

1. Course Name:					
Image Processing 1					
2. Course Code:					
3. Semester / Year:					
Semester					
4. Description Preparation Date:					
17-11-2025					
5. Available Attendance Forms:					
Weekly (Theory: 2 hours, Practically: 2 hours)					
6. Number of Credit Hours (Total) / Number of Units (Total)					
Theory: 30 Hours Practically: 30 hours Total: 60 hours Total Units: 6					
7. Course administrator's name (mention all, if more than one name)					
Name: Assist. Lec. Israa Basheer Mohammed Email: israa.b.mohameed@uotechnology.edu.iq					
8. Course Objectives					
Course Objectives	1. The student will understand the structure of an image as a digital file. 2. Introduce the concepts of image processing and the basic analytical methods used in image processing. 3. The student will learn about image enhancement and restoration techniques, image quantization, and noise removal.				
9. Teaching and Learning Strategies					
Strategy	1. Theoretical lectures practical assignments 2. Methodological books, online resources (e-books and research) 3. Using data show to present practical ideas to students and real-world applications to enhance student understanding				
4. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	Th.:2 Pr.: 2	Introduction to algorithms	Computer Imaging: Computer Vision (CV), Image Processing (IP).	Lect. & Lab.	Exam
2	Th.:2 Pr.: 2	Best, Average, and Worst cases	Image Representation, Digital Image Format	Lect. & Lab.	Quiz

3	Th.:2 Pr.: 2	Programs evaluation	Convolution algorithm	Lect. & Lab.	Homework
4	Th.:2 Pr.: 2	Problem solving strategies	Image analysis Preprocessing, Data Reduction, Features Analysis	Lect. & Lab.	Exam
5	Th.:2 Pr.: 2	implementation of algorithms	Image Shrinking, Image Quantization.	Lect. & Lab.	Quiz
6	Th.:2 Pr.: 2	implementation of algorithms	Edge /Line Detection.	Lect. & Lab.	Homework
7	Th.:2 Pr.: 2	implementation of	Image Algebra: Arithmetic Operations and Logic Operations.	Lect. & Lab.	Exam
8	Th.:2H Pr.: 3H	implementation of algorithms	Noise Removal using Spatial Filters	Lect. & Lab.	Quiz
9	Th.:2H Pr.: 3H	implementation of algorithms	Histogram, Histogram Modification, Histogram Equalization	Lect. & Lab.	Homework
10	Th.:2H Pr.: 3H	implementation of algorithms	Image Segmentation	Lect. & Lab.	Exam
11	Th.:2H Pr.: 3H	implementation of algorithms	Image Compression	Lect. & Lab.	Quiz
12	Th.:2H Pr.: 3H	implementation of algorithms	Types of Image Compression	Lect. & Lab.	Homework
13	Th.:2H Pr.: 3H	Approximation Algorithms	Discrete Transform, DCT and Wavelet Transform	Lect. & Lab.	Exam
14	Th.:2H Pr.: 3H	algorithms efficiency	Image Fidelity Criteria	Lect. & Lab.	Quiz
15	Th.:2H Pr.: 3H	fundamental design concepts and principals	Preparatory Week	Lect. & Lab.	Homework
16	Th.:2H Pr.: 3H		Final Exam	Lect. & Lab.	Exam

5. Course Evaluation

The grade distribution is as follows:

Assessment: Formative 40 marks, Monthly exam 10 marks

Final exam: Theory 40 marks, Practical 10 marks

6. Learning and Teaching Resources

Main references (sources)

1- Computer Vision and Image Processing. Scotte E Umbaugh, CRC Press, Taylor & Francis Group. 2017

2- Digital Image Processing. Second Edition, Rafael C. Gonzalez University of Tennessee

Course Description Form