

Module Handbook (<https://modhb.uni-kl.de/>)

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Module EIT-MEA-221-M-7

Advanced Laboratory on Power Engineering (M, 5.0 LP)

Module Identification

Module Number	Module Name	CP (Effort)
EIT-MEA-221-M-7	<i>Advanced Laboratory on Power Engineering</i>	5.0 CP (150 h)

Basedata

CP, Effort	5.0 CP = 150 h
Position of the semester	1 Sem. in WiSe
Level	[7] Master (Advanced)
Language	[DE] German
Module Manager	Götz, Stefan, Prof. Dr.-Ing. (PROF DEPT: EIT) (/staff/342/)
Lecturers	
Area of study	[EIT-MEA] Mechatronics and Electrical Drives
Reference course of study	[EIT-88.781-SG#2010] M.Sc. Electrical and Computer Engineering [2010] (/mhb/FB-EIT/cos-556/)
Lifecycle-State	[NORM] Active

Courses

Type/SWS	Course Number	Choice in Module-Part	SL	PL	CP	Sem.
4L	EIT-MEA-221-K-7 (/mhb/courses/EIT-MEA-221-K-7/)	P	-	PL1	5.0	WiSe

- About [EIT-MEA-221-K-7]: Title: "Advanced Laboratory on Power Engineering"; Presence-Time: 56 h; Self-Study: 94 h

Examination achievement PL1

- Form of examination: **practical laboratory exam**
- Examination Frequency: each winter semester

Evaluation of grades

The module is not graded.

Contents

From [EIT-MEA-221-K-7] **Advanced Laboratory on Power Engineering** (/mhb/courses/EIT-MEA-221-K-7/):

- Erzeugung und Messung hoher Gleichspannungen
- Erzeugung und Messung von Blitz-Stoß-Spannungen
- Messung der Betriebskapazität und des $\tan \delta$ mit Hilfe der Scheringmessbrücke
- Feldorientierte Regelung der Asynchronmaschine
- Unsymmetrische Schaltungen von Induktionsmaschinen
- Drehstromtransformator
- PV-Wechselrichter in Niederspannungsnetzen
- Digitaler Distanzschutz
- Geregelter Sechspulsstromrichter
- Thyristor-Löschsaltungen

Competencies / intended learning achievements

- Befähigung zu selbstständigen Untersuchungen in den Bereichen:
 - elektrische Antriebe
 - leistungselektronische Schaltungen
 - Energieversorgungsanlagen
 - Hochspannungsanlagen
- Vertiefende Kenntnisse in diesen Bereichen durch experimentelle Untersuchung
- Kennenlernen des Einsatzes industrieller Software zur Messwertverarbeitung
- Verstehen der Messung des instationären Betriebsverhaltens elektromagnetischer Energiewandler

Requirements for attendance (informal)

Modules:

- [EIT-HST-210-M-4] Fundamentals of High-Voltage Engineering (M, 4.0 LP) (/mhb/modules/EIT-HST-210-M-4/)
- [EIT-LEL-230-M-4] Fundamentals of Power Electronics (M, 4.0 LP) (/mhb/modules/EIT-LEL-230-M-4/)
- [EIT-MEA-203-M-4] Electrical Drive Technology I (M, 5.0 LP) (/mhb/modules/EIT-MEA-203-M-4/)

Requirements for attendance (formal)

None

References to Module / Module Number [EIT-MEA-221-M-7]

Course of Study	Section	Choice/Obligation
[EIT-88.781-SG#2010] M.Sc. Electrical and Computer Engineering [2010] (/mhb/FB-EIT/cos-556/)	Specialization Modules	[P] Compulsory
[EIT-88.7-SG#2021] M.Sc. Electrical and Computer Engineering [2021] (/mhb/FB-EIT/cos-686/)	Major Power Engineering (ENT)	[P] Compulsory