



Department of Banking
College of Science
University of Cihan Sulaimaniya

Subject : Quantitative Method

Course Book : Year 2^{ed}

Lecturer's name : Mohammed Wajid Al-Neama,
MSc, Lecturer

Academic Year : 2015/2016

Course Book

1. Course name	Quantitative Method								
2. Lecturer in charge	Mohammed Wajid Al-Neama								
3. Department/ College	Accounting by IT								
4. Contact	Email : mwneama@gmail.com								
5. Time (in hour) per week	Theory : 2 Practical : -								
6. Office hours	All working hours expect teaching hours								
7. Course code	ACC32116								
8. Teacher's academic profile	<ul style="list-style-type: none"> • Full Name : Mohammed Wajid Al-Neama • Sex : Male • Date of Birth : 18 July 1973 ▪ Nationality : Iraqi ▪ Qualifications : <ul style="list-style-type: none"> • BSc. Mathematics Computing, 1995, Mosul University, IRAQ, with rank (1st) out of (52)students. • M.Sc., Mathematics Computing, 2004, Mosul University, IRAQ, with rank (2nd). ▪ Publications/Citations Data: <table style="margin-left: 20px; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black;"><u>Type of Publication</u></th> <th style="text-align: right; border-bottom: 1px solid black;"><u>Number of Publications</u></th> </tr> </thead> <tbody> <tr> <td>Article in International Refereed Journals</td> <td style="text-align: right;">7</td> </tr> <tr> <td>Conference Papers</td> <td style="text-align: right;">4</td> </tr> <tr> <td>Books</td> <td style="text-align: right;">3</td> </tr> </tbody> </table> ▪ Research Interests: <ul style="list-style-type: none"> • Parallel and Distributed Algorithm. • High Performance Computing • Bioinformatics. • Numerical Analysis Methods. 	<u>Type of Publication</u>	<u>Number of Publications</u>	Article in International Refereed Journals	7	Conference Papers	4	Books	3
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9. Keywords	Quantitative method, Linear Programming, Simplex Method, Transportation Model, Assignment Problem.								
10. Course overview:	<p>Concepts covered in this course include Liner Programming, Artificial Variable Technique, Dual Problem, Simplex Method, Transportation Problems, Assignment Problem.</p>								
11. Course objective:	<p>The main objective of this course is to give student a good theoretical and practical knowledge of Operations method. The Student will take courses from a variety of technique that focus intensively on statistical methodology, mathematical modeling, and computer implementation uses.</p> <p>The student will be able to solve and interpret correctly the solution =s of a problems and recognize the situation where QM techniques can be as decision making tools and to interpret correctly the conclusions which can be derived using these techniques.</p>								

12. Student's obligation:

Student should be able to contribute significantly to finish his assignment alone and within a group work. Attending lectures will be compulsory to pass this subject.

13. Forms of teaching:

Contact hours : 2 theoretical weekly.

14. Assessment scheme:

The 100 marks will be divided into:

The midterm examination : 25%

A small project : 5%

Activities : 5%

Practical Examination : 5%

Final Examination :60%

15. Student learning outcome:

At the end of this course the students will:

1. Understand what is meant by operations research and how to formulate the linear programming problems.
2. Learn how to constructing a model to represent the systems.
3. Learn how to deriving a solution from the model and put the solution to work.
4. Learn how to graphical method to solve two-variable L.P. Problems.
5. Learn how to use a simplex method to solve two-variable L.P. Problems and more than two-variables problems.
6. Understand the artificial variable technique, Big-M and setting up the dual problems.
7. Understand the problem solution of transportation some product and how deals with transporting some product, tangible or intangible, from a supply point to demand point learn how much of each products, where the objective is to minimize the cost of distribution a product from a number of source to a number of destinations.
8. Learn how to deal with the Assignment Problems.

16. Course Reading List and References:**•Key references:**

Hamdy, A. Taha: Operations Research an Introduction. 8th Ed. Pearson Education Inc., 2007.

•Useful references:

Gupta, P. K. & D. S. Hira; Operations Research, 2nd Ed. S. Chand & Company (Pvt) Ltd, Ram Nagar, New Delhi, 1987.

17. The Topics:	Lecturer's name
Week 1	Introduction: An Overview of Quantitative Method.
Week 2	Quantitative Method: Some technique of Quantitative Method.
Week 3	Linear Programming: Introduction, Requirements for a L.P., Formulation of L.P.
Week 4	Linear Programming: Graphical Solution, Special Situation in solving L.P.
Week 5	Practice Problems.
Week 6	Simplex Method: Introduction, Artificial Variable Technique, Big-M Technique.
Week 7	Simplex Method: Dual Problem, setting up the Dual Problem.
Week 8	Practice Problems.
Week 9	Transportation Model: Introduction, Basic Feasible Solution, NW corner method.
Week 10	Transportation Model: Least Cost method, Vogel's method.
Week 11	Practice Problems.
Week 12	Assignment Problems: Introduction, Formulation of the problem.
Week 13	Assignment Problems: Solving assignment problems, Hungarian Method, Transportation Method.
Week 14	Assignment Problems: Linear programming method, Special cases.
Week 15	Assignment Problems: Unbalanced Problems, Maximization Problems, Restrictions on Assignments.
Week 16	Practice Problems.
18. Practical Topics (If there is any)	
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19. Examinations:	
Q1) Write the following Linear Programming problem in standard form and introduce slack variables.	
Maximise	$P = 2x + y$
Subject to the constraints	$x + y \leq 10$
	$4x + 2y \leq 15$
	$3x + y \geq 5$
	$x \geq 0, y \geq 0$
Q2) Use a simplex tableau to solve the Linear Programming problem. Begin by pivoting on an element chosen from the x column. Write down the values of x , y and f at the end of each iteration.	
Maximise	$f = 9x + 4y$
Subject to	$3x + 4y \leq 48$
	$2x + y \leq 17$
	$3x + y \leq 24$
	$x \geq 0, y \geq 0$
20. Extra notes:	
21. Peer review	