



Jordan University of Science and Technology
Faculty of Computer & Information Technology
Artificial Intelligence Department

AI375 Digital Image Processing - JNQF Level: 7

First Semester 2024-2025

Course Catalog

3 Credit Hours. This course provides a comprehensive introduction to digital image processing. It is therefore primarily concerned with the problem of formation and acquisition of digital images. The field draws heavily on many major subjects including image representation and transformation; image enhancement and restoration; image compression; morphological image processing; image segmentation, and object recognition. Students will learn and develop the intuitions of image processing methods in class as well as hands on experience to solve real-life digital problems.

Teaching Method: Blended

Text Book

Title	Digital Image Processing
Author(s)	Gonzalez, R. C. and Woods, R. E.
Edition	4th Edition
Short Name	Ref #1
Other Information	2018

Course References

Short name	Book name	Author(s)	Edition	Other Information
Ref #2	Digital Image Processing using Matlab	Gonzalez, Rafael C; Woods, Richard E; Eddins, Steven L	3rd Edition	

Instructor

Name	Dr. Ahmad Alzubi
Office Location	-

Office Hours	Sun : 10:30 - 11:30 Sun : 13:30 - 14:30 Mon : 12:00 - 13:00 Tue : 10:30 - 11:30 Tue : 13:30 - 14:30 Thu : 10:30 - 11:30
Email	agalzubi@just.edu.jo

Class Schedule & Room
Section 1: Lecture Time: Sun, Tue, Thu : 11:30 - 12:30 Room: CH2109

Prerequisites		
Line Number	Course Name	Prerequisite Type
1732841	CS284 Analysis And Design Of Algorithms	Prerequisite / Study
901400	MATH140 Elements Of Linear Algebra	Prerequisite / Study

Tentative List of Topics Covered		
Weeks	Topic	References
Week 1	Introduction to Image Processing	From Ref #1
Weeks 2, 3	Digital Image Fundamentals	Ch2 From Ref #1
Weeks 4, 5, 6	Intensity Transformations and Spatial Filtering	Ch3 From Ref #1
Weeks 6, 7	Filtering in the Frequency Domain	Ch4 From Ref #1
Week 8	Image Restoration and Reconstruction	Ch5 From Ref #1
Weeks 8, 9, 10	Color Image Processing	Ch6 From Ref #1
Weeks 11, 12	Image Compression	Ch8 From Ref #1
Weeks 12, 13	Image Segmentation	Ch10 From Ref #1

Mapping of Course Outcomes to Program Outcomes and NQF Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
Explain the fundamentals of digital image and its processing [1SO2] [1L7K1]	15%	
Perform image enhancement techniques in spatial and frequency domain [1SO2] [1L7S2]	25%	
Elucidate the mathematical modelling of image restoration and color image processing. [1SO2]	20%	

Apply the concepts of image compression and segmentation	20%	
Gain experience and practical techniques to write programs using MATLAB and PYTHON languages for digital manipulation of images; image acquisition; pre-processing; segmentation; Fourier domain processing; and compression	20%	

Relationship to Program Student Outcomes (Out of 100%)					
SO1	SO2	SO3	SO4	SO5	SO6
	60				

Relationship to NQF Outcomes (Out of 100%)	
L7K1	L7S2
15	25

Policy	
Attendance	Attendance is very important for the course. In accordance with university policy, students missing more than 20% of total classes are subject to failure. Penalties may be assessed without regard to the student's performance. Attendance will be recorded at the beginning or end of each class.
Assignments	Cheating is prohibited under JUST strict laws. No late submissions are accepted.
Exams	The format for the exams is generally (but NOT always) as follows: General calculations, Multiple-Choice, True/False, Analyze a Problem, etc.

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