Course Handbook Energy system technology / Renewable energies

created at 14.03.2018,12:27

Energy system technology / Renewable energies - mandatory courses (overview)

Module name (EN)	Code	Semester	Hours per semester week / Teaching method	ECTS	Module coordinator

(0 modules)

Energy system technology / Renewable energies - optional courses (overview)

Module name (EN)	Code	Semester	Hours per semester week / Teaching method	ECTS	Module coordinator
Basic Principles Governing the Qualification of Trainers and Instructors in Germany's Dual Education and Vocational Training System	EE-K2-546	-	2V	2	Prof. Dr.-Ing. Dietmar Brück
Electrical Engineering Theory I	EE-K2-531	3	1V+1U	3	Prof. Dr.-Ing. Dietmar Brück

(2 modules)

Energy system technology / Renewable energies - mandatory courses

Energy system technology / Renewable energies - optional courses

Basic Principles Governing the Qualification of Trainers and Instructors in Germany’s Dual Education and Vocational Training System

Module name (EN): Basic Principles Governing the Qualification of Trainers and Instructors in Germany´s Dual Education and Vocational Training System
Degree programme: Energy system technology / Renewable energies, Bachelor, ASPO 01.04.2015
Module code: EE-K2-546
Hours per semester week / Teaching method: 2V (2 hours per week)
ECTS credits: 2
Semester: according to optional course list
Mandatory course: no
Language of instruction: German
Assessment: Written exam

Curricular relevance:
E1582 Electrical Engineering, Bachelor, ASPO 01.10.2012, optional course
EE-K2-546 Energy system technology / Renewable energies, Bachelor, ASPO 01.04.2015, optional course, engineering
FT63 Automotive Engineering, Bachelor, ASPO 01.04.2016, semester 5, optional course, technical
KI611 Computer Science and Communication Systems, Bachelor, ASPO 01.10.2011, semester 6, optional course, non-technical
KIB-AUSB Computer Science and Communication Systems, Bachelor, ASPO 01.10.2017, semester 6, optional course, non-technical
MAB.4.2.1.20 Mechanical and Process Engineering, Bachelor, ASPO 01.10.2013, semester 4, optional course
MST.GAU Mechatronics and Sensor Technology, Bachelor, ASPO 01.10.2012, optional course, non-technical
PIBWN66 Applied Informatics, Bachelor, ASPO 01.10.2011, semester 6, optional course, not informatics specific
PIB-AUSB Applied Informatics, Bachelor, ASPO 01.10.2017, semester 6, optional course, not informatics specific
MST.GAU Mechatronics and Sensor Technology, Bachelor, ASPO 01.10.2011, optional course, non-technical

Workload:
30 class contact hours over a 15-week period.
The total student study time is 60 hours (equivalent to 2 ECTS credits).
There are therefore 30 hours available for class preparation and follow-up work and exam preparation.

Recommended prerequisites (modules):
None.

Recommended as prerequisite for:

Module coordinator:
Prof. Dr.-Ing. Dietmar Brück

Lecturer: Prof. Dr.-Ing. Dietmar Brück
[*updated 08.12.2015*]

Learning outcomes:
After successfully completing this module, students will be familiar with the legal regulations that apply to vocational training and can implement them responsibly. They will have all of the knowledge necessary for the successful completion of the instructor qualification test at the Chamber of Industry and Commerce (IHK). Students will be capable of training young people in a company in accordance with legal, technical and organizational guidelines and helping their trainees successfully complete their training.
[*updated 26.02.2018*]

Module content:
- Planning and testing vocational training requirements
- Preparing vocational training and participating in the recruitment of trainees
- Carrying out vocational training
- Completing vocational training
[*updated 19.02.2018*]

Teaching methods/Media:
Transparencies
[*updated 19.02.2018*]

Recommended or required reading:
Ausbilder-Eignungsverordnung, Rahmenplan mit Lernzielen, Publisher: DIHK - Deutscher Industrie- und Handelskammertag e. V., Berlin 2009
[*updated 19.02.2018*]

Electrical Engineering Theory I

Module name (EN): Electrical Engineering Theory I
Degree programme: Energy system technology / Renewable energies, Bachelor, ASPO 01.04.2015
Module code: EE-K2-531
Hours per semester week / Teaching method: 1V+1U (2 hours per week)
ECTS credits: 3
Semester: 3
Mandatory course: no
Language of instruction: German
Assessment: Written examination
Curricular relevance: E304. Biomedical Engineering, Bachelor, ASPO 01.10.2011, semester 3, mandatory course, course inactive since 28.11.2013 E304 Electrical Engineering, Bachelor, ASPO 01.10.2005, semester 3, mandatory course EE-K2-531 Energy system technology / Renewable energies, Bachelor, ASPO 01.10.2012, semester 3, optional course EE-K2-531 Energy system technology / Renewable energies, Bachelor, ASPO 01.04.2015, semester 3, optional course
Workload: 30 class contact hours over a 15-week period. The total student study time is 90 hours (equivalent to 3 ECTS credits). There are therefore 60 hours available for class preparation and follow-up work and exam preparation.
Recommended prerequisites (modules): None.
Recommended as prerequisite for:

Module coordinator:
Prof. Dr.-Ing. Dietmar Brück

Lecturer: Prof. Dr.-Ing. Dietmar Brück
[*updated 03.12.2009*]

Learning outcomes:
This course introduces students to the theoretical concepts that underpin electrical engineering, offers explanations of electrical and electronic phenomena, and teaches the necessary mathematical methods and measurement techniques. After completing this course, students will have acquired an understanding of non-standard problems, will be able to derive specific solutions from general theory and assess their validity, and will have developed a deeper understanding of electrical systems.
[*updated 10.03.2010*]

Module content:
1.Four-port network theory
2.Circuit types, open circuit and short circuit operation
3.Hybrid matrix, resistance matrix, conductance matrix
4.Ladder networks, parallel circuits, series circuits, recurrent networks
[*updated 10.03.2010*]

Teaching methods/Media:
Overhead transparencies, lecture notes, video projector
[*updated 10.03.2010*]

Recommended or required reading:
Baumeister, J.: Stable Solution of Inverse Problems, Friedr. Vieweg u. Sohn, Braunschweig 1987
Becker, K.-D.: Theoretische Elektrotechnik, VDE-Verlag Berlin 1982
Bergmann. L. und Schäfer,C.: Lehrbuch der Experimentalphysik Bd. III Teil 1: Wellenoptik, Walter de Gruyter, Berlin 1962
Blume, S.: Theorie elektromagnetischer Felder, Dr. Alfred Hüthig Verlag Heidelberg 1982
Collin, R. E.: Field theory of guided waves, Mc Graw-Hill Book Company New York 1960
Hafner, C.: Numerische Berechnung elektromagnetischer Felder, Springer-Verlag Berlin 1987
Hofmann, H.: Das elektromagnetische Feld, Springer-Verlag Wien 1974
Jänich, K.: Analysis für Physiker und Ingenieure, Springer-Verlag Berlin 1983
Schäfke, F. W.: Einführung in die Theorie der speziellen Funktionen der mathematischen Physik, Springer-Verlag Berlin 1963
Simonyi, K.: Theoretische Elektrotechnik, VEB Deutscher Verlag der Wissenschaften Berlin 1977
[*updated 10.03.2010*]