

Course

GE2 - Fundamentals of Electrical Engineering 2

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General information

Long name	Fundamentals of Electrical Engineering 2
Approving CModule	<u>GE2_BaET</u>
Responsible	Prof. Dr. Eberhard Waffenschmidt Professor Fakultät IME
Level	Bachelor
Semester in the year	summer semester
Duration	Semester
Hours in self-study	60
ECTS	5
Professors	Prof. Dr. Eberhard Waffenschmidt Professor Fakultät IME
Requirements	Basic Electrical Engineering Part 1
Language	German, English if necessary
Separate final exam	Yes

Final exam

Details

Written exam:

The exam consists of three parts A, B, C:

Part A ask for basic skills (knowledge and simple application)

Part B ask for required skills (application and evaluation)

Part C asks for extended skills (creativity and combination of the acquired knowledge)

Shortly after the first exam date following the lecture an additional (3rd.) written exam is scheduled.

Minimum standard

Exam Type

Written exam:

The exam consists of three parts A, B, C:

Part A ask for basic skills (knowledge and simple application)

Part B ask for required skills (application and evaluation)

Part C saks for extended skills (creativity and combination of the aquired knowledge)

Shortly after the first exam date follwoing the lecture an additional (3rd.) written exam is scheduled.

^ Lecture / Exercises

Learning goals

Knowledge

The students are able calculate and analyze electrotechnical systems with time varyiing currents and voltages. They can apply alternating current calculations using complex numbers and are able to use different graphical representations. They can especially perform calculations for the following topics.

- Key values describing alternating currents
- Inductors and capacitors
- Alternating current calculations using complex numbers
- Complex impedances and complex voltage divider
- Apparent and reactive power
- Frequency diagrams
- High- and low path filters
- Resonant ciruits, quality factor
- Transformer
- Three phase systems

Expenditure classroom teaching

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

Separate exam

none

^ Practical training

Learning goals

Knowledge

The students perform project-like experiments in the lab. The experiments relate to each other. The aim of the pre-defined experiments is to understand and evaluate the function of a wireless power transmission system. For this purpose the students build themselves from simple materials the components, which are investigated, e.g. planar inductor coils.

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

- Final discussion after each lab date
- Writing of lab reports

Minimum standard

Succesful participation of the lab courses