

## **Master of Energy and Power Engineering (Electrical Engineering)**

The professional M.Eng Program of Energy and Power (Electrical Engineering) aims to cultivate high-level professionals with solid theoretical and systematic electrical engineering knowledge. Graduates will have strong ability to solve practical problems and will be highly competent in tackling technological and management challenges.

The Electrical Engineering master's program started recruiting its first batch of graduate students in 2009. So far, the program has 230 enrolled students and 154 graduates. The duration of the program is around 2 to 3 years.

### **Research**

In terms of research conditions, the discipline owns various advanced electrical engineering research equipment and experimental platforms with over 1900 m<sup>2</sup> laboratory area and 200m<sup>2</sup> office space. The laboratories and main research platforms are:

- National Key Laboratory of Power Systems in Shenzhen
- Guangdong Technology Research Center of Power Equipment Reliability in Complicated Coastal Environments
- Shenzhen Engineering Laboratory of Power Equipment Reliability in Complicated Coastal Environments
- Shenzhen Key Laboratory of Circular Economy Pilot Technology.

The discipline is focused on the research of basic scientific theories and technologies in the fields of high voltage, power system and power electronics. We are actively exploring the application of cutting-edge technologies of smart grids and key technologies of national UHV transmission, pulse power and discharge plasma in inter-disciplinary fields

Outstanding achievements include designing and manufacturing the world's first 800kV DC composite insulator; the development and the usage of silicone rubber coating and factory composite technology, 2014 UNESCO Habitat Award winning research and development of solar photovoltaic water lifting system, and others. The discipline has also undertaken lots of research projects such as the national basic research program (973 program), the national key technology R & D programs and the National Program on Key Research Project.

Since 2011, the discipline has undertaken 48 ministerial-level vertical projects with 24.1 million financial support in total. It has also undertaken 150 scientific and technological development projects from State Grid and China Southern

Power Grid with a total funding of 97.7 million.

Faculty members have published over 150 SCI cited papers, more than 300 EI cited papers, over 50 authorized invention patents (including 5 U.S. patents), and 4 monographs. The discipline has also presided and participated in formulating national, industrial and group standards, and have received multiple national, provincial and ministerial science and technology awards.

The discipline has also actively hosted academic conference in related fields:

- 12th Asian Conference on Electrical Discharge (ACED2004)
- International Symposium on High Voltage Engineering (ISH2005)
- High Voltage Academic Annual Meeting 2007
- International Conference on Gas Discharges and Their Applications (GD2012)
- Seminar On Smart Grid Theory and Practice 2012
- IEEE Conference on Electrical Insulation and Dielectric Phenomena (CEIDP2013)
- Seminar on Electrical Discipline High Voltage Field Project 2018
- Workshop on UHV Gas Discharges, CEIDP2019.

### **Professional Development**

Students will be co-guided by on-campus supervisors and off-campus senior technicians from industries and research institutes. Up until now, 39 technical experts from Power Grids have been employed as off-campus supervisors and are deeply involved in postgraduate trainings. These trainings allow students to combine theory with practice and stimulate innovation.

The discipline has also set up a laboratory-enterprise scholarship which provides students over 0.5 million annually. We also encourage postgraduates to contribute and participate in international conferences. Among 154 graduates, 13 excellent graduation thesis awards were obtained, 4 graduates have won "National Excellent Achievements in Practice of Engineering Master and 5 graduates obtained national scholarships.

Graduates from our program enter diverse fields. More than 90% enter enterprises or key industries for employment. Most are hired by power grid companies such as State Grid and South Grid, whereas the number of graduates hired by high-tech enterprises and the financial industry such as ABB, GE, and Huawei are increasing.

Meanwhile, many graduates continue advanced studies in leading universities in China or abroad. Our students are trained based on industry needs, but gain applicable skills that can be used in many different industries. Our goal is to nurture leading talents for the power industry, but also covering places such as

universities, government agencies, enterprises and others.

## **Faculty**

Our teaching team includes 7 full-time faculties and several off-campus supervisors. Full-time faculties include 2 professors, 4 associate professors and 1 lecturer. Apart from supervising students, they are also responsible for the construction and design for the main curriculum. Off-campus supervisors are mainly experts in related fields, who will undertake the task of student tutoring and also participate in teaching, professional practice and other work.

For more information on our faculty, please visit:

<https://www.sigs.tsinghua.edu.cn/nyyhjxb2/index.jhtml>

## **Contact**

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