

Module Handbook

TUK MODHB Homepage

Course PHY-PFEP-023-K-2

Electromagnetism and optics (4V+2U, 8.0 LP)

Course Type

SWS	Type	Course Form	CP (Effort)	Presence-Time / Self-Study
-	K	Lecture with exercise classes (V/U)	8.0 CP	156 h
4	V	Lecture		56 h
2	U	Exercise class (in small groups)		28 h
(4V+2U)			8.0 CP	84 h 156 h

Basedata

SWS	4V+2U
CP, Effort	8.0 CP = 240 h
Position of the semester	1 Sem. in SuSe
Level	[2] Bachelor (Fundamentals)
Language	[DE] German
Lecturers	The Lecturers of the department Physics
Area of study	[PHY-EP] Experimental Physics
Lifecycle-State	[NORM] Active

Notice

Die Lehrveranstaltung wird im Rahmen des Programms „Früheinstieg in das Physikstudium“ (FiPS) auch im Fernstudium angeboten, siehe <https://www.fernstudium-physik.de>

Possible Study achievement

- Verification of study performance: **proof of successful participation in the exercise classes (ungraded)**
- Details of the examination (type, duration, criteria) will be announced at the beginning of the course.

Exercise certificate usually by active participation in the exercises and successful completion of homework.

Possible Study achievement

- Verification of study performance: **proof of successful participation in the exercise classes (incl. written examination)**
- Examination number (Study achievement): 57121 ("Electromagnetism and optics")
- Details of the examination (type, duration, criteria) will be announced at the beginning of the course.

Qualified exercise certificate usually by active participation in the exercises, successful completion of homework and passing the final exam for the exercises.

Contents

- Elektrostatik
- elektrischer Strom
- Magnetostatik
- zeitlich veränderliche Felder
- Maxwell-Gleichungen
- elektrotechnische Anwendungen
- elektromagnetische Schwingungen
- elektromagnetische Wellen im Vakuum
- elektromagnetische Wellen in Materie
- geometrische Optik
- Interferenz und Beugung
- Streuung
- optische Instrumente
- neue Techniken der Optik

Literature

- Demtröder: Experimentalphysik 2, Springer
- Meschede: Gerthsen Physik, Springer

Materials

Current information and materials accompanying the course will be announced in the lecture or on the website of the course.

Registration

Registration for the exercises is required. Details will be announced during the first lecture.

Requirements for attendance (informal)

Courses

- [PHY-PFEP-020-K-2] Mechanics and heat (4V+2U, 8.0 LP)
- [PHY-PFEP-021-K-2] Mathematical fundamentals of physics (4V+2U, 8.0 LP)

Requirements for attendance (formal)

None

References to Course [PHY-PFEP-023-K-2]

Module	Name	Context	
[MAT-PHY-EX-M-4]	Experimental Physics I/II (for Mathematicians)	P: Obligatory	4V+2U, 8.0 LP
[PHY-EP2-M-2]	Experimentalphysik 2: Elektrodynamik, Optik	P: Obligatory	4V+2U, 8.0 LP
[PHY-EP2-ZEP-Gym-M-2]	Experimentalphysik 2: Elektrodynamik, Optik	P: Obligatory	4V+2U, 8.0 LP
[PHY-EP2-ZEP-M-2]	Experimentalphysik 2: Elektrodynamik, Optik	P: Obligatory in Obligatory-Modulteil #A (Elektromagnetismus und Optik)	4V+2U, 8.0 LP
[PHY-G2BP-M-2]	Grundlagen der klassischen Physik II - Biophysik	P: Obligatory	4V+2U, 8.0 LP
[PHY-G2-M-2]	Fundamentals of classical physics II	P: Obligatory	4V+2U, 8.0 LP
[PHY-G2TP-M-2]	Grundlagen der klassischen Physik II TP	P: Obligatory	4V+2U, 8.0 LP