

## Electrical Power Engineering (EPEN)

	<b>Study Profiles:</b>					
	I. Electrical Appliances	II. Electrical Drive Trains	III. Electricity Grids	IV. Electro Mobility	V. Power Systems Engineering and Economics	VI. Renewable Energies
<b>A) Catalogue CORE</b>						
1. Advanced Electrical Drives		X		X		
2. Automation of Complex Power Systems	X	X	X		X	X
3. Battery Storage Systems	X	X		X		
4. Design, Computation and Technology of Electrical Machines	X	X		X		
5. Dynamic of Electrical Machines		X		X		
6. Energy Storage Systems			X		X	X
7. Faults and Stability in Power Systems			X		X	X
8. High Voltage Engineering – Insulation Systems	X		X			
9. High Voltage Engineering – Testing Systems and Diagnostics			X		X	X
10. Power Electronics- Control, Synthesis and Applications	X	X		X		X
11. Power Generation and Energy Trading				X	X	X
12. Power System Dynamics	X		X		X	
<b>B) Catalogue ELECTIVE</b>						
1. Remaining modules of catalogue CORE	X	X	X	X	X	X
2. Design and Grid Operation of Wind Energy Systems						X
3. Disruptive Battery Technologies and Innovation		X		X		
4. Electric Local Transport Systems	X	X				
5. Electric Rail, Linear Drives, and Magnetic Levitation		X				
6. Electrical On-board Supply Systems for Motor Vehicles				X		
7. Electrical Power out of Regenerative Energy Sources				X		X
8. Electrical Railway Transaction Drives		X				
9. Electromagnetic Field Simulation for Electrical Energy Applications	X					
10. Energy Trading and Risk Management					X	
11. Industrial Product Development Process Exemplified by Battery Systems for Hybrid and Electric Vehicles				X		
12. Magnetic Materials and Applications		X				
13. Measurement Techniques and Distributed Intelligence for Power Systems			X		X	
14. Modern Control Systems						X
15. Modeling and Simulation of Complex Power Systems			X			X
16. Modern Servo Motors for Machine Tools and Robots	X					
17. Operation of Interconnected Power Systems			X			
18. Overheadlines			X		X	
19. Power Cable Engineering			X			X
20. Power Economics in Liberalized Energy Markets					X	
21. Power Semiconductor Devices	X			X		
22. Protective Measures and Equipment in Power Supply Systems and Electrical Installations	X				X	

**C) Catalogue LABORATORY**

1. Battery Storage Systems	X	X	X	X	X	X
2. High Voltage Lab Course	X	X	X	X	X	X
3. Implementation of Automation Functions for Monitoring and Control	X	X	X	X	X	X
4. Laboratory Exercise on Power Engineering 2	X	X	X	X	X	X
5. Photovoltaic	X	X	X	X	X	X
6. Power Electronic Devices						

**D) Catalogue PROJECT**

1. Approaching the Long Term Optimal High Voltage Grid	X	X	X	X	X	X
2. Design and Simulation of Electromechanical Energy Converters	X	X	X	X	X	X
3. Leistungselektronik	X	X	X	X	X	X
4. Measurement and Control of Electrical Machines	X	X	X	X	X	X
5. Nachhaltige Verteilungssysteme	X	X	X	X	X	X
6. Operation of Hydropower Plants in the Electricity Market	X	X	X	X	X	X
7. Planung langfristig optimaler Mittelspannungsnetze	X	X	X	X	X	X
8. Power System Control Center Network Control System	X	X	X	X	X	X
9. Project from the Field of High Voltage Engineering	X	X	X	X	X	X
10. Sustainable Transmission Systems	X	X	X	X	X	X