

**The University of Jordan**

**Accreditation & Quality Assurance Center**

**COURSE Syllabus**

**The University of Jordan**  
KASIT/ Computer Information Systems Department

**Advanced Multimedia 1902450**

Instructor name: Dr. Ammar M. Huneiti

Office hours: to be announced later

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**Course Description:**

This course is mainly designed to further introduce the theoretical concepts of digital media including images, audio, animation and video. Different types of digital media are outlined and their digital storage process is explained in detail such as the GIF standard and file organization. The digital media encoding and decoding concepts and dithering techniques are explained. In addition, different types of digital media compression techniques are introduced. This includes lossless and lossy techniques such as JPEG, MPEG and H.26x video compression standards. The main algorithm used in these compressors are outlined. In addition, performance issues such as hardware, software, Internet-based broadcast, and analog vs digital concerns are also discussed.

صممت هذه المادة لاعطاء نبذة نظرية و متقدمة لمبادئ الوسائط الرقمية كالصور والصوت والفيديو والرسوم المتحركة. تتطرق المادة بالتفصيل لطرق تخزين GIF توضح المادة انواع وطرق ومعايير تخزين الوسائط الرقمية المختلفة مثل ال واسترجاع الوسائط وتقريب الالوان. كذلك توضح المادة طرق الضغط الرقمية للوسائط بنوعها المسترجع وغير المسترجع لضغط الفيديوهات والحوارزميات التابعة لها. كما يتم مناقشة المواضيع المتعلقة بالاداء H.26x,MPEG,JPEG مثل لهذه الحوارزميات مثل الاجهزة والبرمجيات والبيت عن طريق شبكة الانترنت ونوع الوسائط رقمية او غير رقمية وغيرها.

**Objectives of the course and Competency coverage:**

- This course aims to develop the students' ability to understand multimedia concepts, tools and applications.
- Develop the students' skills of using multimedia tools and techniques.,
- Introduce approaches and models for multimedia techniques and applications
- Highlight and integrate image processing and compression techniques

*After completing this course the student should be able to:*

- Understand multimedia techniques and applications
- Understand Multimedia components (Text, image, audio and video) principles.
- Understand and use compression technique in different multimedia components.
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**Intended Learning Outcomes:**

The intended learning outcomes of this course are:

**A- Knowledge and Understanding: Students should ...**

- A1) Understand how multimedia titles are made and their development process.
- A2) Know the different types of skills required to make multimedia titles
- A3) Understand the main principles for creating different types of multimedia elements including text, graphics, sound, animation and video.

A4) Know about different types of hardware and software tools used for developing multimedia.

**B- Intellectual skills: with the ability to ...**

- B1) Distinguish between the tasks of different multimedia development team members
- B2) Distinguish between linear multimedia, nonlinear multimedia and hypermedia
- B3) Use production software tools to produce primitive multimedia elements
- B4) Use authoring software tools to produce a multimedia title

**C- Subject specific skills – with ability to ...**

- C1) Use different multimedia production tools.
- C2) Choose the best coloring scheme for a multimedia project
- C3) Advise on the most suitable hardware for a multimedia project
- C4) Create professional images, animations, and videos
- C5) Compute the file sizes of different multimedia elements

**D- Transferable skills – with ability to**

- D1) Plan for a multimedia project including the needed skill set
- D2) Manage the needed resources for a multimedia project
- D3) Build professional multimedia titles

**Teaching/Learning Methods**

Lectures and Discussions	<b>A1+A2+A3+A4+B1+C2+C3+C4+C5+D1+D2+D3</b>
Assignments/Project	<b>C1+C4+D3</b>
Demonstration	<b>B2+B3+B4+C1+C2+C3+C4+D2+D3</b>
Research	<b>B3+B4+C1+C2+C4+C5+D1+D2+D3</b>

**Text Books**

▪ **The main text books for this course are:**

1. The Science of Digital Media, J. Burg, Prentice Hall, 2009.
2. Fundamentals of Multimedia, Li and Drew, Pearson Prentice Hall, 2004.
3. Multimedia: Making it work, Tay Vaughan, 7th ed., McGraw Hill, 2008.
4. Multimedia communications, applications, networks, protocols and standards", Fred Halsall, Pearson Education,2001

▪ **Other reading material:**

1. Multimedia: Computing, Communications and Applications, materiRalf Steinmetz and Klara Nahrstedt, Prentice-Hall Inc.,2001
2. Multimedia Communication Systems: Techniques, Standards, and Networks, K.R Rao,Z .S. Bojkovic and D.A. Milovanovic, Prentice Hall of India,2002

3. Networked Multimedia Systems-Concepts, Architecture and design, Raghavan S V and Tripatti S K , Prentice hall, 1998

▪ **Journals:**

1. ACM Proceedings on Multimedia Computing, Communications, and Applications (TOMCCAP)
2. IEEE Transactions on Multimedia
3. IEEE Multimedia Magazine

**Course Content:**

#	Topics	Duration (Week)	Chapter
1	Introduction to Multimedia	1	1 (Ref 1) 1 (Ref 2)
3	Graphics and Image Representations	2	2 (Ref 1) 3 (Ref 2)
ε	Color in Image and Video	1	2,3 (Ref 1) ε (Ref 2)
5	Digitised Audio	2	4 (Ref 1) ° (Ref 2)
	<b>Mid-Term Exam</b>		
6	Digital Video	2	6 (Ref 1) 6 (Ref 2)
7	Video Compression Techniques MPEG, H.26x	1	7 (Ref 1) 10 (Ref 2) 4 (Ref 4) 5 (Ref 1) 13 (Ref 2) 4 (Ref 4)
8	Lossless Compression Techniques	1	7 (Ref 1) 7, 8 (Ref 2)
9	loss Compression Technique (JPEG)	1	3 (Ref 1), 9 (Ref 2)
10	Video and Audio Compression Techniques	2	7 (Ref 1) 10 (Ref 2) 4 (Ref 4) 5 (Ref 1) 13 (Ref 2) 4 (Ref 4)
	<b>Final Exam</b>		

**Grading:**

The total grades of this course are assigned as follows:

<b>Middle Term exam</b>	<b>30%</b>
<b>Research, Assignments, Class presentation, Project</b>	<b>20%</b>
<b>Final Exam</b>	<b>50%</b>

**Notes**

- Students are expected to attend class; there is no system of permitted absences. The instructor in each class determines the effect of absences on a student's grade in that class. Students may not normally receive credit for a course if they do not attend 15 % of the class meetings.
- Assignments and research should be delivered in time.

Name of Course Coordinator: **Dr. Ammar Huneiti** Signature: ----  ----- Date:

**22.01.2023** Head of curriculum committee/Department: ----- Signature: -----  
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Head of Department: ----- Signature: -----

Head of curriculum committee/Faculty: ----- Signature: -----

Dean: ----- -Signature: -----

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Head of Department  
Assistant Dean for Quality

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