اعتماد
NCAAA

T4

2020

Course Specifications

Course Title:	Data Mining
Course Code:	**502571-3**
Program:	**Bachelor in Computer Science**
Department:	**Department of Information Technology**
College:	**College of Computers and Information Technology**
Institution:	**Taif University**

Table of Contents

A. Course Identification

1. Credit hours:3

2. Course type

a.	University ☐	College ☐	Department √		Others ☐
b.		Required ☐	Elective √		

3. Level/year at which this course is offered: 13/5

4. Pre-requisites for this course (if any): 502478-3

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

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	8	100%
2	Blended		
3	E-learning		
4	Distance learning		
5	Other		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	Lecture	50
2	Laboratory/Studio	30
3	Tutorial	
4	Others (specify)	
	Total	80

B. Course Objectives and Learning Outcomes

1. Course Description

This Introduces fundamental concepts and techniques in data mining. Students will develop an understanding of the data mining process and apply various techniques to solve data mining problems using data mining tools. Topics include data pre-processing, supervised and unsupervised learning approaches to classification problems, association rule mining, anomaly detection and performance measurements.

2. Course Main Objective

The main objective of this course is to learn Data mining which is an important process to discover knowledge about the customer behavior towards the business offerings as well as it is related to data warehouse which data is pooled from multiple sources. And to develop the ability to solve classification problems using supervised, unsupervised and association rule mining techniques. And to learn how to make the data cleaned and transformed and it's an early and required stage of data mining.

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge and Understanding**	
1.1	Describe the key concepts of data mining process and techniques.	K1
1.2		
1...		
2	**Skills :**	
2.1	Apply supervised learning approaches to classification problems.	S2
2.2	Apply unsupervised learning approaches to classification problems.	S2
2.3	Apply association rule mining techniques to data mining problems.	S2
2.4	Analyze the performance of various data mining techniques.	S2
3	**Values:**	
3.1		
3.2		
3.3		
3...		

C. Course Content

No	List of Topics	Contact Hours
1	Introduction to Data Mining	5
2	Data Pre-Processing	12
3	Decision Trees	12
4	Naive Bayes	12
5	k-nearest Neighbors	15
6	Association Rule Mining	12
7	Clustering and Anomaly Detection	12
	Total	**80**

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge and Understanding**		
1.1	Understand the key concepts of data mining process and techniques.	Lecture Discussion Lab work	Written Exams Assignments Practical Exam
1.2			
2.0	**Skills**		
2.1	Apply supervised learning approaches to classification problems.	Lecture Discussion Lab work	Written Exams Assignments Practical Exam
2.2	Apply unsupervised learning approaches to classification problems.	Lecture Discussion Lab work	Written Exams Assignments Practical Exam

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
2.3	Apply association rule mining techniques to data mining problems.	Lecture Discussion Lab work	Written Exams Assignments Practical Exam
2.4	Analyze the performance of various data mining techniques.	Lecture Discussion Work group	Writing Exam Assignments Reports Oral Presentations
3.0	**Values**		
3.1			

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Assignments	3	5%
2	Mid Exam	6	20%
3	Minor project	10	10%
4	Quiz	4-8	5%
5	Labs	11	20%
6	Final Exam	12	40%

*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice:

Academic advising and counseling of students is an important component of teaching; student academic advising is a mandatory requirement of College of Computers and Information Technology (CCIT). Appropriate student advising provides support needed for the student during times of difficulty. In addition, it helps the student to build a close relationship with his/her advisor and to provide student motivation and involvement with the institution.

In addition, since faculty are usually the first to recognize that a student is having difficulty, faculty members play a key role in developing solutions for the students or referring them to appropriate services. Faculty members also participate in the formal student-mentoring program.

Additional counseling is provided by course directors, who provide students with academic reinforcement and assistance and refer "at risk" students to the Vice Dean for Academic Affairs and the Vice Dean for female section.

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	Principles of Data Mining, Bramer, M.R, Springer-Verlag, USA, Latest Edition
Essential References Materials	Introduction to Data Mining, Pearson, Latest Edition
Electronic Materials	Presentations and recorded lectures
Other Learning Materials	NON

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	• A Lecture room appropriate for maximum 25 students with a personal computer, a data show and a smart board. • A Lab room appropriate for maximum 15 students with a personal computer, a data show and a smart board.
Technology Resources (AV, data show, Smart Board, software, etc.)	Lab materials and required software…Weak and R Studio
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of Teaching	Students	Students' surveys and Students course evaluation
Improvement of Teaching	Course Coordinator	deficiencies based on the student Evaluation, faculty input, course file, and program assessment
Verifying Standards of Student Achievement	Curriculum Committee	• Review CAF (Course assessment file) • Alumni surveys. • Periodic exchange and remarking of tests or a sample of assignments with staff at another

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	CS council
Reference No.	Meeting #12
Date	23-10-1443