

Bemidji State University

CS 4410: Digital Image Processing

A. COURSE DESCRIPTION

Credits: 3

Lecture Hours/Week: 0

Lab Hours/Week: 0

OJT Hours/Week: *.*

Prerequisites: None

Corequisites: None

MnTC Goals: None

This course covers techniques for image acquisition, transformation, enhancement, restoration, compression, segmentation and recognition. A brief introduction to advanced topics such as motion detection, optical flow, etc., is also included. Prerequisite(s): CS2322 and either Math 1470 or MATH 2471

B. COURSE EFFECTIVE DATES: 08/15/2020 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

1. Digital image fundamentals
2. Image enhancement in both spatial and frequency domain
3. Image restoration
4. Color image processing
5. Wavelet and multi-resolution image processing
6. Image compression
7. Image segmentation
8. Object recognition

D. LEARNING OUTCOMES (General)

1. understand the mathematical underpinnings of digital image processing.
2. develop image processing solutions such as image filters, histogram equalization, edge detection, etc., through computer projects and real image experiments, document with written reports.
3. develop an image processing system such as object tracking system, image editing system, etc., to meet a broad set of design specifications, working in teams, and presenting the results in formal reports.

E. Minnesota Transfer Curriculum Goal Area(s) and Competencies

None

F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

G. SPECIAL INFORMATION

None noted