ATTACHMENT 5.

Kingdom of Saudi Arabia

The National Commission for Academic Accreditation & Assessment

T6. Course Specifications

(CS)

Course Specifications

Institution	**King Faisal University**	Date of Report	**18-5-2015**
College/Department	**School of Business / Quantitative Methods**		

A. Course Identification and General Information

1. Course title and code **Quantitative Methods for Business - QM- 0606201**
2. Credit Hours **3 Hours**
3. Program(s) in which the course is offered.
(If general elective available in many programs indicate this rather than list programs)
This course is a College of Business requirement and is taught in all College of Business programs below:
Risk and Insurance program
Finance program
Accounting program
Economics program
Management Information Systems program
Business Administration(Human Resources) program
4. Name of faculty member responsible for the course
Dr. Melfi Alrasheedi, Dr. Nabil Mansour, Dr. Mohammad Zayed and Dr. Tarifa Almulhim
5. Level/year at which this course is offered **Level 4 / 2nd year**
6. Pre-requisites for this course (if any) **Statistical analysis-0606104**
7. Co-requisites for this course (if any)
8. Location if not on main campus
9. Mode of Instruction (mark all that apply)

a. traditional classroom	**Yes**	What percentage?	**100 %**
b. blended (traditional and online)		What percentage?	
c. e-learning		What percentage?	
d. correspondence		What percentage?	
e. other		What percentage?	

Comments:

رابط التحقق من الوثيقة:
https://www.kfu.edu.sa/ar/Deans/AdmissionRecordsDeanship/Documents/courseDesc/06/0606201.pdf

B. Objectives

1. What is the main purpose for this course?

The main purpose of this course is to familiarize students how to use quantitative methods to solve an array of business and organizational problems, as well as improve decision-making.

Course Objectives

At the end of the course the students will be able to:

- **Use quantitative methods and techniques for effective decision-making.**
- **Recognize how to formulate and solve linear programming models for business and economic problems.**
- **Define the methodologies and uses of simulation, Data Envelopment Analysis (DEA) and decision analysis.**
- **Write and apply computer code to problems, including mathematical linear programming techniques.**

2. Briefly describe any plans for developing and improving the course that are being implemented. (e.g. increased use of IT or web based reference material, changes in content as a result of new research in the field)

- **Use relevant computer software if applicable.**
- **Continuously review and update the list of references.**
- **Preparing and managing the course electronically and providing more interactive learning environment.**

C. Course Description (General description in the form used in Bulletin or handbook)

Course Description.

Quantitative Methods for Business helps in solving problems in different environments that needs decisions. The course cover topics that include: Linear Programming, Transportation Models, Assignment Models, network models and decision analysis. Analytic techniques and computer packages will be used to solve problems facing business managers in decision environments.

As a result of this course, the students will become more confident in understanding and using models, both in other courses and on the job.

1. Topics to be Covered

List of Topics	No. of Weeks	Contact Hours
1. Introduction to Operations Research 1.1. Concepts of Operations Research (OR) 1.2. OR and decision making process 1.3. Overview of management science and OR modelling 1.4. Scope of OR in modern management 1.5. OR techniques 1.6. Applications of OR 1.7. OR and Computer software	2	6

2. Linear Programming (LP): Concepts and methodologies 2.1. LP definition 2.2. Examples on Formulation of LP problems 2.3. LP solution by Graphical method 2.4. LP solution by Simplex method 2.5. Special cases in LP 2.6. Duality problem and its economic interpretation 2.7. Sensitivity analysis in LP 2.8. Business and Economic Applications of Linear Programming 2.9. Solving LP Problems using Software packages	5.5	16.5
3. Data Envelopment Analysis (DEA) 3.1. What is DEA? 3.2. Basic efficiency concepts 3.3. DEA basic models 3.4. Graphical illustrations 3.5. Measuring the efficiency of business firms using DEA 3.6. DEA software packages	2.5	7.5
4. Decision Analysis (DA) 4.1. Introduction 4.2. Payoff Tables 4.3. Decision Making under Uncertainty 4.4. Maximax (Optimistic) and Maxmin (Conservative) Criteria 4.5. Minimax Regret Criteria 4.6. Decision Making under Risk 4.7. Expected value of Perfect and Sample Information 4.8. Decision Trees 4.9. Solving DA Problems using Software packages	2.5	7.5
5. Introduction to Simulation 5.1. What Is Simulation? 5.2. Advantages and Disadvantages of Simulation 5.3. Monte Carlo Simulation 5.4. Business applications for simulation 5.5. Simulation using software packages	2.5	7.5

2. Course components (total contact hours and credits per semester):

	Lecture	Tutorial	Laboratory or Studio	Practical	Other	Total
Contact Hours	**45 hours**					**45 hours**
Credit	**3 hours**					**3 hours**

3. Additional private study/learning hours expected for students per week. **3 Hours**

4. Course Learning Outcomes in NQF Domains of Learning and Alignment with Assessment Methods and Teaching Strategy.

On the table below are the five NQF Learning Domains, numbered in the left column.

First, insert the suitable and measurable course learning outcomes required in the appropriate learnin domains (see suggestions below the table). **Second**, insert supporting teaching strategies that fit and alig

with the assessment methods and intended learning outcomes. **Third**, insert appropriate assessment method that accurately measure and evaluate the learning outcome. Each course learning outcomes, assessmer method, and teaching strategy ought to reasonably fit and flow together as an integrated learning and teachin process. (Courses are not required to include learning outcomes from each domain.)

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
1.0	Knowledge		
1.1	List the main characteristics of decision-making and its different environments.	• Lectures	• Examinations • Coursework assessments
1.2	Outline the basic concepts of linear programming, DEA approach for measuring efficiency, decision-making and simulation models.	• Lectures • Case studies • Individual and group work	• Examinations • Coursework assessments
1.3	Recognize different criteria for decision making under risk and uncertainty.	• Lectures • Case studies • Individual and group work	• Examinations • Coursework assessments
2.0	Cognitive Skills		
2.1	Analyze and formulate a decision-making problem for different business cases.	• Lectures • Case studies • Individual and group work	• Examinations • Coursework assessments • Assignments
2.2	Develop simulation models for the purpose of estimation and apply this to a variety of business applications.	• Lectures • Case studies • Individual and group work	• Examinations • Coursework assessments • Assignments
2.3	Calculate expected values and pay-offs for different types of decision-making models.	• Lectures • Case studies • Individual and group work	• Examinations • Coursework assessments • Assignments
3.0	Interpersonal Skills & Responsibility		
3.1	Show teamwork skills and responsibility for self-learning and commitment.	• Individual and group work	• Coursework assessments • Individual and group assignments
4.0	Communication, Information Technology, Numerical Sills		
4.1	Interpret different software outputs for the quantitative methods covered in the course.	• Lab tutorials • Case studies • Individual and group work	• Examinations • Coursework assessments • Individual and group assignments
5.0	Psychomotor Skills		
5.1	None		

5. Map course LOs with the program LOs. (Place course LO #s in the left column and program LO #s

Course LOs #	Program Learning Outcomes (Use Program LO Code #s provided in the Program Specifications)								
	1.1	1.2	1.3	2.1	2.2	3.1	3.2	4.1	4.2
1.1			✓						
1.2			✓						
1.3			✓						
2.1				✓					
2.2					✓				
2.3					✓				
3.1						✓			
4.1									✓

6. Schedule of Assessment Tasks for Students During the Semester

	Assessment task (e.g. essay, test, group project, examination,	Week Due	Proportion of Total
1	**In-class participation**	**During Semester**	**5%**
2	**Assignments, reports and presentations**	**During Semester**	**10%**
3	**Quizzes**	**3th**	**5%**
4	**Mid Term Exam #1**	**7th**	**20%**
5	**Mid Term Exam #2**	**13th**	**20%**
6	**Final exam**	**16th**	**40%**

D. Students' Academic Counseling and Support

1. Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice. (include amount of time teaching staff are expected to be available each week)

4 weekly office hours

There is an academic unit advice in the college

E. Learning Resources

1. List Required Textbooks **1. Najm A., Introduction to Quantitative Methods: Models and applications. Alwaraq Publishers, Amman, Jordan, 2003.** **2. Williams, J. Camm and K. Martin, Quantitative Methods for Business, 10th Edition, South-Western Cengage Learning , USA, 2009.** **3. Charnes, A., Cooper, W.W., Lewin, A.Y., Seiford, L.M., Data Envelopment Analysis: Theory, Methodology, and Applications, ISBN-13: 978-0792394792.**
2. List Essential References Materials (Journals, Reports, etc.) **1. Rander B., Ralph M. and Michael E., "Quantitative Analysis for Management", Eleveth Edition, Prentice Hall, 2012.** **2. Elrefae G. and Bekhet H., Quantitative Analysis for Business: Methods and Techniques by using computer. Alahlia Publishers, Amman, Jordan, 2008.**
3. List Recommended Textbooks and Reference Material (Journals, Reports, etc.) **Cliff Ragsdale, Spreadsheet Modeling & Decision Analysis: A Practical Introduction to Management Science; Publisher: South-Western College, 2007.**
4. List Electronic Materials, Web Sites, Facebook, Twitter, etc. **http://www2.informs.org/Resources/** **http://ifors.org/web/** **http://mat.gsia.cmu.edu/** **http://www.scienceofbetter.org/** **http://www.mit.edu/~orc/**
5. Other learning material such as computer-based programs/CD, professional standards or regulations and software. **Microsoft Excel Solver** **POM-QM for Windows** **LINDO**

F. Facilities Required

Indicate requirements for the course including size of classrooms and laboratories (i.e. number of seats in classrooms and laboratories, extent of computer access etc.)
1. Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.) **Lecture room**
2. Computing resources (AV, data show, Smart Board, software, etc.) **Data show** **Smart Board** **Laptop**
3. Other resources (specify, e.g. if specific laboratory equipment is required, list requirements or attach list) **None**

G. Course Evaluation and Improvement Processes

1 Strategies for Obtaining Student Feedback on Effectiveness of Teaching
2 Other Strategies for Evaluation of Teaching by the Program/Department Instructor **Courses evaluation workshops (every semester)** **Annual program report** **Course report (every semester)**
3 Processes for Improvement of Teaching ▪ **Teaching observations** ▪ **Staff performance appraisal** ▪ **Internal Marking Moderation** ▪ **Assessment moderation** **The details are available in:** ▪ **QMS manual Annex O Teaching Observation Concepts** ▪ **QMS manual section F.1.2.4 Staff appraisal (and promotion criteria)** ▪ **QMS manual Annex G Internal Marking Moderation Form - Coursework** ▪ **QMS manual Annex H Internal Marking Moderation Form - Examination** ▪ **QMS manual Annex I Internal Moderation Form - Coursework** ▪ **QMS manual Annex J Internal Moderation Form – Examination** ▪ **QMS manual section C.5 Assessment principles including Moderation and Feedback**
4. Processes for Verifying Standards of Student Achievement (e.g. check marking by an independent member teaching staff of a sample of student work, periodic exchange and remarking of tests or a sample of assignments with staff at another institution) ▪ **Internal Marking Moderation** ▪ **Assessment moderation** **The details are available in:** ▪ **QMS manual Annex G Internal Marking Moderation Form - Coursework** ▪ **QMS manual Annex H Internal Marking Moderation Form - Examination** ▪ **QMS manual Annex I Internal Moderation Form - Coursework** ▪ **QMS manual Annex J Internal Moderation Form – Examination** ▪ **QMS manual section C.5 Assessment principles including Moderation and Feedback**
5 Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement. ▪ **Inputs from course reports and annual program reports** ▪ **Recommendations from College- Study Plans and Curriculum Committee (C-SPCC)** ▪ **Courses evaluation workshops** ▪ **External reviewers comments**

Name of Instructor: _____

Signature: _____ Date Report completed: **18/05/2015**

Name of field Experience Teaching Staff: _____

Program Coordinator: _____

Signature: _____ Date Received: _____