



جمهورية العراق
وزارة التعليم العالي والبحث العلمي/ جامعة الامام جعفر الصادق (ع)
كلية تكنولوجيا المعلومات/ قسم هندسة الحاسوب
المرحلة الرابعة :-

عدد الساعات في الاسبوع				اسم المادة	
عدد الوحدات	مجموع	عملي	نظري	باللغة الانكليزية	باللغة العربية
6	4	2	2	Image Processing	معالجة صور

Contents	Hours
1- Introduction to Image Processing - Basic definitions - The electro-magnetic spectrum and related imaging systems - Components of digital images processing system - Image Processing applications and tasks	4
2- Digital Image Fundamentals - A simple image formation model - Image sampling and quantization - Digital Image representation - Types of digital image: binary images, grey-scale images, color images, multispectral images - Digital Image file formats - Spatial and gray- level resolution - Image algebra - Zooming and resizing - Some basic relationships between pixels	6
3- Image Enhancement in the Spatial Domain - Histograms and statistical properties - Some basic gray- level transformations - Histogram manipulation techniques - Spatial filtering - Combining Spatial enhancement methods	6
4- Image Enhancement in the Frequency Domain - Fourier transforms - Frequency Domain vs. spatial domain - Fourier spectrum and phase spectrum - Filtering in the frequency domain	6
5- Discrete Transforms - Cosine transform - Wavelet transform	2

6- Image Restoration - Noise models - Restoration in the presence of noise only – Spatial filtering	4
7- Morphological Image Processing - Thresholding - Dilation and erosion - Opening and closing - Basics morphological algorithms - Gray- scale images morphology	4
8- Image Segmentation - point detection - Line detection - Edge detection	2
9- Image Compression - Lossless compression - Lossy compression	2
10- Color Image Processing - Color fundamentals - Color models - Basics of full- color image processing	2