Technology
Arts Sciences
TH Köln

Course
PHO2 - Photo Technology 2

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General information

Long name	Photo Technology 2
Approving CModule	PHO2_BaMT
Responsible	Prof. Dr. Gregor Fischer Professor Fakultät IME
Level	Bachelor
Semester in the year	summer semester
Duration	Semester
Hours in self-study	60
ECTS	5
Professors	Prof. Dr. Gregor Fischer Professor Fakultät IME
Requirements	none
Language	German
Separate final exam	Yes

Final exam

Details

Written exam with arithmetic and comprehension excercises

Minimum standard

50% of maximum points

Exam Type

Written exam with arithmetic and comprehension excercises

Lecture / Exercises

Learning goals

Knowledge

Photometry
Radiometric, spectral and photometric measures
Photometric laws
Secondary radiators
Lambert radiator
Mirror surfaces
Photometric calculations

Radiant sources
Emission mechanisms
Spectral distribution
Directional characteristic
Temperature radiant laws
Color temperature and color conversion
Technical light sources
Operating laws for tungsten lamps and LEDs

Radiation detectors
Spectral sensitivity
Directional sensitivity
Radiant propagation through lens optics
Exposure control

Illuminating engineering
Head lamp technology
Light formers
Flash technology
Basics of the illumination
Illumination models

Skills

understand the physical definition of the radiometric, spectral and photometric measures

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apply photometric laws and calculate simple illuminating set-ups

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know the principles and technical embodiments for light generation

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know the principles and technical embodiments for light detection

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model the light propagation through a photographic lens and apply it to the exposure control in digital cameras

understand and analyse the geometric and spectral radiant flux to apply it to the illumination of a scene and to the spectral adaptation of a camera

Expenditure classroom teaching

Type	Attendance (h/Wk.)
Lecture	3
Exercises (whole course)	1
Exercises (shared course)	0
Tutorial (voluntary)	2

Separate exam

none

Practical training

Learning goals

Skills

apply photographic and illuminating measurement techniques

measure the directional sensitivity (detector) and the light distribution curve (source)

apply optical and electronic means for the spectral adaptation between light source and detector effectively

apply measurement technique for exposure control and white balance

install the lighting set-up for illumination uniformity and contrast control

document the results

Expenditure classroom teaching

Type	Attendance (h/Wk.)

Practical training	1
Tutorial (voluntary)	0

Separate exam

Exam Type

working on practical scenarion (e.g. in a lab)

Details

Technical discussion / colloquium before lab excercise

Protocol reports about lab excercises

Minimum standard

Reports for all lab excercises must be delivered in correct form with correct results