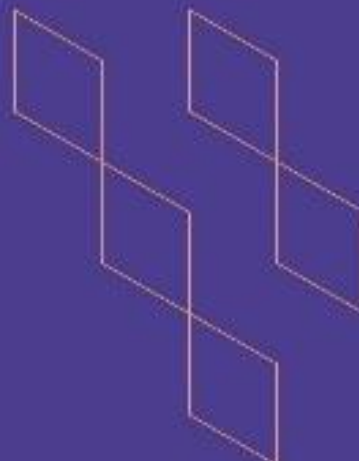




T-104
2022

Course Specification



Course Title: **Introduction to Data Mining**

Course Code: **IS1762**

Program: **Computer Information Systems**

Department: **Computer Information Systems**

College: **College of Computer Science & Information Technology**

Institution: **Al-Baha University**

Version: **T104-V2**

Last Revision Date: **25/5/2023**



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A. General information about the course:

Course Identification

1. **Credit hours:** 3 Credit Hours (3, 0, 0) (Lecture, Lab, Tutorial)
(3 Contact Hours)

2. Course type

a. University College Department Track Others

b. Required Elective

3. **Level/year at which this course is offered:**

Elective course (11th Level/4th Year)

4. Course general Description

In this course, which focuses on pattern discovery, you will learn why pattern discovery is important, what the major tricks are for efficient pattern mining, and how to apply pattern discovery in some interesting applications. We are also focusing on cluster analysis; you will learn concepts and methodologies for cluster analysis, which is also known as clustering, data segmentation, or unsupervised learning. We will introduce the basic concepts of cluster analysis and then study a set of typical clustering methodologies, algorithms and applications. This includes partitioning methods, such as k-means, hierarchical methods, such as BIRCH, density-based methods, such as DBSCAN (clustering, classification, association rules and prediction).

5. **Pre-requirements for this course (if any):** IS1004- Database 1

6. **Co- requirements for this course (if any):** None

7. Course Main Objective(s)

The main objectives of this course are to describe Pattern Discovery Overview, Memorize Pattern Evaluation; Mining Diverse Frequent Patterns, Describe Sequential Pattern Mining; Pattern Mining

1. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1.	Traditional classroom	30	100%
2.	E-learning		
3.	Hybrid <ul style="list-style-type: none"> Traditional classroom E-learning 		
4.	Distance learning		

2. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	30
2.	Laboratory/Studio	
3.	Field	
4.	Tutorial	
5.	Others (specify)	
Total		30





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	Understand Pattern Discovery	K1	Lectures Class discussion	Direct Assessment Tool • Midterm Exam • Final Exam Indirect Assessment Tool Course Exit Survey
1.2	Memorize Pattern Evaluation; Mining Diverse Frequent Patterns	K2		
1.3	Describe data mining algorithms	K2		
2.0	Skills			
2.1	Define Pattern Discovery Basic Concepts	S1	Lectures Assignments	Homework Midterm Quizzes Final exam
2.2	Critically evaluate and compare data mining algorithms	S1		
2.3	Use data mining tools	S3		
3.0	Values, autonomy, and responsibility			
3.1	Show a leadership and willingness to cooperate fully with others in joint projects	V1	-Small Groups assignment	-Homework

C. Course Content

No	List of Topics	Contact Hours
1	An Introduction to the Data Mining. A Multi-Dimensional View of Data Mining, What Kind of Data, Pattern Can Be Mined. Major Issues in Data Mining	5
2	Getting to Know your Data. Data Objects and Attribute Types. Basic Statistical Descriptions of Data. Data Visualization. Measuring Data Similarity and Dissimilarity	5
3	Data Preprocessing: An Overview. Data Quality. Major Tasks in Data Preprocessing Data Cleaning. Data Integration. Data Reduction. Data Transformation and Data Discretization	5
4	Clustering	3
5	Association rules	3
6	Classification	3
7	Prediction	3
8	Advanced techniques, Data Mining software and applications	3
Total		30





D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1	Homework exercises and/or programming assignments	5-7	10%
3	Midterm	6	15%
4	Quiz	9	15%
5	Final Exam	12	60%

*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	<ol style="list-style-type: none"> Han, J., Kamber, M., & Pei, J. (2022). Data mining: Concepts and techniques (4th ed.). Waltham: Morgan Kaufmann. Pang-Ning Tan, Michael Steinbach, Anuj Karpatne, Vipin Kumar, Introduction to Data Mining (Second Edition). Paperback – International Edition, 2005.
Supportive References	
Electronic Materials	<ul style="list-style-type: none"> Access to the Saudi Digital Library (SDL). Using the learning management system of the university – Rafid System (https://lms.bu.edu.sa/).
Other Learning Materials	

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	A class room or lecture hall with white board for 25 students
Technology equipment (projector, smart board, software)	A digital image projection system with connection to desktop computer and laptop computer. High speed Internet connection. An instructor computer station.
Other equipment (depending on the nature of the specialty)	Internet Facility





F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	<ul style="list-style-type: none"> • Students • Faculty • Peer Reviewers • Program Leader • Course Coordinator 	<ul style="list-style-type: none"> • Surveys(indirect). • Direct feedback from students. • Course evaluation by Peer Reviewers(indirect). • Class visit by Program Leader(indirect) • Comprehensive Course report(where we can find information about teaching difficulties and action plan, ...)
Effectiveness of students assessment	<ul style="list-style-type: none"> • Students • Faculty • Peer Reviewers • Program Leader • Exam Evaluation Committee • Course Coordinator 	<ul style="list-style-type: none"> • Surveys(indirect). • Direct feedback from students. • Course evaluation by Peer Reviewers(indirect). • Class visit by Program Leader(indirect) • Exam evaluation by the Exam Evaluation Committee (indirect)
Quality of learning resources	<ul style="list-style-type: none"> • Faculty • Program Leader • Course Coordinator 	<ul style="list-style-type: none"> • Student Results(direct) • Comprehensive Course report(where we can find the CLO assessment results)
The extent to which CLOs have been achieved	<ul style="list-style-type: none"> • Students • Faculty • Peer Reviewers • Course Coordinator 	<ul style="list-style-type: none"> • Surveys(indirect) • Course evaluation by Peer Reviewers(indirect). • Comprehensive Course report(wherewecanfindinformationaboutdifficultiesandchallengesaboutlearningresourcesaswellasConsequences and action plan,...)
Other		

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

Assessment Methods(Direct, Indirect)

G. Specification Approval Data

COUNCIL /COMMITTEE	Curriculum Committee Meeting
REFERENCE NO.	
DATE	

