



## Course Specification

**Course Name:** Knowledge Based Decision Support Systems

**Course Code:** DS433

### 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):

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: [September 2014]

### II. Overall Aims of Course

[Foundation of management support system technologies for better decision-making. The course focuses on the area of decision support systems, business intelligence, performance dashboards, data warehousing, knowledge, and content management. The aims of this course is to provide students with the basic concepts of knowledge-based systems and an awareness of the problems faced by developers of KBS applications and will be exposed to a wide spectrum of real-life methods, methodologies, and examples.]

### III. Program ILOs covered by course

Program Intended Learning Outcomes (By Code)			
Knowledge & Understanding	Intellectual Skills	Professional Skills	General Skills
[K17,K19,K20]	[I10,I11,I14]	[P14,P15]	[G2,G4,G8]



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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 Appreciate how knowledge can be represented for automated reasoning.
- K.2 Recognize different methods for, and difficulties of, eliciting knowledge from experts.
- K.3 Demonstrate a knowledge of different reasoning techniques. ]

#### b. Intellectual/Cognitive Skills

On completing the course, students should be able to:

- I.1 Appreciate how computer applications can support decision making.
- I.2 Choose the appropriate formalism for representing knowledge.
- I.3 Deploy the representation and reasoning techniques to design a knowledge-based decision support system. ]

#### c. Practical/Professional Skills

On completing the course, students should be able to:

- P.1 Interpret information given in a document and represent the information formally for a programming system.
- P.2 Implement a knowledge-based system using a rule-based system development environment. ]

#### d. General and Transferable Skills

On completing the course, students should be able to:

- G.1 Enhance oral and written communication, presentation skills.
- G.2 Enhance team working skills.
- G.3 Presenting knowledge of various modeling methods in different settings and applications and present them. ]

### 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-	Rule-Based System	2	K1, K2	I1	P2	G1
2-	Decision Support System Architecture	2	K2	I2	P1	G2
3-	Knowledge Representation	1	K2, k3	I3	P1	G3, G2
4-	Knowledge Elicitation	2	K1	I3	P1, P2	G3
5-	Case-Based Reasoning	2	K3	I1, I2	P2	G3
6-	Rule Induction	1	K3	I2	P1, P2	G3, G1
7-	Handling Uncertainty	2		I1	P2	G3
8-	Information Repository	1	K2, K3		P1, P2	G3
	<b>Net Teaching Weeks</b>	<b>13</b>				



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VI. Course Weekly Detailed Topics / hours / ILOs

Week No.	Sub-Topics	Total Hours	Contact Hours	
			Theoretical Hours	Practical Hours*
1	Decision Support Systems (DSS) & Business Intelligence (BI) Overview	[2.5 ]	[2.5 ]	
2	Decision-making Concepts	[4 ]	[2.5 ]	[1.5 ]
3	DSS Architecture	[4 ]	[2.5 ]	[1.5 ]
4	Modelling for Decision-making	[4 ]	[2.5 ]	[1.5 ]
5	Business Performance Management	[4 ]	[2.5 ]	[1.5 ]
6	Emerging Trends in DSS & BI	[4 ]	[2.5 ]	[1.5 ]
7	<b>Midterm Exam</b>			
8	Emerging Trends in DSS & BI	[4 ]	[2.5 ]	[1.5 ]
9	Data Mining for BI	[4 ]	[2.5 ]	[1.5 ]
10	Text & Web Mining	[4 ]	[2.5 ]	[1.5 ]
11	Data Warehousing Process for BI	[4 ]	[2.5 ]	[1.5 ]
12	Collaborative Technologies & Group Support Systems	[4 ]	[2.5 ]	[1.5 ]
13	Handling Uncertainty	[4 ]	[2.5 ]	[1.5 ]
14	Information Repository	[4 ]	[2.5 ]	[1.5 ]
15	<b>Final Exam</b>			
<b>Total Teaching Hours</b>		<b>51</b>	<b>33</b>	<b>18</b>

\* 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	[√ ]	[K3 ]	[I1 ]	[P1,P2 ]	[ ]
Practical lab Work	[ ]	[ ]	[ ]	[ ]	[ ]
Reading Materials	[√ ]	[ ]	[I2,I3 ]	[ ]	[ ]
Web-site Searches	[ ]	[ ]	[ ]	[ ]	[ ]
Research & Reporting	[√ ]	[ ]	[ ]	[P2 ]	[ ]
Problem Solving / Problem-based Learning	[√ ]	[ ]	[ ]	[P1,P2 ]	[ ]
Projects	[√ ]	[ ]	[I3 ]	[P1,P2 ]	[ ]
Independent Work	[√ ]	[ ]	[I3 ]	[P1,p2 ]	[ ]
Group Work	[√ ]	[ ]	[I3 ]	[ ]	[G1,G2 ]
Case Studies	[√ ]	[ ]	[ ]	[ ]	[G3 ]
Presentations	[√ ]	[ ]	[I1 ]	[ ]	[G1 ]
Simulation Analysis	[ ]	[ ]	[ ]	[ ]	[ ]
Others (Specify):	[ ]	[ ]	[ ]	[ ]	[ ]



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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, ]	[ ]	[ ]	[G3 ]	[20% ]	7
Final Exam	[√]	[K1,K2,K3 ]	[ ]	[ ]	[G3 ]	60%	15
Quizzes	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Course Work	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Report Writing	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Case Study Analysis	[√]	[ ]	[I1,I2 ]	[P1,P2 ]	[ ]	[10% ]	[7 ]
Oral Presentations	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Practical	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Group Project	[√]	[ ]	[I3 ]	[ ]	[G1,G2 ]	[10% ]	[12 ]
Individual Project	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
Others (Specify):	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

IX. List of References

<b>Essential Text Books</b>	<ul style="list-style-type: none"> <li>[Decision Support and Business Intelligence Systems, Data Mining: Methods and Techniques ]</li> </ul>
<b>Course notes</b>	<ul style="list-style-type: none"> <li>[PowerPoint Slides ]</li> </ul>
<b>Recommended books</b>	<ul style="list-style-type: none"> <li>[Decision Support and Business Intelligence Systems, Turban, E., Sharda, R. and Delen, D. ]</li> </ul>
<b>Periodicals, Web sites, etc....</b>	<ul style="list-style-type: none"> <li>[Decision Support System Journal (www.elsevier.com/locate/dsw</li> <li>www.idsc.gov.eg, www.thinktools.com, www.gams.com,</li> <li>www.banxia.com, www.decisivetools.com ]</li> </ul>

X. Facilities required for teaching and learning

<ul style="list-style-type: none"> <li>[Teaching Accommodation</li> <li>Data Show Facility</li> <li>Computer</li> <li>Computer Labs ]</li> </ul>
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Course coordinator:[ Prof. Omar Soliman]

Head of Department:[ Prof. Moahmed Mostafa Saleh]

Date: September 2014