



FSK3380 Technical Photography 8.0 credits

Teknisk fotografi

This is a translation of the Swedish, legally binding, course syllabus.

Establishment

Course syllabus for FSK3380 valid from Spring 2019

Grading scale

P, F

Education cycle

Third cycle

Specific prerequisites

Admitted to PhD studies in Physics or related fields of study.

Basic knowledge of waves: Intensity, refraction, interference and diffraction.

Geometrical optics: Raytracing in thin lenses and lens systems.

Mathematics: Differential and integral calculus in one dimension. Logarithms.

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

Intended learning outcomes

After completing the course the student should be able to:

- practically use both analog and digital cameras for solving a photographic task. This includes choice of suitable lens and settings to obtain the desired perspective, depth of field and exposure.
- develop black-and-white films and produce prints from both film and digital image files.
- quantify the quality of photographic systems concerning image sharpness, tone reproduction and noise.
- understand the basics of color reproduction, color temperature and color coordinates, and be able to use this knowledge in practical photography.
- estimate the necessary pixel density in digital photography in order to avoid imaging artifacts and loss of quality.
- practically use high speed video equipment to quantitatively study rapid events.
- practically use equipment for infrared photography, and understand how X-ray, ultraviolet and thermal radiation can be used for imaging purposes.

Course contents

Optical imaging. Photographic lenses. Photometry. The camera. Photographic film. Digital cameras. Electronic imaging sensors. Tone reproduction. Color photography. Photographic prints. X-ray, ultraviolet and infrared photography. High speed photography. Imaging quality.

Course literature

K. Carlsson: Teknisk fotografi, KTH.
Laboratory instructions

Examination

- TEN1 - Exam, 3.0 credits, grading scale: P, F
- LAB1 - Laboratory work, 5.0 credits, grading scale: P, F

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

If the course is discontinued, students may request to be examined during the following two academic years.

Written examination (TEN1; 3 credits, grading scale P/F) and completed laboratory course (LAB1; 5 credits, grading scale P/F).

Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.