Course Name: Decision Support Systems and Applications
Course Code: DS332

I. Basic Course Information

Major or minor element of program: Major Minor
Department offering the course: Operations Research and Decision Support Department

Academic level: 400 Level
Semester in which course is offered: Second (Spring) Semester
Course pre-requisite(s): Decision Support Tools and Methods [DS331]

Credit Hours: 3
Contact Hours Through:

Lecture	Tutorial*	Practical*	Total
2.5	0.0	1.5	4.0

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

Approval date of course specification: January 2015

II. Overall Aims of Course

A Computers and Information Student Equipped with advanced Knowledge, Computer Software Systems and Practical Experience in Developing Computer-aided Decision Support Systems along with their application to real world problems.

III. Program ILOs covered by course

Program Intended Learning Outcomes (By Code)			
Knowledge & Understanding	Intellectual Skills	Professional Skills	General Skills
K2,K12,K19,K21	I10,I11,I12,I14	P3,P15,P16	G1,G2,G7,G8

IV. Intended Learning Outcomes of Course (ILOs)

a. Knowledge and Understanding

On completing the course, students should be able to:

K.1 Recognize software systems and programs for developing computer-based Decision support Systems (DSS).
K.2 List and evaluate DSS data and modeling tools.
K.3 Underline main techniques and software tools for integrating DSS components.
K.4 Apply Decision Support Methods and Systems to management, economics and education problems.
K.5 Develop and Apply model building languages to real world situations.

b. Intellectual/Cognitive Skills

On completing the course, students should be able to:

I.1 Apply DSS tools and methods to alternative decision problems.
I.2 Select appropriate DSS tools, methods and computer software systems for Specific decision situations.
I.3 Assess and analyze different DSS-based tools and Decision situations.
I.4 Create ideas concerning the most appropriate development and application moods of DSS.
I.5 Assess the productivity and efficiency of alternative DSS modeling Languages.

c. Practical/Professional Skills

On completing the course, students should be able to:

P.1 Develop computer simulation languages such as Arena and visual decision support (VDSS) computer language to alternative decision situations.
P.2 Implement mathematical models using algebraic computer language such as (GAMS).
P.3 Develop the logical design of data-centered DSS based on multidimensional data views, data warehousing and data marts.
P.4 Recognize diversified application of DS technology.

d. General and Transferable Skills

On completing the course, students should be able to:

G.1 Enhance Oral Communication Skills.
G.2 Enhance team Working skills.
G.3 Enhance skills of Description, formulation and analysis of Decision Problems.
G.4 Enhance computer Prgramming 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-	Integrated Decision Support systems, structures and technologies.	2	K1,K2	[ ]	[ ]	[ ]
2-	Decision Support Systems (DSS) - Data Modeling K	2	K3,K4,K5	[ ]	[ ]	[ ]
3-	Decision Support Systems (DSS) - Model Building	3	K1,K2	[ ]	[ ]	[ ]

4-	DSS applications in Management	2		I1,I2	P1,P4	G1
5-	DSS applications in Economics	2		I3,I4	P2,P3	G2,G3
6-	DSS applications in Education.	2		I4,I5	P1,P2	G4
	Net Teaching Weeks	**13**				

VI. Course Weekly Detailed Topics / hours / ILOs

Week No.	Sub-Topics	Total Hours	Contact Hours	
			Theoretical Hours	Practical Hours*
1	Integrated Decision Support systems, structures and technologies.	2.5	2.5	
2	Operations Research: Introduction, Historical background and Philosophy	4	2.5	1.5
3	Bayesian rule	4	2.5	1.5
4	Decision tree	4	2.5	1.5
5	Introduction to Management Science and Modeling	4	2.5	1.5
6	Exponential smoothing	4	2.5	1.5
7	**Midterm Exam**			
8	Introduction to Forecasting Techniques	4	2.5	1.5
9	DSS applications in Management	4	2.5	1.5
10	DSS applications in Management	4	2.5	1.5
11	Delphi	4	2.5	1.5
12	Trend Impact Analysis TIA	4	2.5	1.5
13	DSS applications in Education.	4	2.5	1.5
14	DSS applications in Education.	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,K3			
Tutorials					
Computer lab Sessions	☐	K4,K5		P1,P2,P3	
Practical lab Work					
Reading Materials					
Web-site Searches	☐		I3,I4,I5		G4
Research & Reporting					
Problem Solving / Problem-based Learning					
Projects					
Independent Work					
Group Work	☐		I1		G2
Case Studies	☐		I2		G3
Presentations	☐			P4	G1
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							
Final Exam	☐	K1,K2,K3,K4				60%	15
Quizzes							
Course Work	☐	K5	I5	P1,P2,P3,P4	G4	10%	13
Report Writing							
Case Study Analysis	☐		I1,I2			20%	10
Oral Presentations	☐		I3,I4		G1,G2,G3	10%	12
Practical							
Group Project							
Individual Project							
Others (Specify):							

IX. List of References

Essential Text Books	• Turban, E. and J. E. Aronson, "Decision Support systems and Intelligent Systems", Fifth Edition, Printice Hall, 1998. • Kallarath, J.(ed) "Modeling Languages in Mathematical Optimization", Kluwer Academic Publishers, London, 2004. • " Visual DSS- Reference Manual", Trueblue Systems, Australia, 2004 • A. Mearaus et al " General Algebraic Modeling System - Manual reference" GAMS Corporation.
Course notes	• Hand outs and Published Papers delivered to the students .
Recommended books	• Koutsoukis, N. S. and G. Mitra, "Decision Modeling and Information systems", Kluwer Academic Publishers, London, 2003.
Periodicals, Web sites, etc …	• Decision Support System Journal (www.elsevier.com/locate/dsw) • www.idsc.gov.eg, www.thinktools.com, www.gams.com, www.banxia.com, www.decisivetools.com, www.man.ac.uk/idmp, www.dsseesources.com, www.dssresources.com, www.visualt.com, http://trueblue.com.au

X. Facilities required for teaching and learning

List the facilities required

- Teaching Accommodation
- Data Show Facility
- Computer
- Computer Labs

Course coordinator: Prof. Motaz Khorshid and Prof. Mohamed Mostafa Saleh

Head of Department: Prof. Mohamed Mostafa Saleh

Date: January 2015