

Edition: 2nd		
. P.Ramesh Babu, Digital Image Processing. Scitech Publications., 2003 Bernd Jähne, Digital Image Processing, Springer-Verlag Berlin Heidelberg 2005		مصادر التعلم المساندة (كتب، قواعد بيانات، دوريات، برمجيات، تطبيقات، أخرى)
www.imageprocessingplace.com (required). Text book website) www.mathworks.com (MATLAB documentation) en.wikipedia.org/wiki/Digital image processing (General image processing concepts) www.mathworks.com/access/helpdesk/help/pdf_doc/matlab/getstart.pdf		المواقع الإلكترونية الداعمة
<input type="checkbox"/> أخرى	<input checked="" type="checkbox"/> منصة تعليمية افتراضية	<input type="checkbox"/> مختبر / مشغل <input checked="" type="checkbox"/> قاعة دراسية
		البيئة المادية للتدريس

مخرجات تعلم المادة الدراسية (K= Knowledge, C= Competences, S= Skills)

رمز مخرج تعلم البرنامج المرتبط	مخرجات تعلم المادة	الرقم
المعرفة		
	Have a clear understanding of the principals the Digital Image processing terminology used to describe features of images.	K1
	. Have a good understanding of the mathematical foundations for digital manipulation of images; image acquisition; preprocessing; segmentation; Fourier domain processing, compression and analysis	K2
	Be able to write programs using Matlab language for digital manipulation of images; image acquisition; preprocessing; segmentation; Fourier domain processing; and compression	K3
	Be able to understand the documentation for, and make use of, the MATLAB lib MATLAB Digital Image Processing Toolbox (IPT).	K4
	Learn and understand the Image Enhancement in the Spatial Domain, the Freque	
	Understand the Image Restoration, Compression, Segmentation, Recognition, Re and Description	
المهارات		
	Be able to use different digital image processing algorithms	S1
	Be able to design, code and test digital image processing applications using MATLAB language.	S2
	Be able to use the documentation for, and make use of, MATLAB library and MATLAB Digital Image Processing Toolbox (IPT).	S3
	Analyze a wide range of problems and provide solutions related to the design of image processing systems through suitable algorithms, structures, diagrams, and other appropriate methods.	

	Practice self-learning by using the e-courses and web materials.	
الكفايات		
	Display personal responsibility by working to multiple deadlines in complex activities.	C1
	. Be able to work effectively alone or as a member of a small group working on some programming tasks.	C2
		C3
		C4

آليات التقييم المباشر لنتائج التعلم

التعلم الوجيه	التعلم المدمج	التعلم الإلكتروني	نوع التقييم/ نمط التعلم
%20	0	0	امتحان أول
%20	%20	%30	امتحان ثاني/ منتصف الفصل
%10	%10	%0	المشاركة
0	%30	%30	اللقاءات التفاعلية غير المتزامنة
%50	%40	%40	الامتحان النهائي

- اللقاءات التفاعلية غير التزامنية هي الأنشطة والمهام والمشاريع والواجبات والأبحاث والعمل ضمن مجموعات طلابية...الخ

جدول اللقاءات المتزامنة/ الوجيهة وموضوعاتها

الأسبوع	الموضوع	أسلوب التعلم*	المرجع**
1	Introduction And Digital Image Fundamentals: The origins of Digital Image Processing Examples of Fields that Use Digital Image Processing Fundamentals Steps in Image Processing Elements of Digital Image Processing Systems		
2	Introduction And Digital Image Fundamentals (cont.): Image Sampling and Quantization, Some basic relationships like Neighbours, Connectivity, Distance Measures between pixels Translation, Scaling, Rotation and Perspective Projection of image		

		<p>Introduction And Digital Image Fundamentals (cont.): Linear and Non Linear Operations • Digital image Representation Reading, Displaying, Writing Images using M</p>	3
		<p>• Digital image Representation (cont.) Converting Between data classes and Image Types Introduction to M Function Programming using MATLAB • Image Enhancement in the Spatial Domain: Some basic Gray Level Transformations Histogram Processing</p>	4
		<p>Image Enhancement in the Spatial Domain (cont.): Enhancement Using Arithmetic and Logic operations Combining Spatial Enhancement Methods Basics of Spatial Filters</p>	5
		<p>Image Enhancement in the Spatial Domain (cont.): Smoothing and</p>	6

		Sharpening Spatial Filters Intensity Transformation Function (MATLAB)	
		Image Enhancement in the Spatial Domain (cont.): Histogram Processing and Function Plotting (MATLAB) • Image Enhancement in the Frequency Domain: Introduction to Fourier Transform and the frequency Domain Computing and Visualizing the 2D DFT (MATLAB	7
		Image Enhancement in the Frequency Domain (cont.): Smoothing Frequency Domain Filters Sharpening Frequency Domain Filters Homomorphic Filtering	8
		:Image Restoration A model of The Image Degradation / Restoration Process Noise Models Restoration in the presence of Noise Only Spatial Filtering	9
		Image Restoration (cont.): Periodic Noise Reduction by Frequency Domain Filtering Linear Position-Invariant	10

		Degradations Estimation of Degradation Function	
		Image Restoration (cont.): Inverse filtering Wiener filtering	11
		Image Restoration (cont.): Geometric Mean Filter Geometric Transformations	12
		• Image Compression: Coding Interpixel and Psychovisual Redundancy Image Compression models Compression standards	13
		Image Segmentation: Detection of Discontinuities Edge linking and boundary detection Thresholding	14
		Object Recognition: Patterns and Pattern Classes Decision-Theoretic Methods Structural Methods	15
		Final exam	16

* اساليب التعلم: محاضرة، تعلم معكوس، تعلم من خلال المشاريع، تعلم من خلال حل المشكلات، تعلم تشاركي ... الخ.
** المرجع: صفحات في كتاب، قاعدة بيانات، محاضرة مسجلة، محتوى على منصة التعلم الإلكتروني، فيديو، موقع... الخ