The Hashemite University
Faculty of Science
Course Description

Department : Mathematics	
Year :	Semester :

Course Information	
Course Title	Linear Programming
Course Number	2001011305
Course Credits	3 Hours
Course Time	.
Course Duration	One Semester
Prerequisite(s)	110101241
Instructor	
Office Location	
Office Hours	

Text Book	
Title	Operations Research
Author(s)	Hamdy Taha
Publisher	Macmillan Publishing Co Inc
Year	1997
Edition	Third Edition
References(s)	Linear Programming Theory and Application ,J K Sharma, 2008 , Macmillan India Ltd

Evaluation Policy		
Assessment Type	Expected Date	Weight
First Exam	5^{th} or 6^{th} week	30 %
Second Exam	11^{th} or 12^{th} week	30 %
Final Exam	16^{th} week	40 %

Course Objectives

This course sheds light on linear programming which is the most natural mechanism for formulating a vast array of problems with modest effort. Examples of situations leading to this structure are sprinkled throughout the course, and these examples should help to indicate how practical problems can be often fruitfully structured in this form. The course concerned with the development, analysis, and comparison of algorithms for solving general subclasses of optimization problems. Identification of the collection of structures they most effectively solve can enhance one's ability to formulate problems.

Teaching and Learning Methods

1. Introducing new definitions and using examples to illustrate new concepts.
2. Giving examples and applications for some theorems and corollaries.
3. Giving a sample assignment for each section.
4. Discussing some of the students' solutions of some sample assignment.
5. Making a discussion of the problems of each exam.

Week	Chapter	**Topic**
1	2	Linear Programming: Formulation and Graphical Solution
2	3	Linear Programming: Algebraic Solution
		The Standard Form of the LP Model
3		The Simplex Method
4		Special Cases in Simplex Method
5		Interpreting the Simplex Tableau-Sensitivity Analysis
6	4	Linear Programming:: Duality and Sensitivity Analysis
		Definition of the Dual Problem
		Primal-Dual Relationships
7		Dual Simplex Method
8		Sensitivity Analysis
9	8	Integer Programming
		Methods of Integer Programming
10		Branch-and- Bound Method
		Cutting-Plane Algorithms
11	5	Linear Programming: Transportation Problem
		Definition and Applications of the Transportation Model
		Solution of the Transportation Problem
12		The Assignment Model
13	6	Linear Programming: Networks
		Network Minimization
14		Shortest Route Problem
		Maximal- Flow Problem