University/Academy: Arab Academy for Science and Technology & Maritime Transport
Faculty/Institute: College of Computing and Information Technology
Program: Information Systems

Form No. (12)
Course Specification

1- Course Data

Course Code: IS465	Course Title: Data Mining	Academic Year/Level: 4 / 8
Specialization: Information Systems	No. of Instructional Units: 2 hrs lecture 2hrs lab	Lecture:

2- Course Aim	This course allows the introduction of material relating to current data warehousing and data mining topics, and current advances in data warehousing and data mining technology. This course aims to provide a foundation for design and construction of a high performance data warehouse and for understanding fundamentals and methods of data mining.

3- Intended Learning Outcome:

a- Knowledge and Understanding	**Students will be able to demonstrate knowledge of:** K14. The principles and techniques of database management systems, management, data mining, geographical information systems, multimedia, application development, business process management, enterprise systems, human-computer interaction, object-oriented analysis and design, e-technologies, multimedia, image processing, information and infrastructures security and computer graphics techniques.
b- Intellectual Skills	**By the end of the course, the student acquires high skills and an ability to understand:** I11. Perform comparisons between (methods, techniques...etc). I16. Solve IS problems with pressing commercial, time, and industrial constraints.

c- Professional Skills	**By the end of the course the student will have the ability to:** P10. Use quantitative analysis techniques appropriately and effectively. P14. Perform information acquisition and management, using the scientific literature and Web sources.

d- General Skills	Students will be able to:
	G1. Demonstrate the ability to make use of a range of learning resources and to manage one's own learning.
	G3. Show the use of information-retrieval.
	G7. Show the use of general computing facilities.
	G8. Demonstrate an appreciation of the need to continue professional development in recognition of the requirement for life-long learning.

4- Course Content		

#	CLO
1	Techniques for design and construction of a high performance data warehouse
2	Software, hardware and design factors influencing performance characteristics of the data warehouse.
3	Use of parallelism as a means of delivering performance in a large-scale data warehouse will be covered in depth.
4	Features and functions in RDBMS implementations that are appropriate in a data warehouse environment
5	Techniques, tools and applications of data mining (DM).
6	The relationship between DM and other fields such as artificial intelligence, knowledge discovery for databases (KDD), data warehousing, and online analytical processing (OLAP).
7	Commercial DM tools.
8	Writing survey papers about a narrow topic.
9	Implementing software applications.

5- Teaching and Learning Methods	Lectures, Projects, Individual study & self-learning.

6- Teaching and Learning Methods for Students with Special Needs	• Students with special needs are requested to contact the college representative for special needs (currently Dr Hoda Mamdouh in room C504)
	• Consulting with lecturer during office hours.
	• Consulting with teaching assistant during office hours.
	• Private Sessions for redelivering the lecture contents.
	For handicapped accessibility, please refer to program specification.

7- Student Assessment:

a- Procedures used:	Exams and Individual Projects

b- Schedule:	7th week exam 30%
	quizzes 20%
	presentation 10%
	Final exam 40%

c-	Weighing of Assessment:	7th week exam 30% quizzes 20% presentation 10% Final exam 40%

8- List of References:

a-	Course Notes	
b-	Required Books (Textbooks)	**R. Kimball et al., The Data Warehouse Lifecycle Toolkit: Practical Techniques for Building Data Warehousing and Business Intelligence Systems, Second Edition, Wiley, 2008.** **Jiawei Han, Micheline Kamber, "Data Mining: Concepts and Techniques", Second Edition, Morgan Kaufmann Series in Data Management Systems, 2006.**
c-	Recommended Books	**Thomas Connolly, C. Begg, Database Systems, Third Edition, Addison Wesley, 2002.** **William H. Inmon, Derek Strauss, and Genia Neushloss, DW 2.0: The Architecture for the Next Generation of Data Warehousing, Morgan Kaufman Series in Data Management Systems, 2008.** **Ramakrishnan, Gehrke, Database Management Systems, Third Edition, Mcgraw-Hill, 2003.** **Joseph Fong, Information Systems Reengineering and Integration, Second Edition, Springer Verlag, 2006.** **Decision Support and Data Warehouse Systems, E. G. Mallach, McGraw-Hill, 2000.** **Margaret Dunham, "Data Mining: Introductory and Advanced Topics", Prentice Hall, 2003.**
d-	Periodicals, Web Sites, ..., etc.	– .

Course Instructor: **Head of Department:**

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