

Ders Bilgi Formu (İngilizce)						
Course Name: Image Processing			Program Information Systems Engineering			
Credit: 6	Year- Semester: 4/8	Course Code: BSM 4506	Level of Course: Undergraduate	Required/Elective: Elective	Language: Turkish	
Hours/Credit:		Instructor(s): bilisimsistem@mu.edu.tr				
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Teaching Methods: Teaching, Demonstration						
Course Objectives: This course aims to introduce the basic concepts of digital image processing systems and provide a foundation for implementing commonly used image processing algorithms.						
Course Content: Basic concepts in image processing, fundamentals of image processing, mathematical tools, image enhancement in spatial domain and frequency domain, image restoration models, color image processing, wavelet transforms						
I. Week	Basic Concepts in Digital Image Processing					
II. Week	Fundamentals of Digital Image Processing, Light and Electromagnetic Spectrum, Sampling and Quantization					
III. Week	Mathematical Tools: Matrix Representation of Images, Pixel Operations					
IV. Week	Image Enhancement in Spatial Domain: Basic Gray Level Transformations					
V. Week	Image Enhancement in Spatial Domain: Histogram Processing					
VI. Week	Image Enhancement in Frequency Domain: Fourier and Inverse Fourier Transform					
VII. Week	Image Enhancement in Frequency Domain: Filtering in Frequency Domain					
VIII. Week	Image Restoration Models: Noise Models, Restoration in Presence of Noise					
IX. Week	Midterm					
X. Week	Image Restoration Models: Noise Reduction by Frequency Domain Filtering					
XI. Week	Image Restoration Models: Deconvolution					
XII. Week	Color Image Processing: Color Fundamentals, Color Models					
XIII. Week	Color Image Processing: Color Transformations					
XIV. Week	Wavelet Transforms					
Anticipated Learning Outcomes: At the end of this course, the student; <ul style="list-style-type: none"> • Has a basic understanding of the fundamental concepts of digital image processing systems. • Uses basic image processing tools needed to analyze images in spatial and frequency domain. • Designs and implements algorithms for the solution of a broad class of problems in digital image processing. 						
Assessment Method(s): Midterm Exam (30%), Final Exam (40%), Assignments (30%)						
Textbook: Digital Image Processing Using MATLAB, Rafael C. Gonzalez, Richard E. Woods, Steven L. Eddins, Prentice Hall, 2004.						
Recommended Reading: Görüntü İşleme Teknikleri ve Mühendislik Uygulamaları, Osman Nuri Uçan, A. Muhittin Albora, Onur Osman, 1. Baskı, 214 s., Seçkin Yayıncılık, Ankara, 2006.						
Pre/Co-requisites: None						