

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 Definition: Image Processing

1- Basic Information:

Course Name	Image Processing
Course ID	ISE.IMP
Contact Hours (Registered Sessions)	0
Contact Hours (Synchronized Sessions)	18 (12 sessions)
Mid Term Exam	-
Exam	75 min
Registered Sessions Work Load	0
Synchronized Session Work Load	54 (including homework)
Credit Hours	3

2- Pre-Requisites:

Course	ID
C++ or Java programming language	

3- Course General Objectives:

Recognize the importance of digital image processing and application areas and the most important processes on digital images. Study the process of digital image segmentation and the detection and tracking of edges in order to distinct objects in the image in terms of their number and forms and classification in groups. Identify a number of mathematical morphology processes such as deletion, erosion, opening, closing, thinning, thickening, image skeleton, etc. Identify different filtering operations that can be applied to digital images such as enhancing and smoothing digital images using negative conversions, logarithmic and exponential conversions. (neighbors mean, median filter, edge detection filters) and filter operations in the frequency domain (low pass filter, high pass filter).

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4- Intended Learning Outcomes (ILO):

Code	Intended Learning Outcomes
ILO1	Recognize the importance of digital image processing and application areas
ILO2	Learn about Matlab environment and its importance in digital image processing
ILO3	Studying digital image segmentation, edge detection and tracking
ILO4	Identify a number of mathematical morphology processes
ILO5	Enhancing and smooth digital images
ILO6	Spatial filtering and filtering in the frequency domain

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

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

ILO	Course Syllabus	RS	SS	Type	Additional Notes
ILO1	Sessions (1, 2): Recognize the importance of digital image processing and application areas		Yes		
ILO2	Sessions (3, 4): Learn about Matlab environment and its importance in digital image processing		Yes		
ILO3	Sessions (5, 6, 7): Studying digital image segmentation, edge detection and tracking		Yes		
ILO4	Session (8, 9): Identify a number of		Yes		

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	mathematical processes	morphology				
ILO5	Session (10): Enhancing and smooth digital images			Yes		
ILO6	Sessions (11, 12): Spatial filtering and filtering in the frequency domain			Yes		

6- Assessment Criteria (Related to ILOs): mini project concerning the course topics

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	Idiom as in previous table		✓		✓		
ILO2	Idiom as in previous table		✓		✓		
ILO3	Idiom as in previous table		✓		✓		
ILO4	Idiom as in previous table		✓		✓		
ILO5	Idiom as in previous table		✓		✓		
ILO6	Idiom as in previous table		✓		✓		

7- Practice Tools:

Tool Name	Description
MatLab	Very important environment for digital image processing

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8- Main References

Synchronized Sessions

Three files in Arabic submitted to students

9- Additional References

General Matlab references

General Digital Image Processing References