



COLLEGE OF INFORMATION TECHNOLOGY
DEPARTMENT OF MULTIMEDIA SCIENCE
COURSE SYLLABUS/ SPECIFICATION

Course Code & Title: ITMS 523 – Multimedia Information Systems
Weight: (3-0-3)
Prerequisite: None
NQF Level Allocated: 9

NQF Notional Hours / Credits: 120 notional hours/ 12 NQF credit

Description: This course constitutes an approach to multimedia information systems that are concerned with the capture, storage and presentation of information in a variety of forms, including text, image, video and audio. It presents a general overview of electronic multimedia documents, a deep coverage of XML and XML Databases with particular focus on: (1) developing skills in the design and management of multimedia information systems projects; (2) employing evaluation techniques for multimedia authoring systems and multimedia user interfaces; and (3) developing an understanding of the current state of multimedia applications and their impact on organizations

Objective:

1. To provide a detailed overview of Electronic Documents including Multimedia Documents.
2. To explain how to create and manage XML documents
3. To demonstrate how to validate XML documents with DTD and XML Schema
4. To explain how to design, populate and query XML Databases

Semester: First 2019-2020
Instructor (s): Dr. Karim Hadjar
Office Telephone: 17298974 **Email (s):** khajjar@ahlia.edu.bh

Intended Learning Outcomes (ILOs):

A. Knowledge and Understanding		NQF Descriptor/ Level
A1	Concepts and Theories: Demonstrate knowledge and understanding of general concepts and techniques of multimedia information systems, especially those related to XML, the different types of validation of XML documents and XML Databases by considering Multimedia Documents.	Knowledge: theoretical understanding [Level 9]
A2	Contemporary Trends, Problems and Research: Demonstrate critical awareness of contemporary trends, issues and problems in multimedia information systems particularly with respect to the need for XML documents and XML Databases.	Knowledge: theoretical understanding [Level 9]
A3	Professional Responsibility: Demonstrate an awareness of professional ethics and responsibilities related to the multimedia information systems and XML Databases through case studies dealing with Multimedia and real life examples	Knowledge: theoretical understanding [Level 9]

B. Subject-specific Skills		NQF Descriptor/ Level
B1	Problem Solving: Develop, manipulate and process efficiently various Multimedia Documents having in mind the different efficient designs techniques explored through research	Skills: Communication, ICT and Numeracy Skills [Level 9] Knowledge: Practical Understanding [Level 9]
B2	Modeling and Design: Design the architecture of Multimedia Information Systems through the means of XML Documents having in mind the different designs of multimedia information systems-based (XML Databases and electronic documents including Multimedia Documents) explored through research.	Skills: Communication, ICT and Numeracy Skills [Level 9] Knowledge: Practical Understanding [Level 9]

B3	<p>Application of Methods and Tools: Use and apply appropriate multimedia tools such as ALTOVA XML SPY to develop and manipulate multimedia documents and create Multimedia Information Systems through the means of electronic documents and Native XML Databases (Nx D)</p>	<p>Skills: Communication, ICT and Numeracy Skills [Level 9]</p> <p>Knowledge: Practical Understanding [Level 9]</p>

C. Critical-Thinking Skills		NQF Descriptor/ Level
C1	<p>Analytic skills: Analyze cases of XML Document and XML Databases dealing with Multimedia with respect to their nature (qualitative analysis) or proportions (quantitative analysis), in order to identify the best possible alternatives/decisions</p>	Generic cognitive skills [Level 9]
C2	<p>Synthetic: Align decision-making with strategic objectives in order to select the best possible alternatives as regards cases of XML Document and XML Databases dealing with Multimedia</p>	Generic cognitive skills [Level 9]
C3	<p>Creative Thinking and innovation: Demonstrate originality and creativity in relation to the development of efficient multimedia information systems such as XML Document and XML Databases</p>	Knowledge: Practical Understanding [Level 9]

D. General and Transferable Skills (other skills relevant to employability and personal development)		NQF Descriptor/ Level
D1	<p>Communication: Express and communicate ideas effectively, in written and oral form to colleagues and/or instructor as appropriate, regarding the skills of multimedia information systems such as XML Document and XML Databases</p>	Communication, ICT and Numeracy Skills [Level 8]
D2	<p>Teamwork and Leadership: Work effectively as a member/leader of a team of technical people who may plan, design, implement, manage, and monitor a project</p>	Competence: Autonomy & Responsibility [Level 9]

		Competence: Learning to learn [Level 9]
D3	Organizational and Developmental Skills: Engage in life-long learning and continuing self-development to hone professional and organizational skills. Assimilate effective work habits including but not limited to time management.	Competence: Autonomy & Responsibility (Level 9) Competence: Learning to learn [Level 9]
D4	Ethics and Social Responsibility: Recognize, accept, and follow ethical and social responsibility and respond positively to the needs of society by identifying, employing and utilizing effectively the advanced computing and information solutions and technologies	Competence: Autonomy & Responsibility (Level 9)

Course Structure (Outline)

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Week	Hours	ILOs	Unit/Module or Topic Title	Teaching Method	Assessment Method
1	3	A1,D4	Introduction and Electronic Documents including Multimedia Documents	Lecture	Oral Participation (A1)
2	3	A1, B1, B3, D1	XML part 1	Lecture/ Lab session demo	Oral Participation (A1, D1)
3	3	A1, B2, B3, C2, D1	Modeling XML Documents	Lecture, Exercises	Oral Participation (A1, C2)
4	3	A1,B1, B3	XML part 2	Lecture/ Lab session demo, Exercises	Oral Participation (A1,D1)
5	3	A1, B2, B3, C2, D1	Modeling Complex XML Documents by considering Multimedia Documents	Lectures	Oral Participation (A1, C2)

6	3	A1, B1, B2, B3, C1, C2, D1, D3	Validating XML Documents with DTD	Lecture, Exercises	Oral Participation (A1, C1) / Research Assignment 1 (A1, B1, B2, B3, C1, C2, D1, D3)
7	3	A1, B2, B3	XML Schema part 1	Lecture/ Lab session demo	Oral Participation (A1)
8	3	A1, B1, B2, B3	XML Schema part 2	Lecture/ Lab session demo, Exercises	Oral Participation (A1)
9	3	A1, B1, B2, B3, C1, C2, D1	XML Schema part 3	Lecture/ Lab session demo, Exercises	Midterm Exam (A1, B1, B2, B3, C1, C2) Oral Participation (A1)
10	3	A1, B1, B3, C1	Validating XML Documents with XML Schema	Lecture, Exercises	Oral Participation (A1, C1)
11	3	A1, A3, B1, B3, C1	XML Databases part 1	Lecture/ Lab session demo/ Case study	Oral Participation (A1, A3)
12	3	A1, A3, B1, B2, B3, C1, C2, D1, D3	XPATH	Lecture, Exercises	Oral Participation (A1, D1)/ Research Assignment 2 (A1, A3, B1, B2, B3, C1, C2, D1, D3)
13	3	A1, A3, B1, B2, B3, C1, C3	XML Databases part 2 and XQUERY	Lecture/ Lab session demo, Exercises	Oral Participation (A1)
14	3	A1, A2, A3, B1, B2, B3, C1, C3	More on XML Databases and XQUERY and how to model and write them when dealing with Multimedia Documents	Lecture/ Lab session demo, Exercises	Oral Participation (A1)
15	3	A1, A2, A3, B1, B2, B3, C1, C2, C3,	Student reports and presentations of team research projects	Student presentation	Evaluation of Project Presentations & Reports (A1, A2, A3, B1, B2, B3, C1, C2, C3,

		D1,D2,D3 , D4			D1,D2,D3, D4)
16	2				Final Exam (A1, A2, A3, B1, B2, B3, C1, C2,C3)

* Formative assessment

Teaching Materials:

Textbook(s):	Herong Yang, <i>XML Tutorials – Herong’s Tutorials Examples</i> , Independently published, 2018
Handout(s):	Power point slides, http://www.ahlia.edu.bh/moodle .
Reference(s):	<ol style="list-style-type: none"> 1- E. R. Harold and W. Scott Means, <i>XML in a Nutshell: A Desktop Quick Reference</i>, 3rd Ed., O'Reilly Media, 2004 2- K. H. Goldberg, <i>XML: Visual QuickStart Guide</i>, 2nd Ed., Peachpit Press, 2008. 3- E. T. Ray, <i>Learning XML</i>, 2nd Ed., O'Reilly Media, 2003. 4- E. R. Harold, <i>Effective XML: 50 Specific Ways to Improve Your XML</i>, Addison-Wesley Professional 2003

Assessment

Method of Assessment	Description	Learning Outcomes	Weighting
Research Assignment 1	The assignment consists of essay, problem-solving and research based theoretical questions covering topics studied in the first 6 weeks. The purpose of the assignment is to assess students individually where they have to demonstrate their extensive and detailed knowledge and critical awareness of current research, trends and advancements in multimedia information systems. The assignment will also assess students’ skills in using and applying appropriate multimedia tools such as ALTOVA XML SPY to develop and manipulate multimedia	A1, B1, B2, B3, C1, C2, D1, D3	10%

	documents and create Multimedia Information Systems through the means of electronic documents and Native XML Databases (Nx D). Soft copy submission is required by the end of the 7 th week through the course page in Moodle where answers will be checked by Turnitin against plagiarism. Any implementation code developed during this assignment will have to be submitted also electronically to be tested and evaluated.		
Research Assignment 2	Same as assignment 1 but the topics will cover up to week 12. Students will be also asked to analyze cases of XML Documents including Multimedia Documents and XML Databases with respect to their nature or proportions in order to identify the best possible alternatives/decisions. Soft copy submission is required by the end of the 13 th week through the course page in Moodle where answers will be checked by Turnitin against plagiarism. Any implementation code developed during this assignment will have to be submitted also electronically to be tested and evaluated.	A1, A3, B1, B2, B3, C1, C2, D1, D3	10%
Oral Participation	Students will be questioned orally to demonstrate their understanding and knowledge of the topics covered during class lectures and lab sessions. Feedback will be given to students to reaffirm their learning outcomes.	A1, A3, C1, C2, D1	Formative
Midterm Exam	The midterm exam will be an in-class 1-hour exam that will consist of short-answer, essay, and problem solving questions and cover the topics studied in the first 9 weeks. Students will be asked to design and write some XML code for developing and manipulating multimedia documents.	A1, B1, B2, B3, C1, C2	20%
Team Research Project (Report and Presentation)	Starting from week 4, the class will be divided into teams of 4-5 students where each team will be asked to study a research problem in multimedia information systems utilizing the knowledge, skills and tools learned in class. Teams are required to plan and execute the research project that must involve a main component of multimedia tools application using such as ALTOVA XML SPY to develop and manipulate multimedia documents and create Multimedia Information Systems through the means of electronic documents including Multimedia Documents and Native XML Databases (Nx D). In the final week, each team will have to submit their research report (worth 14%) explaining the research problem, research methods used, analysis and the conclusion highlighting the research findings and results. The report must explain precisely the work accomplished by each student. Each team will be required to make a presentation (worth 6%)	A1, A2, A3, B1, B2, B3, C1, C2, C3, D1, D2, D3, D4	20%

	summarizing the research conducted and its findings. Each team member has to participate in the presentation. Team-based work will be examined and evaluated as a whole as well as the individual work of each student. Team members will be tested individually during the presentation by peers and the instructor.		
Final Exam	The final exam is comprehensive and will be of two hours duration. It will consist of short-answer, essay and problem-solving questions. Students will be asked to design and write XML code for some component of multimedia information systems which includes Multimedia Documents.	A1, A2, A3, B1, B2, B3, C1, C2,C3	40%
Overall:			100 %

Admissions	
Pre-requisites	None
Minimum number of students	4
Maximum number of students	20