

Course Name	Image Analysis and Media Understanding		تحليل الصور الرقمية وفهم الوسائط المتعددة			
Course Information	Course Code	Course No.	Credit Hour	Prerequisite(s)		
	0911-1668	668	3 (3-0-6)	Foundations of CV		
Course Track	<input type="checkbox"/> Program Core		<input checked="" type="checkbox"/> Electives			
Course Description. This course introduces algorithms in image processing, analysis and scene understanding to develop students with basic knowledge to explain how computer could analyze and understand the visual world. The course describes visual understanding from the perspective of low-level image processing, mid-level statistical inferencing, and high-level vision recognition. It will cover a wide range of topics that include morphological process, image enhancement, feature extraction, image segmentation, semantic segmentation, image and video compression, object recognition, action recognition, motion analysis and scene understanding. Several image/video processing and analysis tools and libraries will be utilized to build real-world applications.						
Course Outcomes. After the completion of this course, the student will be able to: 1. Explain the basic concepts associated with images/video processing, analysis, enhancement, segmentation and compression. [E] 2. Demonstrate knowledge of image analysis and understanding algorithms and applications. [A] 3. Design and implement appropriate image\video analysis algorithms, techniques, and tools that help to solve visual understanding problems. [C, D] 4. Evaluate the performance of image analysis and understanding algorithms and systems. [B]						
Assessment Policy (PC)	Assignments	15%	Quiz	---	Capstone Project	40 %
	Midterm	15%	Final	30%		
Textbook	1. Milan Sonka, Vaclav Hlavac, and Roger Boyle, "Image Processing, Analysis, and Machine Vision", 4 th Edition, Cengage Learning, 2014, ISBN-13: 978-1133593607. 2. Rafael C. Gonzalez, Richard E. Woods, "Digital Image Processing", 4 th Edition, Pearson, 2017, ISBN-13: 978-0133356724.					
References	1. Mark Nixon, and Alberto Aguado, "Feature Extraction and Image Processing for Computer Vision", Academic Press, ISBN-13: 978-0128149768. 2. Michael Ying Yang, Bodo Rosenhahn, Vittorio Murino, "Multimodal Scene Understanding", 1 st Edition, Academic Press, 2019, ISBN-13: 978-0128173589. 3. Rama Chellappa, Sergios Theodoridis, "Image and Video Processing and Analysis and Computer Vision", 1 st Edition, Academic Press, 2017, ISBN-13: 978-0128118894.					