



Institute of Information Technology (IIT)
Jahangirnagar University, Savar, Dhaka

Course Outline

Course Code:	ICT 4201
Course Title:	Digital Image Processing
Semester:	Fourth Year Second Semester
Credit:	3.0
Class Schedule and Room:	Monday, 2.00 PM-3.20PM; Lab -03 Tuesday, 10.00 AM- 11.20 AM; Lab -03
Program:	B.Sc. in Information and Communication Technology
Course Teacher:	Professor Fahima Tabassum, Ph.D.
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Google Classroom:	Code: afesdk6 Link: https://classroom.google.com/c/NzAzODQwMzk2NTc3?cjc=afesdk6

Course Rationale

This course introduces the fundamentals of Digital Image Processing techniques and its applications. The students will be able to learn various types of digital image processing techniques that are widely used in medical research and scientific analysis. This course is designed to cover Digital Image Fundamentals; Image Transformation; Image Enhancement; Image Restoration; Image Compression; Image Segmentation; Morphological Image Processing; Moments and Object Recognition and Interpretation.

Course Objective

By the end of this course, students will be able to:

- Explain how digital images are represented and manipulated in a computer, including reading and writing from storage, and displaying.
- Write a program which implements fundamental image processing algorithms.
- Be conversant with the mathematical description of image processing techniques and know how to go from the equations to code.

Text Book

1. Digital Image Processing, 4th Edition by Rafael C. Gonzalez and Richard E. Woods

References

- Online free tutorials
- Hands-on Image Processing with Python, Sandipan Dey

Lecture Contents

- Week 01: Introduction to DIP
- Week 02: Fundamentals of DIP (Part 01)
- Week 03: Fundamentals of DIP (Part 02)
- Week 04: Basic Intensity Transformations
- Week 05: Histogram Processing
- Week 06: Spatial Filtering
- Week 07: Frequency Domain Filters
- Week 08: Image Restoration and Reconstruction
- Week 09: Colour Image Processing (Part 01)
- Week 10: Colour Image Processing (Part 02)
- Week 11: Image Compression and Watermarking
- Week 12: Morphological Image Processing

Class Test

- Class Test 01: Week 04
- Class Test 02: Week 08
- Class Test 03: Week 12

Marks Distribution

Category	Marks Distribution (%)
Final Exam	60%
Class Test	20%
Assignment /Group Presentation	10%
Class attendance	10%
Total:	100