

The Hebrew University of Jerusalem

Syllabus

Image Processing - 67829

Last update 03-01-2024

HU Credits: 4

Degree/Cycle: 1st degree (Bachelor)

Responsible Department: Computer Sciences

Academic year: 0

Semester: 1st Semester

Teaching Languages: Hebrew

Campus: E. Safra

Course/Module Coordinator: Prof Shmuel Peleg

Coordinator Email: peleg@mail.huji.ac.il

Coordinator Office Hours: Coordinate in advance

Teaching Staff:

Prof Shmuel Peleg,
Ms. Timna Kleinman

Course/Module description:

Introduction to digital image processing: description of the imaging process, and learning basic concepts and operations.

Course/Module aims:

To understand the capabilities of digital image processing, and enable students to develop and write basic software.

Learning outcomes - On successful completion of this module, students should be able to:

Students will be able to read image processing textbooks and papers, and implement basic algorithms. Also, design algorithms to solve many image processing problems.

Attendance requirements(%):

33
0

Teaching arrangement and method of instruction: Frontal Lectures. At least 33% attendance required.

Course/Module Content:

Image capture and digitization; basics of imaging geometry; the Histogram; image enhancement and restoration; Convolutions and Fourier Transform; Intro to Sounds; Geometrical transformations and warping; Multiresolution pyramids; Image compression; Image alignment; panoramic stitching; Robust methods; morphology of binary images; neural network methods for image enhancement

Required Reading:

NA

Additional Reading Material:

<http://homepages.inf.ed.ac.uk/rbf/CVonline/>

Grading Scheme:

Submission assignments during the semester: Exercises / Essays / Audits / Reports / Forum / Simulation / others 25 %

Mid-terms exams 75 %

Additional information:

Assignments include substantial programming of image processing tasks. Programming will be in Python and its numerical libraries. Assignments will contribute 25% to the final grade.

3 short quizzes of 1 hour each will be given during the semester instead of a final exam. Each of these quizzes will contribute 25% of final grade, and MOED BET will not be given for quizzes.