

Introduction of Electrical Engineering and Automation

1. College of Electrical Engineering

Established in 1920, College of Electrical Engineering (CEE), with Department of Electrical Engineering as its predecessor, was one of the earliest founded departments of such kind in China. The College is located at Yuquan campus of Zhejiang University. There are 3 undergraduate programs in the College, Electrical Engineering and its Automation, Automation, and Electronic Information Engineering. In respect of graduate education, two first-level disciplines are currently available, Electrical Engineering, and Control Science and Engineering. Of them, Electrical Engineering is among the first group to be enlisted as the national first-level key disciplines, and included in the national key projects such as Project 211 and Project 985. In the year of 2017, the discipline of Electrical Engineering was selected into the list of the country's construction plan of first-class disciplines.

The College is rich of resources both in teaching and research. Among the 171 faculty and staff members, there are 52 professors. Its faculty members with PhD degree account for more than 85%. It is empowered with not only the famous senior professors such as Professor WANG Yousheng, one of the earliest academicians of Chinese Academy of Engineering, and Professor HAN Zhenxiang, academician of Chinese Academy of Science and the ex-president of Zhejiang University, but also young and middle-aged academic elites like Professor SONG Yonghua, guest professor of Zhejiang University, president of the University of Macau, fellow of Royal Academy of Engineering, and IEEE fellow, and Professor XIA Changliang, the QIUSHI Chair professor of Zhejiang University, and academician of Chinese Academy of Engineering. At the same time, outstanding young teachers of the EE College have witnessed a rapid growth of recipients of the chief scientists of the National Basic Research Program (973), the National Thousand Young Talents Program, and the NSFC for Excellent Young Scholars.

The College currently consists of 8 institutes, nourished with the following research and education centers, National Key Laboratory of Power Electronics, National Engineering Center for Applied Power Electronics, Electrical and Electronic Experimental Teaching Demonstration Center, Experimental Teaching Center for Mechanical and Electrical Institute (jointly established), Edison Experimental Class- an innovation pilot program for outstanding EE undergraduate education, National Engineering Research Centre for Small & Special Precision Motors (jointly established), National Train Intelligent Engineering Research Center (jointly

established), Zhejiang Province Marine Renewable Energy Electrical Equipment and System Technology Research laboratory, and Zhejiang Provincial Key Laboratory of Intelligent Control and Converting Technology of Motor Systems.

2. Educational Objectives

- (1) To provide students with ground knowledge of natural science and overall capacity of social science, management science and foreign language;
- (2) To prepare students for engagement in areas such as operation, control, research, development, automatic control, information processing, test analysis for power system and motor system, and in power electronics technology, mechatronic technology, economic management and computer applications;
- (3) To prepare students for innovative and interdisciplinary high-level engineering professionals and management talents with global vision and broad general knowledge;
- (4) To prepare students for high-quality innovative talents and leaders with global vision and the spirit of Truth Seeking

3. Outcomes

To prepare students for the Program educational objectives to be achieved, a set of program outcomes are carefully designed as follows. Knowledge and abilities that graduates need to have are:

- (1) deep understandings of science fundamentals such as mathematics and physics, fundamentals of social science and management science, and good command of foreign language
- (2) systematic knowledge of basic theory of technology necessary in areas of expertise, including electrical engineering theory, electronics technology, information processing, automatic control theory, basic theory and application of computer hardware and software, etc
- (3) ability to have better training in engineering practice, and ability with skilled computer application
- (4) favorable ability in literature search and reading, and good understanding of cutting-edge trends of the relevant discipline
- (5) strong ability in scientific research, development, and organization and management skills

4. Characteristics

- (1) Curriculum system for electrical engineering of world-class university;

(2) Opportunity to learn Chinese language and culture

5. Q&A

Q1: What is the learning object of the program?

Nearly 70% of the primary energy (oil, coal, nature gas, etc.) in nature is converted into Electricity, which is the learning object of the program. Electric energy, from the generation in the power plant, the transformation in the substation and converter station, the transmission in the power grid, and the control and final consumption in many applications, is the learning object of the program. The program consists of two major directions. One is the power system and its automation, which mainly studies the high-voltage technology, network analysis, equipment operation and selection, and relay protection of electric energy in the process of generation, transformation, transmission and distribution. The other is the motor system and its control, which mainly studies the operation theory, electromagnetic problems, design and computer control of various motors and their control systems, involving technologies of power electronics, computer, control and mechatronics.

Q2: What are the core courses of the program?

Intro to Electronics, Intro to Computing, Computer Systems & Programming, Analog Signal Processing, Probability with Engineering Application, Fields and Wave I, Digital Systems Laboratory, Semiconductor Electronics, Electric Machinery, Power Electronics, Power System Analysis, Senior Design Project Lab

Q3: How are the further education and career prospects of the Program?

In the past 3 years, about 70% graduates of Electrical Engineering and Automation chose to study further in China or abroad. The graduates from the program have broad employment prospects. Some chose to work in power system companies, such as State Grid, Southern Power Grid and other power companies at all levels, electric power design institutes, electric power research institutes. The other chose to work in industries relating to industrial electric, new energy vehicles, aerospace and robot control, engaged in the research, development and design, system operation and computer control of electrical equipment and motor system, such as Huawei, Siemens, ABB, GE, CRRE, etc.

6.Contact

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