KINGDOM OF SAUDI ARABIA
IMAM MOHAMMAD IBN SAUD ISLAMIC UNIVERSITY
COLLEGE OF COMPUTER AND INFORMATION SCIENCES
INFORMATION SYSTEMS DEPARTMENT
BACHELOR IN INFORMATION SYSTEMS

المملكة العربية السعودية
جامعة الإمام محمد بن سعود الإسلامية
كلية علوم الحاسب والمعلومات
قسم نظم المعلومات
بكالوريوس نظم المعلومات

SYLLABUS

IS 440: Data Mining

PREREQUISITE	*IS 336*	CREDIT HOURS	3 (2+2)

Instructor: Prof. Abdul Rauf Baig

Contact information and office hours

Office No: 2086

Office Hours: Tuesday, Wednesday from 9:10 to 10:00 a.m.

E-mail: abbaig@imamu.edu.sa

COURSE DESCRIPTION

This course provides an introduction to the concepts of data mining as an integral part of information systems. It explores how data can be harnessed to solve business problems effectively. Starting from the acquisition and cleaning of operational data and going on to applying data mining tools and analytics to gain new insights into organizational operations. Detailed discussion of the analysis, design and implementation of algorithms and choice of the right algorithm for a given business problem is a fundamental part of the course.

	COURSE LEARNING OUTCOMES (CLOs)	Aligned SOs
1	**Knowledge and Understanding**	
1.1	*Recognize data mining importance, problems, and their solutions.*	*1(I)*
1.2	*Outline data mining algorithms and its application*	*1(I)*
2		
2.1	*Create models using commonly used tools and techniques of data mining*	*2(I)*
2.2	*Prepare data after pre-processing before application of data mining algorithms*	*2(I)*
2.3	*Analyze the results obtained from the data mining algorithms.*	*2(I)*
3		

3.1	*Function effectively on teams to accomplish a common goal.*	*5(I)*
3.2	*Present a topic in a compelling manner.*	*3(I)*

TEACHING Strategies
Lectures Self-learning

No	**List of Topics**	**Contact Hours**
1	*Introduction to Data Mining*	*3*
2	*Data Pre-processing*	*3*
3	*Classification - Nearest Neighbor*	*3*
4	*Classification - Naive Bayesian*	*3*
5	*Classification - Naive Bayesian Examples*	*0*
6	*Classification - Decision Trees*	*3*
7	*Classification - Decision Tree Examples*	*4+2*
8	*Classifier Performance*	*3*
9	*Classifier Performance Examples*	*2+2*
10	*Data Mining Tools: Weka*	*12*
11	*ARM - Apriori Algorithm*	*3*
12	*ARM - Apriori Algorithm Examples*	*1+2*
13	*Clustering – k-Means Algorithm*	*3*
14	*Clustering – Hierarchical Examples*	*2+2*
15	*Project Discussions*	*3*
Total		*48+8(SL)*

TEXT BOOK
M. Bramer, Principles of Data Mining,3rd edition, Springer Verlag, 2016 *ISBN: 978-1-4471-7307-6*

REFERENCES
- *H. Witten, F. Eibe, and M. A. Hall, Data Mining: Practical Machine Learning Tools and Techniques, 3rd ed. Morgan Kaufman, 2011, ISBN: 978-0123748560* - *J. Han, M. Kamber and J. Pei, Data Mining: Concepts and Techniques, 3rd ed. Morgan Kaufman, Elsevier, 2012, ISBN: 978-0123814791* - *Pang-Ning Tan, Michael Steinbach, Vipin Kumar. Introduction to Data Mining, 1st ed. Pearson, 2005, ISBN: 978-0321321367*

Course Assessment Methods			
No	**Assessment Method**	**Due Week**	**%Total Assessment**

1	**Quiz**	4	10
2	**Assignment**	6	10
3	**Midterm**	9	20
4	**Project / Lab Exam**	12	20
5	**Final Exam**	13	40