



Course Specification

Course Name: Quantitative Models for Services

Course Code: DS423

I. Basic Course Information

Major or minor element of program: Major

Department offering the course: Operations Research and Decision Support Department

Academic level: 400 Level

Semester in which course is offered: First (fall) Semester

Course pre-requisite(s): Modeling and Simulation (DS241)

Credit Hours: 3

Contact Hours Through:

Lecture	Tutorial *	Practical *	Total
2.5	1.5	0.0	4.0

* 1.5 hours for **either** Tutorial or Practical

Approval date of course specification: September 2014

II. Overall Aims of Course

The course aims at developing the ability in students to define, formulate and solve real world services problems using quantitative and qualitative techniques.

III. Program ILOs covered by course

Program Intended Learning Outcomes (By Code)			
Knowledge & Understanding	Intellectual Skills	Professional Skills	General Skills
[K16,K17,K18,K20]	[I12,I13]	[P12,P13,P14]	[G2,G8]



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IV. Intended Learning Outcomes of Course (ILOs)

a. Knowledge and Understanding

- K.1 Define and formulate real-world (public services) problems in scientific terms.
- K.2 Plan for a rational solution using different quantitative and statistical techniques.
- K.3 Collect, integrate and manage the relevant data and information for analysis.
- K.4 Illustrate and apply those quantitative techniques to solve various problems in different services sectors including health, agriculture, education and other public services.

b. Intellectual/Cognitive Skills

- I.1 Apply theoretical business knowledge to support and enhance the organizations on the service level.
- I.2 Select, analyze, summarize and synthesize data and information for modeling purposes.
- I.3 Formulate models for any real-life problem on the service level using appropriate quantitative or statistical techniques.
- I.4 Evaluate different solutions to the problems in the context of decision support.

c. Practical/Professional Skills

- P.1 Select and apply a range of appropriate statistical and quantitative techniques to solve service problems.
- P.2 Develop models using different techniques.
- P.3 Solve the developed models and analyzing their results.

d. General and Transferable Skills

- G.1 Operate effectively within a team.
- G.2 Analyze, solve and critically evaluate different service oriented issues.

V. Course Matrix Contents

	Main Topics / Chapters	Duration (Weeks)	Course ILOs Covered by Topic (By ILO Code)			
			K & U	I.S.	P.S.	G.S.
1-	Overview of quantitative techniques	2	K2			
2-	Overview of well-known services problems in different sectors.	2	K3		P2	
3-	Quantitative Models for service problems	3	K1,K2	I1,I2,I4	P2,P3	
4-	Introduction to some quantitative resource allocation, logistics and transportation techniques	2	K3	I3	P2,P3	G2
5-	Case studies and real-life applications especially public services	4	K1,K4	I1,I2,I3	P1,P3	G1,G2
	Net Teaching Weeks	13				



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VI. Course Weekly Detailed Topics / hours / ILOs

Week No.	Sub-Topics	Total Hours	Contact Hours	
			Theoretical Hours	Practical Hours *
1	Overview of quantitative techniques	2.5	2.5	
2	Overview of quantitative techniques	4	2.5	1.5
3	Overview of well-known services problems in different sectors.	4	2.5	1.5
4	Overview of well-known services problems in different sectors.	4	2.5	1.5
5	Quantitative Models for service problems	4	2.5	1.5
6	Quantitative Models for service problems	4	2.5	1.5
7	Midterm Exam			
8	Quantitative Models for service problems	4	2.5	1.5
9	Introduction to some quantitative resource allocation, logistics and transportation techniques	4	2.5	1.5
10	Introduction to some quantitative resource allocation, logistics and transportation techniques	4	2.5	1.5
11	Case studies and real-life applications especially public services	4	2.5	1.5
12	Case studies and real-life applications especially public services	4	2.5	1.5
13	Case studies and real-life applications especially public services	4	2.5	1.5
14	Case studies and real-life applications especially public services	4	2.5	1.5
15	Final Exam			
Total Teaching Hours		51	33	18

* No Practical/Tutorial during the first week of the semester

VII. Teaching and Learning Methods

Teaching/Learning Method	Selected Method	Course ILOs Covered by Method (By ILO Code)			
		K & U	Intellectual Skills	Professional Skills	General Skills
Lectures & Seminars	✓	K1,K2	I1,I3,I4	P2,P3	
Tutorials	✓	K3,K4	I2,I3,I4	P1,P2,P3	G2
Computer lab Sessions					
Practical lab Work					
Reading Materials	✓	K1,K3	I3	P2,P3	
Web-site Searches					
Research & Reporting					
Problem Solving / Problem-based Learning					



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Projects					
Independent Work					
Group Work	✓	K1,K4	I1,I2,I3,I4		G1
Case Studies					
Presentations					
Simulation Analysis					
Others (Specify):					

VIII. Assessment Methods, Schedule and Grade Distribution

Assessment Method	Selected Method	Course ILOs Covered by Method (By ILO Code)				Assessment Weight / Percentage	Week No.
		K & U	I.S.	P.S.	G.S.		
Midterm Exam	✓	K1	I2,I3,I4	P2,P3		20%	7
Final Exam	✓	K1	I2,I3,I4	P2,P3		60%	15
Quizzes	✓	K4	I3	P2,P3		5%	3,5
Course Work	✓	K2,K3,K4	I2,I3,I4	P1,P2,P3	G2	5%	Every week
Report Writing							
Case Study Analysis							
Oral Presentations							
Practical							
Group Project	✓	K3,K4	I2,I3	P2,P3	G1,G2	10%	12
Individual Project							
Others (Specify):							

IX. List of References

Essential Text Books	<ul style="list-style-type: none"> None
Course notes	<ul style="list-style-type: none"> Lecturer own notes
Recommended books	<ul style="list-style-type: none"> None
Periodicals, Web sites, etc....	<ul style="list-style-type: none"> Different search engines

X. Facilities required for teaching and learning

List the facilities required <ul style="list-style-type: none"> Teaching accommodation and aids
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Course coordinator: Prof. Mohamed Mostafa Saleh

Head of Department: Prof. Mohamed Mostafa Saleh

Date: September 2014