

Course

LB - Lighting Technology

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^ General information

Long name	Lighting Technology
Approving CModule	LB_BaET , LB_BaOPT
Responsible	Prof. Dr. Holger Weigand Professor Fakultät IME
Level	Bachelor
Semester in the year	winter semester
Duration	Semester
Hours in self-study	78
ECTS	5
Professors	Prof. Dr. Holger Weigand Professor Fakultät IME
Requirements	Geometric Optics Foundations in Mathematics and Physics
Language	German
Separate final exam	Yes

Final exam

Details

The proof of achievement is based on a software project that deals with the conception and design of general lighting (evaluation with 60% share of the module grade). Furthermore, a qualified report on measurement and qualification of light sources, as well as a paper on selected topics of light metrology is required (evaluation with 40% share of the module grade).

Minimum standard

For the successful realization of the software project, basic knowledge of the used design software is required. Furthermore, the modelling of real configurations of a general lighting in the context of the software used must be understood.

The report requires a correct recording of the primary measurement data as well as a traceable calculation of the secondary measurement data. Likewise, the representation of the measurement results in the form of diagrams must reproduce the measured data consistently.

In the preparation of the paper, it is necessary that the theoretical foundations for the explained measurements are described correctly. In addition, the relevant content must be reproduced in a meaningful technical text.

Exam Type

The proof of achievement is based on a software project that deals with the conception and design of general lighting (evaluation with 60% share of the module grade). Furthermore, a qualified report on measurement and qualification of light sources, as well as a paper on selected topics of light metrology is required (evaluation with 40% share of the module grade).

^ Lecture / Exercises

Learning goals

Knowledge

Radiometric and geometric basics
Photometric, colorimetric and physiological basics
Basic concepts of light generation and light measurement
Basics of lighting design
Importance of simulation software in the context of lighting technology

Skills

Use of lighting design software for:
Calculation of photometric quantities from selected sources and receivers
Construction of lighting configurations
Analysis of lighting configurations
Optimization of lighting configurations
Implementation of a lighting design in the field of general lighting

Expenditure classroom teaching

Type	Attendance (h/Wk.)
Lecture	1
Exercises (whole course)	1
Exercises (shared course)	0

Separate exam

Exam Type

other course-related type of test

Details

The proof of achievement is based on a software project that deals with the conception and design of a general lighting (evaluation with 60% share of the module grade).

Minimum standard

For the successful realization of the software project, basic knowledge of the used lighting design software is required. Furthermore, the modelling of real lighting configurations in the context of the software used must be understood.

^ Practical training

Learning goals

Skills

Development of an understanding of different photometric quantities and their significance for general lighting based on experiments. Whereby, real light sources are measured in team work.

Preparation of data sheets for lamps and / or luminaries on the basis of previously performed measurements of the corresponding photometric properties.

Expenditure classroom teaching

Type	Attendance (h/Wk.)
Practical training	2
Tutorial (voluntary)	0

Separate exam

Exam Type

other course-related type of test

Details

It requires a qualified report on the measurement and qualification of light sources, as well as a paper on selected topics of light measurement (evaluation with 40% share of the module grade).

Minimum standard

The generated data sheets contain correctly determined primary measurement data. The calculation of the secondary measurement data must be traceable. Charts and numeric data must be consistent.

In the preparation of the paper, it is necessary that the theoretical foundations for the explained measurements are described correctly. In addition, the relevant content must be reproduced in a meaningful technical text.