

Electrical Engineering (Power) Department

U.S-Pakistan Centers for Advanced Studies in Energy

Pakistan's energy sector needs people like you. Engineers who can create home grown, innovative and affordable solutions that lead to sustainable, reliable energy access for all our citizens.

This program will prepare students to do original research and to develop and commercialize smart electrical devices, to modernize electrical equipment, and to create prototypes and products for a wide range of electrical applications. Created in collaboration with Arizona State University in the U.S and with ongoing input from industry partners, the USPCASE MS EEP program will produce the experts in electrical power engineering for fulfilling Pakistan future needs.

Eligibility and Admissions Criteria

MS EEP Program

- 16 years of schooling/ 4 years education after HSSC/A' Level in relevant discipline with minimum CGPA of 2 out of 4 or 55% marks.
- GAT (General) conducted by NTS with at least 50 accumulative score.
- B.E in Electrical/Electronics Engineering
- Interview at USPCAS-E

PhD. EEP Program

- MS in Electrical Engineering, Energy Systems Engineering, Electronics Engineering, Computer Engineering, Telecom Engineering, Systems/Control Engineering or other related disciplines.
- GRE (General) by ETS (New Jersey) or GRE organized by USPCAS-E NUST (Minimum Score 70%).



Interview conducted by USPCAS-E, NUST

**Contact us today to
Learn more and apply**

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Department of Electrical Engineering (Power)
U.S.-Pakistan Center for Advanced Studies in Energy
National University of Sciences and Technology Islamabad Pakistan

NUST
Defining Futures



FACULTY

EEP Faculty	Research Expertise
DR. KASHIF IMRAN Assistant Professor/Department Head Ph.D.: University of Strathclyde	<ul style="list-style-type: none"> • Electrical power systems • Electricity market
DR. HASSAN ABDULLAH KHALID Assistant Professor Ph.D.: University of L'Aquila, Italy	<ul style="list-style-type: none"> • Power electronics solutions for power system to improve power quality • Control of grid connected converters
DR. ARSLAN HABIB KHAWAJA Assistant Professor Ph.D.: University of Electronic Science and Technology of China	<ul style="list-style-type: none"> • Innovative instrumentation and measurement for power systems
DR. SYED ALI ABBAS KAZMI Assistant Professor Ph.D.: SungKyunKwan University, South Korea	<ul style="list-style-type: none"> • Electrical power systems • Smart distribution network planning
DR. ABRAIZ KHATTAK Assistant Professor Ph.D.: COMSATS Institute of IT, Pakistan	<ul style="list-style-type: none"> • High voltage engineering
DR. Abasin Ulasyar Assistant Professor Ph.D.: Koc University, Istanbul, Turkey	<ul style="list-style-type: none"> • Power Electronics and control system
DR. Khawaja Khalid Mehmood Assistant Professor Ph.D.: SungKyunKwan University, South Korea	<ul style="list-style-type: none"> • Power System operation, planning and reliability
ZUHAIR S. KHAN, Professor, A/Principal & Dean Ph.D. (Kyoto, Japan), M.S. Engg. (Linkoping, Sweden)	<ul style="list-style-type: none"> • Adv. Energy Materials & Surface Engg. • Power Electronics & HV Materials



The EEP MS Program at NUST

The program requires a minimum of 24 credit hours (CH) of course work, plus 2 credit hours of research methodology and a 6 credit hour research project, which will be counted towards the thesis, for a total of 30 credit hours.



S. No.	Course No.	Course Title	Credits	Requirements
		Core Courses		
1.	EEE-800	Power System Operation, Control and Optimization	3	
2.	EEE-801	Clean Energy Generation, Integration and Storage	3	
3.	EEE-802	Advanced Power System Stability and Transient Studies	3	
4.	ESE-909	Smart Grid Architecture	3	
		Electives Courses		
5.	EEE- 811	Electric Power Quality	3	
6.	EEE -812	Advanced Power System Protection	3	
7.	EEE -813	Computer Modelling of Electrical Power Systems	3	
8.	EEE-814	Advanced Power Electronics	3	
9.	EEE-815	Electric Power Generation Transmission and Distribution	3	
10.	EE-861	Alternating Current Electrical Machines and Drives	3	
11.	ESE-803	Photovoltaic Devices	3	
12.	ESE-813	Energy Economics and Policy	3	
13.	ESE-814	Fuel Cells	3	
14.	ESE-817	Wind Energy	3	
15.	ESE-820	Energy and Environment	3	
16.	ESE-824	Nuclear Energy Engineering	3	
17.	EEE-816	Electric Power Markets	3	
18.	EEE-817	High Voltage Engineering	3	
		Course work required		24 CH
19.	EE 899	Thesis		6 CH
20.	RM 899	Research Methodology		2 CH
		Total		30 CH



PhD Electrical Engineering (Power)

The main program requires a minimum of 18 credit hour (CH) course work and a 30 CH research project which will be counted towards the thesis.

S. No	Code	Title	CH
Pool of Courses			
1.	EEE-900	Signal Processing for Modern Power Systems	3
2.	EEE-901	Advanced Converter Control Techniques	3
3.	EEE-902	Technologies for Smart Transmission Systems	3
4.	ESE-909	Smart Grid Architecture	3
5.	ESE-910	Smart Power Systems	3
6.	ESE-811	Solar Energy	3
7.	ESE-817	Wind Energy	3
8.	EE-861	Alternating Current Electrical Machines and Drives	3
9.	EE-863	Power System Analysis	3
10.	EEE-800	Power System Operation, Control and Optimization	3
11.	EEE-801	Clean Energy Generation, Integration and Storage	3
12.	EEE-802	Advanced Power System Stability and Transient Studies	3
13.	EEE-811	Electric Power Quality	3
14.	EEE-812	Advanced Power System Protection	3
15.	EEE-814	Advanced Power Electronics	3
16.	EE-920	System Validation	3
17.	EE-977	Nonlinear Control Systems	3
18.	EE-871	Linear Control Systems	3
19.	EE-891	Stochastic Systems	3
20.	IS-838	Advanced Simulation & Modeling	3
21.	CS-877	Artificial Intelligence & Machine Learning	3
22.	Math-901	Advanced Engineering Mathematics	3
23.	Math-850	Advanced Numerical Analysis	3
24.	EEE-999	PhD Thesis	30
25.	RM-898	Research Methodology (Required for those who haven't taken it in MS)s	2

Smart Grid Lab

- Hardware In The Loop
- Scada Operations And Control
- Power Grid Simulator
- Real Time Phasor Mode Simultor
- 4 Quadrant Amplifier
- Grid Controlled Relays
- Phasor Measurement Units
- Phasor Data Concentrator
- GPS Diciplined Power Quality Analyzer
- Transient And Frequency Measurment Systems
- AC Dc Porgram Bale Loads
- HV Power Supply
- Inteligent Open Archetucture Design Sytem Of AC/DC Mircor Grids

High Performance Computing & Emerging Technology Lab

- High performance computers
- Matlab
- LabVIEW
- Digsilent Power factory
- Aspen power analysis
- PSCAD
- Multisim

