



Course Specification

Course Name: [Introduction to Systems and Decision Support]

Course Code: [DS211]

I. Basic Course Information

Major or minor element of program: [General]

Department offering the course: [Operations Research and Decision Support]

Academic level: [200 Level]

Semester in which course is offered: [First (Fall) Semester]

Course pre-requisite(s): [N/A]

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

Enhance the students' ability to represent problems as systems and introduce modelling and methodological approaches to solving problems.]

III. Program ILOs covered by course

Program Intended Learning Outcomes (By Code)			
Knowledge & Understanding	Intellectual Skills	Professional Skills	General Skills
[K1,K4,K14]	[I1,I2,I5]	[P3,P9, P10]	[G5,G9]



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IV. Intended Learning Outcomes of Course (ILOs)

a. Knowledge and Understanding

On completing the course, students should be able to:

- K.1 Explain the concept of systems and systems thinking.
- K.2 Illustrate the concepts of DS/MS/OR and its role in managerial decision making.
- K.3 Differentiate between different approaches to analyzing the system and hence the problem.
- K.4 Show the different phases of problem solving from problem definition through modelling and solving to finally implementing the solution.]

b. Intellectual/Cognitive Skills

On completing the course, students should be able to:

- I.1 View any real-life problem as a system and a part of a bigger system.
- I.2 Summarize and visualize the problem.
- I.3 Formulate models for any real-life problems using appropriate modelling techniques.
- I.4 Solve the model with the appropriate techniques to get the solution (decision).]

c. Practical/Professional Skills

On completing the course, students should be able to:

- P.1 Using different diagrams and graphs to describe a problem/situation.
- P.2 Developing models using different modeling techniques.
- P.3 Solving the developed models and analyse their results.
- P.4 Developing and using DS/MS/OR software packages.]

d. General and Transferable Skills

On completing the course, students should be able to:

- G.1 Acquire systems thinking skills.
- G.2 Acquire problem solving skills.]

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-	[Introduction to Systems]	[1]	[K1]	[I1]	[]	[G1]
2-	[Introduction to Systems Thinking and Analysis]	[1]	[K1, K2, K4]	[I1, I2]	[P1]	[G1]
3-	[Introduction to Decision Making Concepts and Approaches]	[2]	[K1, K3]	[]	[]	[G1]
4-	[Linear Programming]	[5]	[K4]	[I3, I4]	[P2, P3, P4]	[G2]
5-	[Project Management]	[1]	[K4]	[I3, I4]	[P2, P3, P4]	[G2]
6-	[Inventory Control]	[1]	[K4]	[I3, I4]	[P2, P3, P4]	[G2]
7-	[Decision Theory]	[2]	[K2, K4]	[I1, I2, I3]	[P1]	[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	Introduction to Systems	2.5	2.5	
2	Introduction to Systems Thinking and Analysis	4	2.5	1.5
3	Problem formulation	4	2.5	1.5
4	Graphical solution	4	2.5	1.5
5	Simplex	4	2.5	1.5
6	M-Technique	4	2.5	1.5
7	Midterm Exam			
8	Transportation problems	4	2.5	1.5
9	Assignment problem	4	2.5	1.5
10	Complete enumeration	4	2.5	1.5
11	Inventory models	4	2.5	1.5
12	Project management	4	2.5	1.5
13	Decision theory	4	2.5	1.5
14	Decision theory	4	2.5	
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	<input checked="" type="checkbox"/>	[K1, K2, K3, K4]	[I1, I2]	[]	[]
Tutorials	<input type="checkbox"/>	[]	[]	[]	[]
Computer lab Sessions	<input type="checkbox"/>	[]	[]	[]	[]
Practical lab Work	<input checked="" type="checkbox"/>	[]	[I3, I4]	[P1, P2, P3, P4]	[]
Reading Materials	<input type="checkbox"/>	[]	[]	[]	[]
Web-site Searches	<input checked="" type="checkbox"/>	[K1, K2]	[]	[]	[]
Research & Reporting	<input type="checkbox"/>	[]	[]	[]	[]
Problem Solving / Problem-based Learning	<input type="checkbox"/>	[]	[]	[]	[]
Projects	<input checked="" type="checkbox"/>	[]	[]	[]	[G1, G2]
Independent Work	<input checked="" type="checkbox"/>	[K2]	[I3, I4]	[P1, P2, P3, P4]	[]
Group Work	<input type="checkbox"/>	[]	[]	[]	[]
Case Studies	<input type="checkbox"/>	[]	[]	[]	[]
Presentations	<input type="checkbox"/>	[]	[]	[]	[]
Simulation Analysis	<input type="checkbox"/>	[]	[]	[]	[]
Others (Specify):	<input type="checkbox"/>	[]	[]	[]	[]



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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, K2, K3, K4]	[I3, I4]	[]	[]	[20%]	7
Final Exam	[√]	[K1, K2, K3, K4]	[I3, I4]	[]	[]	60%	15
Quizzes	[]	[]	[]	[]	[]	[]	[]
Course Work	[√]	[K2]	[I3, I4]	[P1, P2, P3, P4]	[]	[15%]	[]
Report Writing	[]	[]	[]	[]	[]	[]	[]
Case Study Analysis	[]	[]	[]	[]	[]	[]	[]
Oral Presentations	[]	[]	[]	[]	[]	[]	[]
Practical	[]	[]	[]	[]	[]	[]	[]
Group Project	[√]	[K1, K3, K4]	[I1, I2]	[P1, P2, P3, P4]	[G1, G2]	[5%]	[6]
Individual Project	[]	[]	[]	[]	[]	[]	[]
Others (Specify):	[]	[]	[]	[]	[]	[]	[]

IX. List of References

Essential Text Books	<ul style="list-style-type: none"> [Bernard W. Taylor, "Introduction to Management Science", PEARSON, Prentice Hall, 8th edition, 2004 [Hamdy Taha, "Operations Research"]
Course notes	<ul style="list-style-type: none"> [Lecturer own notes]
Recommended books	<ul style="list-style-type: none"> [Hans G. Daellenbach, "SYSTEMS AND DECISION MAKING: A Management Science Approach", John Wiley & Sons [Hamdy Taha, "Operations Research"] [Bernard W. Taylor, "Introduction to Management Science", PEARSON, Prentice Hall, 8th edition, 2004 [E. Turban, J. Aronson and T. Liang, "Decision Support Systems and Intelligent Systems", PEARSON, Prentice Hall, 7th edition, 2005]
Periodicals, Web sites	<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]

Course coordinator: [Prof. Mohamed Mostafa Saleh & Dr. Tarek Abou El-Enein]

Head of Department: [Prof. Mohamed Mostafa Saleh]

Date: [September 2014]