

# Course

## SNT - Switch-Mode Power Supplies

---

Version: 1 | Last Change: 13.09.2019 19:22 | Draft: 0 | Status: vom verantwortlichen Dozent freigegeben

### ^ General information

<b>Long name</b>	Switch-Mode Power Supplies
<b>Approving CModule</b>	<a href="#">SN_BaET</a>
<b>Responsible</b>	Prof. Dr. Christian Dick Professor Fakultät IME
<b>Organisation and materials</b>	<a href="#">undefined</a>
<b>Level</b>	Bachelor
<b>Semester in the year</b>	summer semester
<b>Duration</b>	Semester
<b>Hours in self-study</b>	60
<b>ECTS</b>	5
<b>Professors</b>	Prof. Dr. Christian Dick Professor Fakultät IME
<b>Requirements</b>	Successful participation in the module power electronics
<b>Language</b>	German, English if necessary
<b>Separate final exam</b>	Yes

### Final exam

#### Details

It is planned to conduct the summary examination as an oral examination, in individual cases with a high number of candidates also a written examination. The examination ensures that each student has achieved the goals of the L.O. individually.

55% of this summary examination is included in the overall grade. The remaining 45% weighting consists of an assessed internship, which does not take place every semester.

## Minimum standard

Sound explanation of the function of diverse converters

## Exam Type

It is planned to conduct the summary examination as an oral examination, in individual cases with a high number of candidates also a written examination. The examination ensures that each student has achieved the goals of the L.O. individually.

55% of this summary examination is included in the overall grade. The remaining 45% weighting consists of an assessed internship, which does not take place every semester.

## ^ Lecture / Exercises

### Learning goals

---

#### Knowledge

Flow converter, flyback converter, push-pull converter, resonant converters, soft switching, EMI and filtering

---

#### Skills

Independent familiarisation with topics that are assigned as tasks

Analysis and evaluation of RF circuits incl. interference emissions and filtering

Magnetic Circuit Design

### 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

---

#### Demonstrate action competence

The following topologies can be analysed, described, evaluated, constructed, put into operation and measured by the students (in lab probably 3 out of 4 Topologies):

buck converter with focus on inductance

flyback converter

push-pull converter

series-resonant converter

### Expenditure classroom teaching

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

### Separate exam

#### Exam Type

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

#### Details

The students work independently and consciously with few specifications / instructions on the construction of converters. In a detailed discussion with the lecturer, the students explain the steps and effects.

#### Minimum standard

The students are able to describe the function of the assembled circuits in a valid way, the circuits function in the laboratory setup.