

Course Details									
Code				Acad	Academic Year			er	
NWI206				2	2				
Title					Α	L	ECTS		
Electrotechnik	ctrotechnik 2 1 2 6					6			
Language	German								
Level	Undergraduate	x	Graduate		Postgraduate				
Department / Program	Energy Science and	d Technologies	i						
Forms of Teaching and Learning	Face to face								
Course Type	Compulsory		x	Ele	Elective				
Objectives	The student can master the administration of electrotechnical units and quantities, calculate constant electric and magnetic fields, and analyze linear direct current networks. Vector diagrams, three-phase current and basic semiconductor circuits will be calculated, as well as trip operations and complex alternating current networks.					es, calculate orks. Vector d, as well as			
Content	<ul> <li>Decentear fundamentals, charging, electrical current, electrical voltage, electrical work and power</li> <li>DC currents: Ohm's law, terms in electrical networks, Kirchhoff's theorems, linear DC circuits, ideal and real sources, Superposition, alternative sources.</li> <li>Electric field: capacitor, forces in the capacitor</li> <li>Magnetic field: force in current-carrying conductors, Ohm's law magnetic circuit, law of flow, ferromagnetism, law of induction, self-induction, inductances in the electric grid, forces in the magnetic field</li> <li>Switching operations: First order differential equations, switching RC and LR elements on and off</li> <li>AC currents: voltage generation, definition of mean and effective value, complex calculation, Kirchhoff's laws for AC circuits, complex impedances, apparent power, active power, reactive power, filter networks, three-phase current.</li> <li>Transformer electronics: line mechanisms, semiconductor components, integrated circuits, electrical works, three-phase</li> </ul>								
Prerequisites									
Coordinator									
Lecturer(s)									
Assistant(s)									
Work Placement	No								
Recommended or Required Reading									
Books / Lecture Notes	Hagmann, Gert: Gru	ındlagen der E	lektrotechnik.	AULA-Ver	l., 2006				
Other Sources	Hagmann, Gert: Aufgabensammlung zu den Grundlagen der Elektrotechnik. AULA-Ver., 2006 Frohne, Heinrich; Moeller, Franz: Grundlagen der Elektrotechnik. Teubner, 2005								
Additional Course Material									
Documents									



Assignments					
Exams					
Course Composition					
Mathematics und Basic Sciences			20%		
Engineering			30%		
Engineering Design			%		
Social Sciences			%		
Educational Sciences			%		
Natural Sciences			40%		
Health Sciences			%		
Expert Knowledge			10%		
Assessment					
Activity	Cou	nt	Percentage (%)		
Midterm Exam		40			
Quiz					
Assignments		20			
Attendance					
Recitations					
Projects	1	40			
Final Exam					
		Total	100		
ECTS Points and Work Load					
Activity	Count	Duration	Work Load (Hours)		
Lectures	15	2	30		
Self-Study	15	4	60		
Assignments	4	10	40		
Presentation / Seminar Preparation					
Midterm Exam	1 2		2		
Recitations	15	1	15		
Laboratory	15	2	30		
Projects					
Final Exam	1	2	2		
	Total Work Load				
	ECTS Poir	nts (Total Work Load / Hours)	6		

**Learning Outcomes** 



1	Formulate and	analyze a proble	em by examining	g the current sta	tus.		
2	Develop applicable suggestions and/or solution methods for the problem dealt with, considering theoretical knowledge.						
3	Gain the ability results.	Gain the ability to implement a solution method to an existing problem and will be able to evaluate the results.					
4	Learn to expres	Learn to express himself/herself by reporting and presenting the work.					
5	Learn to defen	d the idea that u	nderlines the re	sults of the stud	ly.		
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7							
8							
9							
10							
11							
12							
Weekly Conten	t						
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11							
12							
13							
14							
15							
Contribution of Learning Outcomes to Program Objectives (1-5)							
	P1	P2	P3	P4	P5	P6	P7
1							
2							
3							



4							
5							
6							
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8							
9							
10							
11							
12							
Contribution Level         1: Low 2: Low-intermediate 3: Intermediate 4: High 5: Very High							
Compiled by:							
Date of Compilat	tion:						