

CCS4505 Digital Image Processing

COURSE INFORMATION

Prerequisites	Academic Year & Level		Teaching Methods			Credit Hrs.
	Year	Semester	Lecture	Tutorial	Laboratory	
CCS2401 & EBA2204	4	7/8	2	2	0	3

COURSE AIM

- Understand image processing, computer imaging systems, resolution concerns, and image formats
- Illustrate image digitization, image properties, and noise in images.
- Realize image pre-processing enhancements: pixel brightness transformation, geometric transformations, and local filtering using masks.
- Apply image segmentation: threshold based, edge-based, region based, and matching.
- Understand shape representation and description.
- Apply mathematical morphology.
- Introduce classification and recognition in image analysis.
- Implement a computer program on Matlab or Python to for an image analysis application.
- Present a framework for an image analysis application pipeline.

COURSE WEEKLY CONTENTS

- 1 Introduction to DIP
- 2 Image histograms
- 3 Image enhancements using transformation
- 4 Spatial filtering
- 5 Morphological image processing part 1
- 6 Morphological image processing part 2
- 7 Image segmentation part 1
- 8 Image segmentation part 2
- 9 Feature extraction
- 10 Feature extraction and classification part 1
- 11 Classification part 2
- 12 Image recognition part 1
- 13 Image recognition part 2
- 14 Projects Discussions
- 15 Revision

STUDENT GRADING & ASSESSMENT

Weeks	Exams	Assign.	Quizzes	Reports	Present.	Lab.	Total
1 to 7	←		3 0	M A R K S		→	30
8 to 12	←		2 0	M A R K S		→	20
1 to 15	←		1 0	M A R K S		→	10
16 or 17	40	Final					40

REFERENCES

Textbook Rafael C. Gonzalez , Richard E. Woods, Digital Image Processing, Pearson .