**Course module description**

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**General module information**
Title: Image Processing
Type: Course module
Language of instruction: Danish and English
Location of the lecture: Campus Copenhagen

ECTS points: 5 ECTS

Period: 1 September 2022 — 31 January 2023

**Placement**
3rd semester, B.Sc. in Medialogy

**Module coordinator**
Georgios Triantafyllidis (coordinator), Elsebeth Andersen (secretary)

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**Academic content and relationships to other modules/semesters**
The formal study plan description of the module can be found here:

https://moduler.aau.dk/course/2022-2023/MSNMEDB3212C?lang=da-DK

The course will start by discussing concepts/details behind an image and then will introduce image-processing techniques for understanding and analysing images and video.

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**Objectives and learning goals**
The purpose of the module is to provide the student with a basic understanding of building systems that can record visual data and analyze it in order to automatically make decisions. The students will learn about the different parts and parameters of a typical imaging device and the basic representation concepts of an image, like pixels, bits per pixel, grey scale and colour images. Furthermore, they will learn how to process and enhance an image. They will learn about interpretation of an image histogram and its usage in different image processing tasks; different image processing operations, like segmentation, filtering, template matching, object recognition, etc. The basics of video processing, like segmenting a foreground from background in simple cases will also be covered. Finally, the frequency domain, the FFT, 3D imaging and computer vision applications will be presented. Students who take this course will be able to analyze simple image processing tasks, and design, implement, and evaluate image processing systems for these tasks.

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**Extent and expected workload**
Lectures: about 2.5 ECTS
Assignments: about 2 ECTS
Examination preparation: about 0.5 ECTS

**Pre-requisites for participation**
See the module description (find the link above) for any further detail on pre-requisites.

**Examination**
Modality and duration: individual oral examination, which takes place in connection with the semester's project examination.
Assessment: pass/fail.
Approved aids: the same approved aids as for the project exam, plus literature, slides and notes from the course module.
Prerequisites for participation: timely submission of mandatory assignments as well as timely submission of the project documentation for the project unit, as the course is evaluated together with the project unit.
Further details regarding the examination: at the project examination, the examiner may, in addition to the general project examination, choose to ask questions from the course syllabus, and/or about the syllabus' relationship to the project. The assessment of the degree of achievement of the course's learning objectives will be based on an assessment of the student's oral performance; the project documentation will not be included in the assessment.