



Course Specification

(Bachelor)

Course Title: **Decision Support Systems**

Course Code: **IS1358**

Program: **Bachelor of Information Systems**

Department: **Information systems**

College: **College of Computer and Information Sciences**

Institution: **Imam Mohammad Ibn Saud Islamic University**

Version: **2**

Last Revision Date: **18-7-25**

Approved: 24/08/2025

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A. General information about the course:

1. Course Identification

1. Credit hours: 3 credit hours (lectures:3)

2. Course type

A. ☐ University ☐ College ☒ Department ☐ Track ☐ Others
B. ☐ Required ☒ Elective

3. Level/year at which this course is offered: Level 7/Second Year

4. Course general Description:

This course has been designed to integrate theoretical concepts of decision support system with their practical applications found in operation research so as to teach both the theory and the practice of Information systems management and decision making. The emphasis on practice is important because in many areas of information systems theory lags practice. In fact, it is the objective of this course not only to understand the current practices but also to contribute to them. For this reason some optimization methods have been included to solve real known problems in life. The students will learn how to model problems and determine the right techniques to solve them; and be able to make the right decision.

5. Pre-requirements for this course (if any):

STAT1011 – Introduction to Probability and Statistics

6. Co-requisites for this course (if any):

No Co-requisites

7. Course Main Objective(s):

Upon completion of this course, students will be able to identify decision support models, methods, architecture, and technologies. They will also apply the concepts of decision making and modeling to model real problems. Some tools of operation research will be used to solve problems. Students will be asked to design and develop decision support systems for specific applications.

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	3 hours/week	100%
2	E-learning		
3	Hybrid - Traditional classroom - E-learning		
4	Distance learning		

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	45
2.	Laboratory/Studio	
3.	Field	
4.	Tutorial	
5.	Others (specify)	
Total		45

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding			
1.1	Define the concepts of decision making as a problem solving approach	K2(I)	Class Lectures	Quiz, Midterm, Final
1.2	Outline decision support models, methods, and technologies	K3(P)	Class Lectures	Midterm, Final
2.0	Skills			
2.1	Design and model systems for supporting specific business decisions	S2(P)	Class Lectures	Quiz, Final, Assignment



Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
2.2	Develop a system to support business decision in a specific field	S4(P)	Class Lectures	Final, Project
3.0	Values, autonomy, and responsibility			
3.1	Work collaboratively and ethically to deliver effective decision support solutions	V1 (P)	Group Work, Presentations	Project
3.2	Demonstrate awareness of ethical, legal, and social issues in the design and use of DSS tools	V2 (I)	Case Studies, Discussions	Project

C. Course Contents

No	List of Topics	Contact Hours
1.	Overview of BI, Analytics, and Decision Support (Chapter 1)	3
2.	Nature of Data, Statistical Modelling and Visualization (Chapter 3)	6
3.	Data Preprocessing Tasks and Methods and Examples	6
4.	Predictive Analytics: Data Mining Process, Methods, and Algorithms (Chapter 4)	6
5.	Text Mining, Sentiment Analysis, and Social Analytics (Chapter 7)	6
6.	Web mining and Web analytics	3
7.	Prescriptive Analytics: Optimization and Simulation (Chapter 8)	6
8.	Big Data, Cloud Computing, and Location Analytics	3
9.	Project Presentations and Discussions	6
Total		45





D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Quiz	4,11	10%
2.	Midterm Exam	8	20%
3.	Assignment	7	10%
4	Group Project	15	20%
5	Final Exam	16	40%

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.).

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	Analytics, Data Science and AI: Systems for Decision Support, (11th Edition), Dursun Delen, Efraim Turban, and Ramesh Sharda, Pearson Publications .
Supportive References	<i>Operations Research: An Introduction, 10th edition, by Hamdy A. Taha, published by Prentice-Hall, 2017, ISBN:978-8120330436.</i>
Electronic Materials	N/A
Other Learning Materials	N/A

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Classroom
Technology equipment (projector, smart board, software)	A projector connected to a PC preferably with Internet connection
Other equipment (depending on the nature of the specialty)	N/A





F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students	Indirect using course evaluation survey (Confidential and anonymous completion of standard course evaluation questionnaire available and required by all students prior to disclosure of their course grade.)
Effectiveness of Students assessment	Faculty members	Direct method using TOS file
Quality of learning resources	Students and Faculty	Indirect using course evaluation survey and faculty survey
The extent to which CLOs have been achieved	Faculty members	Direct method using TOS file
Other		

Assessors (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	IS CURRICULUM APPROVAL & DEVELOPMENT COMMITTEE IS QAC / / IS COUNCIL
REFERENCE NO.	
DATE	

