

Syrian Arab Republic	 الجامعة الافتراضية السورية SYRIAN VIRTUAL UNIVERSITY	الجمهورية العربية السورية
Ministry of Higher Education		وزارة التعليم العالي
Syrian Virtual University		الجامعة الافتراضية السورية

Course Description: **Course Name**

1- Basic Information:

Course Name	Multimedia Systems
Course ID	MM
Contact Hours (Registered Sessions)	16
Contact Hours (Synchronized Sessions)	16
Mid Term Exam	-
Exam	75 min
Registered Sessions Work Load	16
Synchronized Session Work Load	16
Credit Hours	4

2- Pre-Requisites:

Course	ID
None	

3- Course General Objectives:

The objective of the course is to learn the lossless and lossy compression techniques used to compress text, image, video and audio. In addition to the compression standards: JPEG, JPEG2000, H.261, MPEG1, MPEG2 and MP3.

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4- Intended Learning Outcomes (ILO):

Code	Intended Learning Outcomes
ILO1	Binary, Gray scale and Colored images
ILO2	Video Color models: YUV, YIQ, YCrCb. Television Systems: NTSC-PAL & SECAM.
ILO3	Lossless compression techniques: Run length encoding, Huffman coding and Adaptive Huffman coding
ILO4	Lossy Compression techniques: DCT , Wavelet
ILO5	JPEG and JPEG 2000 Standards for image compressions
ILO6	Video compression techniques using Motion vectors
ILO7	Video compression standards: H.261, MPEG1 and MPEG2
ILO8	Audio compression techniques and MP3 Standards

5- Course Syllabus (18 hours of total synchronized sessions; 18 hours of total Recorded Sessions)

- **RS:** Recorded Sessions; **SS:** Synchronized Sessions;

ILO	Course Syllabus	RS	SS	Type	Additional Notes
ILO1	<ul style="list-style-type: none"> • Binary, Gray scale images • Colored Image • Color spaces: RGB, CMYK • Gamma correction 	RS	SS	<input checked="" type="checkbox"/> Exercises <input checked="" type="checkbox"/> Assignments <input type="checkbox"/> Seminars <input type="checkbox"/> Projects <input checked="" type="checkbox"/> Practices <input type="checkbox"/> Others	
ILO2	<ul style="list-style-type: none"> • Video Color models: YUV, YIQ, YCrCb. • Television Systems: NTSC-PAL & SECAM. • Interlacing and progressive scan • HDTV • Chroma sub sampling 	RS	SS	<input checked="" type="checkbox"/> Exercises <input checked="" type="checkbox"/> Assignments <input type="checkbox"/> Seminars <input type="checkbox"/> Projects <input checked="" type="checkbox"/> Practices <input type="checkbox"/> Others	
ILO3	Lossless compression techniques <ul style="list-style-type: none"> • Run length encoding • Huffman coding • Adaptive Huffman coding 	RS	SS	<input checked="" type="checkbox"/> Exercises <input checked="" type="checkbox"/> Assignments <input type="checkbox"/> Seminars <input type="checkbox"/> Projects <input type="checkbox"/> Practices	

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	<ul style="list-style-type: none"> • Arithmetic coding • Predictive coding 			<input type="checkbox"/> Others	
ILO4	Lossy Compression techniques <ul style="list-style-type: none"> • DCT • Wavelet 	RS	SS	<input checked="" type="checkbox"/> Exercises <input checked="" type="checkbox"/> Assignments <input type="checkbox"/> Seminars <input type="checkbox"/> Projects <input type="checkbox"/> Practices <input type="checkbox"/> Others	
ILO5	<ul style="list-style-type: none"> • JPEG Standard for image compression • JPEG 2000 Standards for image compression 	RS	SS	<input checked="" type="checkbox"/> Exercises <input type="checkbox"/> Assignments <input type="checkbox"/> Seminars <input type="checkbox"/> Projects <input type="checkbox"/> Practices <input type="checkbox"/> Others	
ILO6	<ul style="list-style-type: none"> • Video compression techniques • Motion vectors 	RS	SS	<input checked="" type="checkbox"/> Exercises <input type="checkbox"/> Assignments <input type="checkbox"/> Seminars <input type="checkbox"/> Projects <input type="checkbox"/> Practices <input type="checkbox"/> Others	
ILO7	Video compression standards <ul style="list-style-type: none"> • H.261 • MPEG1 • MPEG2 	RS	SS	<input checked="" type="checkbox"/> Exercises <input type="checkbox"/> Assignments <input type="checkbox"/> Seminars <input type="checkbox"/> Projects <input type="checkbox"/> Practices <input type="checkbox"/> Others	
ILO8	<ul style="list-style-type: none"> • Audio compression techniques • MP3 Standards 	RS	SS	<input checked="" type="checkbox"/> Exercises <input type="checkbox"/> Assignments <input type="checkbox"/> Seminars <input type="checkbox"/> Projects <input type="checkbox"/> Practices <input type="checkbox"/> Others	

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6- Assessment Criteria (Related to ILOs)

ISC	Interactive Synchronized Collaboration	Ex	Exams	Rpt	Reports
PF2F	Presentations and Face-to-Face Assessments	PW	Practice Work		

ILO Code	ILO	Intended Results	Assessment Type				
			ISC	PW	Ex	PF2F	Rpt
ILO1	Binary, Gray scale and Colored images		✓	✓	✓		✓
ILO2	Video Color models: YUV, YIQ, YCrCb. Television Systems: NTSC-PAL & SECAM.		✓	✓	✓		✓
ILO3	Lossless compression techniques: Run length encoding, Huffman coding and Adaptive Huffman coding		✓	☐	✓		☐
ILO4	Lossy Compression techniques: DCT, Wavelet		✓	☐	✓		☐
ILO5	JPEG and JPEG 2000 Standards for image compressions		✓	☐	✓		☐
ILO6	Video compression techniques using Motion vectors		✓	☐	✓		☐
ILO7	Video compression standards: H.261, MPEG1 and MPEG2		✓	☐	✓		☐
ILO8	Audio compression techniques and MP3 Standards		✓	☐	✓		☐

7-Practice Tools:

Tool Name	Description
MATLAB	Powerful tool to manipulate image, video and audio

8-Main References

1. Fundamentals of Multimedia, by Ze-Nian Li and Marks S. Drew, Prentice-Hall 2004

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<p>2. Digital image Processing, by Gonzalez, Addison Wesley 1993</p> <p>3. نظم الوسائط المتعددة، د. نزار الزرقا</p>

9-Additional References

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