



Course Specification

(Bachelor)

Course Title: **Data Mining**

Course Code: **IS1356**

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: **11 JULY 2025**

Approved: 24/08/2025

Table of Contents

A. General information about the course:	3
B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods	4
C. Course Content	5
D. Students Assessment Activities	6
E. Learning Resources and Facilities	6
F. Assessment of Course Quality	7
G. Specification Approval	7



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 8/Fourth Year

4. Course general Description:

This course is about gaining an understanding of data mining problems and their solutions. This course will not only provide the students with a comprehension of the benefits of data mining but also provide them with an understanding of the types of problems related to the discipline and their solutions. It will also impart to them skills for pre-processing of data and post-processing of results.

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

IS1241- Principles of Project Management

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

No Co-requisites

7. Course Main Objective(s):

The aim of the course is to introduce students to the knowledge of the importance, and benefits of data mining and its application. They will also gain a good understanding of the different data mining algorithms and the commonly used tools and techniques.

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		





No	Mode of Instruction	Contact Hours	Percentage
4	Distance learning		

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	45
2.	Laboratory/Studio	0
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	Recognize data mining importance, problems, and their solutions.	K1(I)	Class Lectures	Exams, Assignments
1.2	Outline data mining algorithms and its application	K3(P)	Class Lectures, Case Studies	Exams
2.0	Skills			
2.1	Develop and evaluate models using commonly used data mining tools and techniques	S2(P)	Lectures with Lab Sessions, Tool-based Demos	Exams, Assignments, Project, Presentation
2.2	Prepare data after pre-processing before application of data mining algorithms.	S4(P)	Lab-based Tutorials, Practical Exercises	Project, Presentation





Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
2.3	Evaluate and interpret classifier performance using relevant metrics	S4(P)	Lab-based Tutorials, Practical Exercises	<i>Project, Presentation</i>
3.0	Values, autonomy, and responsibility			
3.1	Demonstrate ethical responsibility, teamwork, and communication while working on data mining projects	V1(I)	Group Projects, Presentations, Peer Review	Project Presentation, Peer Evaluation, Reflective Reports
3.2	Identify and address data privacy and ethical issues associated with data mining processes	V2 (P)	Case-Based Learning, Class Discussions, Real-world Scenarios	Scenario-based Quiz

C. Course Content

No	List of Topics	Contact Hours
1.	Topic 01- Introduction to Data Mining	3
2.	Topic 02 - Data Pre-processing	3
3.	Topic 03 - Classification - Nearest Neighbor	3
4.	Topic 04 - Classification - Naive Bayesian	3
5.	Topic 04 - Classification - Naive Bayesian Examples	3
6.	Topic 05 - Classification - Decision Trees	3
7.	Topic 05 - Classification - Decision Tree Examples	3
8.	Topic 06 - Classifier Performance	3
9.	Topic 06 - Classifier Performance Examples	3
10.	Topic 07 –Data Mining Tools: Weka	3
11.	Topic 08 - ARM - Apriori Algorithm	3
12.	Topic 09 -Clustering – k-Means Algorithm	3
13.	Topic 10 - Clustering – Hierarchical Examples (Self Study)	3
14.	Topic 11 – Real world case studies:Using data mining for Customer Segmentation of E-commerce	3
15.	Project Discussions	3
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	<i>M. Bramer, Principles of Data Mining, 3rd edition, Springer Verlag, 2016- ISBN: 978-1-4471-7307-6</i>
Supportive References	- <i>H. Witten, F. Eibe, and M. A. Hall, Data Mining: Practical Machine Learning Tools and Techniques, 3rd ed. Morgan Kaufman, 2011, ISBN: 978-0123748560</i> - <i>J. Han, M. Kamber and J. Pei, Data Mining: Concepts and Techniques, 3rd ed. Morgan Kaufman, Elsevier, 2012, ISBN: 978-0123814791</i> - Pang-Ning Tan, Michael Steinbach, Vipin Kumar. Introduction to Data Mining, 1st ed. Pearson, 2005, ISBN: 978-0321321367
Electronic Materials	- http://archive.ics.uci.edu/ml/ - Imam University BlackBoard
Other Learning Materials	- Weka - Microsoft Excel

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Classroom
Technology equipment (projector, smart board, software)	





Items	Resources
	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
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	

