

## Electrical Engineering Program

### ■ Program Overview

The department of Electrical Engineering of SJTU originates from the technical college of electrical engineering in 1908, which is the earliest discipline of electrical engineering in Chinese history.

Electrical engineering is now a key discipline in Shanghai (approved in 1996). It has a first-class discipline mobile station for postdoctoral research (approved in 1999) which was rated as outstanding nationwide (ranked first) and was given the authority to confer Ph.D. in electrical engineering. The discipline covers the following five sub-disciplines, electric power systems and automation, high voltage and insulation technology, electric machines and electric apparatus, power electronics and power drives and theory and new technology of electrical engineering, all of which are permitted to grant master and Ph.D. degrees.

The Department of Electrical Engineering has multidisciplinary advantages and distinctive features in the field of Power System & Its Automation, High Voltage & Insulation Technology, Electric Machines & Control and Power Electronics. It also has research centers and labs such as “State Energy Smart Grid R&D Center”, “State Energy Offshore Wind Technology and Equipment R&D Center”, “Power Transmission Conversion and Control Key Lab of MOE”, “Electric Insulation and Thermal Aging Key Laboratory of Shanghai”, “Electric and Electronic Teaching Base of National Basic Science Courses” and “Wind Power Research Center”. With excellent research base and laboratories, it has strong research potentials and takes on over 100 research projects concerning 863 Plan and 973 Plan, National Development and Reform Commission, National Science Foundation, Shanghai Science and Technology project and international cooperative projects.

The department attaches great importance to fundamental research and multidisciplinary studies and especially underlines the practicality to serve for the national economy. Besides participating in national research projects, it also takes on numerous projects on industrial application of market values. Currently, it is in the leading position of product development and industrialization throughout the country. Listed companies brought by transferring research results include Sieyuan Electric, Co., Ltd. and Guangdong Weida Co. Ltd.

Recently, the discipline of electrical engineering has won many awards including two first prizes and two second prizes for National Progress in Science and Technology, one prize of National Inventions, three first prizes and over 20 second prizes at ministerial and provincial level. There are over 90 national patents and over 40 monographs, 2 excellent doctoral dissertations of Shanghai. Papers embodied by SCI, EI and ISTP have significantly increased.

The department has 98 teachers and staff, including 2 academicians, 1 Recipient of National Science Funds for Outstanding Youth, and 2 winners of Program for New Century Excellent Talents in University, 1 Outstanding Young Teacher in Higher Education Institutions of MOE, 2 scholars of the Dawn Program of

Shanghai Education Commission. Moreover, there are 24 part-time professors, including 9 academicians of the Chinese Academy of Sciences and Chinese Academy of Engineering. About 800 undergraduates, 500 graduates, 120 doctors and 3 postdoctoral researchers are studying and working at the department.

### ■ Research Direction

Electric Machines and Electric Apparatus  
 Electric Power System and Its Automatization  
 High Voltage and Insulation Technology  
 Power Electronics and Power Drives  
 Theory and New Technology of Electrical Engineering

### ■ Main Courses

Course name(English)	Semester	Credit Hours	Departments	To whom
The Experimentations of FACTS	fall	2	Electrical Engineering of SEIEE	Master
Applied science of Superconductivity	Spring	2	Electrical Engineering of SEIEE	Master
Applications of Large System Optimization Theory to Power Systems	Spring	2	Electrical Engineering of SEIEE	Master
Modern Power Supply Technology	Spring	2	Electrical Engineering of SEIEE	Master
Computer Vision	Spring	3	Automation of SEIEE	Doctor
Information Fusion	Spring	2	Automation of SEIEE	Doctor
Adaptive Control	fall	2	Automation of SEIEE	Master
Advanced research writing	summer	2	Automation of SEIEE	Master
Presenting scientific ideas – case studies from embodied intelligence	summer	1	Automation of SEIEE	Master

Linear System Theory	fall	3	Automation of SEIIE	Master
Machine Learning - Fundamental and Practice	Spring	3	Computer Science of SEIIE	Master
Image Processing and Machine Vision	fall	3	Computer Science of SEIIE	Doctor
Theory and Methods for Statistical Learning	fall	3	Computer Science of SEIIE	Doctor
Intelligent Speech Technology	Spring	3	Computer Science of SEIIE	Master
Network Computing	Spring	3	Computer Science of SEIIE	Master
Digital Image Processing	fall	3	Computer Science of SEIIE	Master
Advanced Computer Architecture	fall	3	Computer Science of SEIIE	Master
Computer Graphics	Spring	3	Computer Science of SEIIE	Master
Advanced Computer Networks	fall	3	Computer Science of SEIIE	Master
Programming Language	Spring	3	Computer Science of SEIIE	Doctor/Master
Statistical Learning and Inference	fall	3	Computer Science of SEIIE	Master
Bioinformatics	Spring	3	Computer Science of SEIIE	Master
Security Engineering	fall	2	Computer Science of SEIIE	Master
Coding and Information Theory	fall	3	Computer Science of SEIIE	Master
Algorithm analysis and Theory	Spring	3	Computer Science of SEIIE	Master
Applied Algebra	fall	3	Computer Science of SEIIE	Master

Parallel Computing and Algorithms	Spring	2	Computer Science of SEIIEE	Master
Computer Animation Design And Data Visualization	fall	3	Computer Science of SEIIEE	Master
Modern Mobile Communications and Computing	Spring	3	Computer Science of SEIIEE	Doctor
Advanced Topics on Internet of Things	fall	3	Computer Science of SEIIEE	Doctor
Introduction to Web Search and Mining	Spring	2	Computer Science of SEIIEE	Master
Digital Image Processing	fall	3	Electronic Engineering of SEIIEE	Master
Stochastic Processes and Queuing Theory	fall	2	Electronic Engineering of SEIIEE	Master
Design and Performance Analysis	Spring	3	Electronic Engineering of SEIIEE	Master
Communication Theory and Systems	fall	3	Electronic Engineering of SEIIEE	Master
Modern Signal Processing	fall	3	Electronic Engineering of SEIIEE	Master
Visual Computing Theory and Engineering	Spring	2	Electronic Engineering of SEIIEE	Master
They and Technology of Information security	fall	2	Electronic Engineering of SEIIEE	Master/Doctor
Array Signal Processing and Space-Time Signal Processing	Spring	3	Electronic Engineering of SEIIEE	Master
Waveguide optics	Spring	3	Electronic Engineering of SEIIEE	Master
Electrumagnetic in Modern Communication	fall	2	Electronic Engineering of SEIIEE	Master
Advanced Theory of Wave Propagation and Antenna	fall	2	Electronic Engineering of SEIIEE	Doctor

Semiconductor Physics and Devices Physics	Spring	3	Electronic Engineering of SEIEE	Master
Advanced Theory of Electro magnetic Field	fall	3	Electronic Engineering of SEIEE	Master
Organic Electroluminescent Display and Lighting	Spring	3	Electronic Engineering of SEIEE	Master
Theory of Microwave and speed circuits	Spring	3	Electronic Engineering of SEIEE	Master
Low-noise electronic Design & Detection of Signal in Noise	Spring	3	Instrument Science and Engineering of SEIEE	Master
Chinese	fall/spring	2	International School of Education	Doctor/Master
Chinese Culture	fall/spring	2	International School of Education	Doctor/Master
Matrix Theory	fall	3	Mathematics	Master
Algorithmic method	fall	3	Mathematics	Master