University/Academy: Arab Academy for Science and Technology & Maritime Transport
Faculty/Institute: College of Computing and Information Technology
Program: Information Systems / computer Science / Software Engineering

Form No. (12)
Course Specification

1- Course Data

Course Code:	Course Title:	Academic Year/Level:
IS461	Decision Support System	Year 4 / Semester 8
Specialization: Information Systems	**No. of Instructional Units:** 2 hrs lecture 2 hrs lab	**Lecture:**

2- Course Aim	This course is focused around delivering the appropriate understanding and utilization of Decision Support Systems (DSS), and how they are used to support managerial decision-making. It covers a broad range of topics including: management support systems, DSS, business intelligence as well as intelligent systems. The course will concentrate on the concepts of both conventional DSS and intelligent systems and explore in-depth how those systems are used in various business occasions**.**
3- Intended Learning Outcome:	
a- Knowledge and Understanding	**K13.** Information systems, data and information management, enterprise architecture, IS project management, IT infrastructure, systems analysis and design, and IS strategies. **K18.** Specification, analysis, design, implementation and testing of IS solutions. 1. Explain how business decisions are made, the various types of decision support systems and the interrelationship between these. (K13) 2. Describe examples of business decisions that are made with varying degrees of uncertainty and discuss how information technology can be used to assist managerial decision making. (K13) 3. Define strategic, operational, and tactical decisions, indicating who makes the decisions and how they are typically implemented. (K13) 4. Identify the importance of Web technologies in the implementation of decision support systems.(K13) 5. Define the conceptual foundations for decision making. (K13)

	6. Clarify the principles of choice in decision-making are also emphasized. (K13) 7. Describe how Simon's four-phase decision-making process can be used in the development of decision models.(K13) 8. Describing the decision-making process by walking through a simple decision and one that is more complex (e.g., purchases of a PC, forecasting the weather and so on). (K13) 9. Describe appropriate models for each example.(K13) 10. Explain of the concept of a Decision Support System.(K13) 11. Explain on a problem that is common in nature (e.g., forecast the weather, determine who will be elected in the next election and so on. (K18) 12. Identify how does this meet the criteria for a decision support system?(K18) 13. Define the concepts of modeling and to begin to understand how models can be used to simulate real world problems. (K18) 14. Explaining useful graphical tools to represent decision problems such as decision tables and decision trees (K18) 15. Explaining linear programming (LP) is probably one of the most widely utilized quantitative techniques for modeling and solving decision analysis problems. (K18) 16. Explain the concepts of business intelligence and data management. (K18) 17. Explain data warehousing, data mining and business intelligence concepts. (K18) 18. Define artificial intelligence concepts(K18) 19. Define Knowledge representation as a fundamental concept to enable the development of knowledge management system, expert systems, and neural networks. (K18) 20. If the student has no background in OOD, consider first Explaining an overview of OOD. (K18) 21. Explain the use of genetic algorithms and neural networks is much more prevalent than in years past; (K18) 22. Clarify their role in business organizations and how they support organizational objectives.(K18)
b- Intellectual Skills	I13. Restrict solution methodologies upon their results. I15. Identify a range of solutions and critically evaluate and justify proposed design solutions. I17. Suggest an innovative design to solve a problem containing a range of commercial and industrial constraints. 1. Assess and analyze different Decision situations. (I13,I15) 2. Demonstrate ideas concerning the most appropriate development and application moods of DSS (I17) 3. Investigate appropriate DSS tools, methods and computer software systems for Specific decision situations. (I13,I15) 4. Analyze DSS tools and methods to alternative decision problems(I13,I15)

c- Professional Skills	P12. Plan and manage an information systems project from inception to final implementation and cut-over P13. Produce acceptable technical reports and user system documentation P18. Analyze and document the feasibility of various options and comparing solution options using multiple decision criteria 1. Evaluate the Effectiveness and efficiency of different Decision situations (P18) 2. Analyze typical activities in each phase of the decision making process applied on a real case problem (P13) 3. Devise a list of possible strategic, tactical, and operational models for real case business or organization (P13,P18) 4. Apply decision tables and decision trees on practical real life problems (P18) 5. Solve Practical applications of LP are quite widespread and include production scheduling, staff scheduling, resource allocation, portfolio selection, etc.(P12,P18) 6. Solving profit maximization or cost minimization problems(P12,P18) 7. Apply intelligence tools to demonstrate how an end user can analyze vast amounts of data with limited knowledge of the structure of a database. (P18) 8. Practicing the use of WEKA as a data mining tool (P18) 9. Evaluate how each AI technique is employed to create problem-solving systems (P18) 10. Demonstrate intelligent systems (P12,P18)
d- General Skills	G1. Demonstrate the ability to make use of a range of learning resources andto manage one's own learning. G6. Reveal communication skills, public speaking and presentation skills,and delegation, writing skills, oral delivery, and effectively using variousmedia for a variety of audiences 1. Enhance Oral Communication Skills. 2. Enhance Team Working skills 3. Enhance Skills of Description, formulation and analysis of Decision Problems 4. Enhance Computer Tools skills
4- Course Content	

#	CLO
1	Understand the concepts of decision support systems structure and the principles of their design.
2	Analyze typical decision situations to determine whether it is practical to support them with computer technology and, if so, how.
3	Design and implement a decision support system.
4	Understand emerging technologies and issues in the context of decision support systems as well as the

	management of information technology. 5 Understand decision support, expert, and group decision support system use, development, and evolution
5- Teaching and Learning Methods	Lectures, Labs, Projects, Individual study & self-learning.
6- Teaching and Learning Methods for Students with Special Needs	• Students with special needs are requested to contact the college representative for special needs (currently Dr Hoda Mamdouh in room C504) • Consulting with lecturer during office hours. • Consulting with teaching assistant during office hours. • Private Sessions for redelivering the lecture contents. For handicapped accessibility, please refer to program specification
7- Student Assessment:	
a- Procedures used:	Exams and Individual Projects
b- Schedule:	7th week exam 30% Project 9th week 20% Project 12th week 10 % Final exam 40%
c- Weighing of Assessment:	**Week 7 Grades – 30%** **Project 9th week -Grades – 20%** **Project 12th week-Grades-10%** **Week 16 - Final Exam – 40%**
8- List of References:	
a- Course Notes	From the Moodle on www.aast.edu
b- Required Books (Textbooks)	Decision Support Systems & Intelligence Systems**,** TURBAN, EFRAIM, PEARSON 8ED. 2007
c- Recommended Books	VasantDhar and Roger Stein, *Seven Methods for Transforming Corporate Data into Business Intelligence*,
d- Periodicals, Web Sites, …, etc.	

Course Instructor: **Head of Department:**

Sign **Sign**