Arab Academy for Science and Technology & Maritime Transport
College of Computing and Information Technology

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

Course title	Digital Libraries
Course code	IS479

Form no. (11A)
Knowledge and skills matrix for a course

Course content	Week study	Knowledge	Intellectual skills	Professional skills	General skills
Introduction to Digital Libraries	1	• Explain the history of libraries • Define Digital library	• Demonstrate that the study of digital library is multidisciplinary • Show different digital library examples • Compare digital and traditional libraries • Compare digital library and World Wide Web	• Search for digital library examples.	G1. Demonstrate the ability to make use of a range of learning resources and to manage one's own learning. G7.Show the use of general computing facilities
Introduction to Metadata	2	• Define Metadata • Identify the Digital Library metadata issues • Identify the metadata formats • Explain the functions of metadata	• Compare between the types of metadata	• Use Dublin Core metadata format • Use MARC21 metadata format	G1. Demonstrate the ability to make use of a range of learning resources and to manage one's own learning. G7.Show the use of general computing

Course content	Week study	Knowledge	Intellectual skills	Professional skills	General skills
		• Explain Dublin Core format • Identify Dublin Core metadata element set			facilities
Introduction to Metadata	3	• Explain the characteristics of Dublin Core • Identify Dublin Core principles • Explain MARC21 format	• Compare between Dublin Core and MARC 21	• Convert MARC 21 to MARC XML	G1. Demonstrate the ability to make use of a range of learning resources and to manage one's own learning. G7.Show the use of general computing facilities
Digital library Objects	4	• Define Digital library objects • Define Digital repository • Define handles • Define Repository Access Protocol • Define URLs and URNs • Explain web repository characteristics	• Compare between URLs and URNs	• Write a report that compares several digital library to each other.	G1. Demonstrate the ability to make use of a range of learning resources and to manage one's own learning. G7.Show the use of general computing facilities
Intellectual Property	5	• Identify white and grey literature • Define Intellectual Property • Explain forms of IP protection • Explain copyright	• Demonstrate the Digital library challenges	• Write a report on top patents	G1. Demonstrate the ability to make use of a range of learning resources and to manage one's own learning. G7.Show the use of general computing facilities

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		• Define Patents • Identify IP and security in Digital library setting • Explain the methods of protections • Define cryptography • Identify the ways for securing the session • Identify the case against IP • Explain how to build a Digital library			
Digital Data	6	• Define digital data • Explain the storage of text • Explain text compression • Explain Huffman coding • Explain Ziv-Lempel compression • Define vector images • Define raster images • Explain the image five big factors • Define Tag Image File Format • Explain file formats • Explain image technical metadata	• Compare the pros and cons of different compression algorithms • Compare between vector and raster images • Compare wavelet and JPEG compression • Compare GIF 89a and JPEG images • Compare between wire recording , acetate tapes and polyester tapes • Compare between audio formats	• Use Huffman coding • Construct Huffman tree • Use Ziv-Lempel for compression	G1. Demonstrate the ability to make use of a range of learning resources and to manage one's own learning. G7.Show the use of general computing facilities

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		• Explain why digitize audio? • Explain the digital audio basics			
7th week Exam	7				
GIS and maps	8	• Define GIS • Explain remote sensing • Explain GIS basics • Explain cartography • Define FGDC	• Compare spatial and geographic		G1. Demonstrate the ability to make use of a range of learning resources and to manage one's own learning. G7.Show the use of general computing facilities
Information Retrieval	9	• Define information retrieval and its motivation • Explain simple IR model. • State the IR problems • Explain the index storage • Explain stemming and stop words • Explain Boolean and vector search techniques • Explain precision and recall	• Compare different IR models	• Use flat files • Use inverted files • Use signature files • Construct PAT trees • Use precision and recall to measure the performance of the system	G1. Demonstrate the ability to make use of a range of learning resources and to manage one's own learning. G7.Show the use of general computing facilities

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Distributed searching	10	• Explain web search • Define web crawlers • Explain search strategies • Explain multi-threaded spidering • Define meta searching • Explain source-metadata problem • Define query language problem	• Compare between STARTS and Z39.50	• Use a spidering algorithm	G1. Demonstrate the ability to make use of a range of learning resources and to manage one's own learning. G7.Show the use of general computing facilities
Distributed searching	11	• Define rank merging problem • Explain the goals of common query languages • Explain document classification • Explain dictionary based approach	• . Compare query and document translation	• Build a digital library	• Show the use of general computing facilities.
12th week Exam	12				
Citation indexing	13	• Explain citation indexing • Explain citation measurements	• Compare evaluation with and without users		G1. Demonstrate the ability to make use of a range of learning resources and to manage one's own

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		• Explain Journal Impact Factor • Explain Digital library usability • Explain usability from a system viewpoint			learning. G7.Show the use of general computing facilities
Citation indexing	14	• Explain the interface design • Explain the functional design • Explain the usability factors in searching • Explain hierarchical browsing • Define information visualization	• Compare the varieties of user interface	• Design a screen interface	G1. Demonstrate the ability to make use of a range of learning resources and to manage one's own learning. G7.Show the use of general computing facilities
Revision	15				

Course Instructor

Name:

Head of Department

Name: