student should depend on the listed references.

Teaching Method: On Campus

Text Book	
Title	Applied statistics
Author(s)	J. Neter, W. Wassewrman, G.A. Whitemore
Edition	2nd Edition
Short Name	Applied statistics
Other Information	

Course References

Short name	Book name	Author(s)	Edition	Other Information
Applied statistics	Applied linear statistical models	J. Neter, W. Wassewrman, and M.H. Kunter	2nd Edition	
Linear programming	3. Linear programming and network flows.	M. Bazaraa, J. Jarvis, and H. Sherali	2nd Edition	

Instructor	
Name	**Prof. Turki Obaidat**
Office Location	-

Office Hours	Sun : 10:30 - 12:30 Mon : 11:30 - 13:30 Tue : 10:00 - 11:30 Wed : 11:30 - 13:30
Email	turk957@just.edu.jo

Class Schedule & Room

Section 1:
  Lecture Time: Mon, Wed : 10:00 - 11:30
  Room: قاعة ندوات /مدني

Tentative List of Topics Covered

Weeks	Topic	References
Week 1	Data acquisition and classification	
Week 2	Data summarization: measures of location and dispersion	
Week 3	Statistical sampling and estimation of population mean	
Week 4	Tests for population mean	
Week 5	Simple linear regression analysis	
Week 6	Inferences in regression analysis and remedial measures.	
Week 7	Multiple regression analysis.	
Week 8	Mid-term Exam and exam evaluation	
Week 9	Multicollinearity and its effect	
Week 10	Indicator variables and covariance models	
Week 11	Real application: team work in class	
Week 12	Formulation of linear programming problems.	
Week 13	Simplex algorithm and revised simplex method.	
Week 14	Duality theorem	
Week 15	Real application: team work in class	
Week 16	Course evaluation and final exam	

Mapping of Course Outcomes to Program Outcomes and NQF Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
An ability to identify, classify, summarize, and interpret the data needed to describe civil or transportation engineering problems by applying simple statistical tools. [1L6K1, 1L6K2]	20%	

An ability to develop simple and multiple regression models that meet specified needs of actual civil or transportation cases. [1L6K1, 1L6S2, 1L6C1, 1L6C4]	25%	
An ability to formulate and solve engineering problems by applying the proper linear programming method. [1L6K1, 1L6S3, 1L6C1, 1L6C4]	20%	
An ability to use different computer packages in describing and solving real transportation problems [1L6S1, 1L6S2, 1L6S3]	25%	
An ability to function and communicate effectively in a team in order to establish goals, plan tasks, and provide suitable solutions. [1L6S1, 1L6S2, 1L6C3, 1L6C4]	10%	

Relationship to Program Student Outcomes (Out of 100%)											
PI-1a	PI-2a	PI-2b	PI-2c	PI-2d	PI-3a	PI-4a	PI-4b	PI-5a	PI-6a	PI-6b	PI-7a

Relationship to NQF Outcomes (Out of 100%)							
L6K1	L6K2	L6S1	L6S2	L6S3	L6C1	L6C3	L6C4
21.25	10	10.83	17.08	13.33	11.25	2.5	13.75

Date Printed: 2024-10-27