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College of Energy and Mechanical Engineering

I. Faculty Introduction

College of Energy and Mechanical Engineering has the longest history and the most distinctive feature of energy and electric power in Shanghai University of Electric Power. Founded in 1951, she became stronger and more powerful from Department of Power, College of Energy and Environmental Engineering to College of Energy and Mechanical Engineering.

Faculty and staff: Currently, the number of faculty and staff is about 80. Among them, there are more than 40 senior faculty members/researchers with National Distinguished Youth Scholars, New Century Talents of Ministry of Education, Excellent Academic Leader of Shanghai, Oriental Scholar and Young Oriental Scholar of Shanghai, Shuguang Scholars of Shanghai, Youth Star of Shanghai, Outstanding Teacher of Shanghai, Pujiang Scholar. We invite famous scholars from overseas, Chinese Academy of Science, Chinese Academy of Engineering, Yangtze River Scholar as our special professors or consultants. We've already set up a teaching and scientific team with good structure, high level and strong innovation.

Disciplines: We have six undergraduate programs, Energy and Power Engineering, Renewable Energy Science and Engineering, Nuclear engineering and nuclear technology, Energy Storage Science and Engineering, Machine Design Manufacture and Automation and Mechatronic Engineering. Energy and Power Engineering is recognized by Ministry of Education to be managed nationally and national first-class undergraduate major, among the first pilot majors of "Excellent Engineers Education Training Plan", key major financed by "Central Finance Supporting Local Universities Development Plan". It is selected as Comprehensive Reformation Program of Ministry of Education, and Shanghai Undergraduate Highland Project. It has a national engineering practice education center and Shanghai energy and power experimental teaching demonstration base. It is equipped with two Shanghai municipal level teaching teams, awarded more than 10 Shanghai teaching prizes. We have Master Programs of Power Engineering and Engineering Thermophysics majors,



Power Engineering and Mechanical Engineering. Besides, there is one Shanghai key discipline, 3 Shanghai Engineering Technical Research Centers and one key discipline of Shanghai Education Committee. In the 2016 National Major Assessment organized by State Council Degree Office, we ranked the first among all universities granting Power Engineering and Engineering Thermal Physics master programs nationally.

Research: We are strong in research team and high-level researching ability in clean and efficient utilization of conventional energy (combustion and pollutant control, power system energy-saving), renewable energy and multi-energy complement (solar photovoltaic-thermal utilization, distributed energy and micro grid), power equipment safety (life evaluation and fault diagnosis of power equipment). In recent years, we have undertook and participated in more than 300 national and provincial scientific research projects, such as National 973 Projects, National 863 Projects, National Science and Technology Support Plans, National Research and Development Plans and National Natural Science Fund Projects. Over 10 prizes in provincial level technical inventions and science and technology progress have been awarded to our College; more than 200 high-level papers indexed by SCI and EI, including the high citation of ESI have been published. We also have more than 100 national patents. We are also actively engaged in domestic and overseas academic exchange, and have established close partnership with famous universities in America, Britain, Japan etc. in student exchange and scientific research programs.

Students: Our education aims to meet requirements of the power industry. We focus on students' ability to apply knowledge into practice. By the education mode of "industry-university-research", our students are educated collaboratively with major national power generation groups and CGNPC group. They go abroad to America, Britain, Australia, Japan and other countries for study and exchange as well. It is always our emphases to improve students' comprehensive quality, innovative spirit and practical ability. Our students have achieved remarkable awards in competitions, such as the Grand prizes and First Prizes in National Discipline Competition, the



Challenge Cup, Energy Conservation and Emission Reduction Competition, etc.. The academic atmosphere is so excellent that many students have won awards and honorary titles, such as National Scholarship, Baosteel Scholarship, National Self-improvement Undergraduate Star, Shanghai Undergraduate of the Year. Graduate employment proves to be very well with the overall employment rate above 96%, of which over 60% are in power industry. Our graduates enjoy high praises from employers.

II. Major Introduction

➤ Bachelor program

1. Energy and Power Engineering

Energy and Power Engineering is one of the earliest undergraduate majors in our school. It is more than 60 years. Its predecessor was the major of thermal energy and power engineering. It focuses on the cultivation of power production theory and operation technology, and has strong power characteristics and industry advantages in power generation operation and technical management. After decades of development, especially after the second phase of Shanghai's key (cultivation) disciplines, the fourth and fifth phases of the Municipal Education Commission's key disciplines and the construction of undergraduate education highlands, it has become one of the most distinctive disciplines in our university.

The energy and power engineering major relies on the electric power industry, and in line with the educational concept of "emphasizing foundation and wide caliber", cultivates pioneering and innovative spirit, strong computer and foreign language application ability, and can be engaged in thermal energy engineering, air conditioning and refrigeration in various sectors of the national economy. Senior talents in design, manufacturing, operation, management, commissioning, installation, research and development, marketing and other aspects of engineering.

Students of this major mainly study the basic knowledge of energy and power



engineering, learn various theories and technologies of energy conversion and effective utilization, and will be in engineering design and scientific research ability, foreign language and computer application ability, analysis and problem-solving ability, absorption and creation ability New knowledge and abilities have been comprehensively cultivated and exercised.

- Main courses

Computer Fundamentals, Mechanical Drawing, Engineering Mechanics, Fundamentals of Mechanical Design, Electrical and Electronic Technology, Automatic Control Principles and Systems, Engineering Thermodynamics, Fluid Mechanics, Heat Transfer, Combustion, Thermal Testing Instruments, Steam Turbine Principles, Boiler Principles, Nuclear Power Technology , gas turbine and its combined cycle, thermal power plant, circulating fluidized bed boiler, centralized control operation of unit units, refrigeration principle and equipment, air conditioning, renewable energy power generation technology, clean coal technology, heating network technology, enterprise energy management, etc.

- Industries and fields for graduates

Graduates majoring in energy and power engineering can engage in design, manufacture, installation, operation, management, teaching and scientific research in thermal energy engineering, environmental protection and new energy technology in various sectors of the national economy. Graduates can adapt to the design, manufacture, installation, commissioning, operation and scientific research of thermal equipment of power system, power equipment and air-conditioning and refrigeration equipment of petroleum, chemical, energy, metallurgy, light industry and other industries.

2. Mechanical Design, Manufacturing and Automation

Mechanical Design, Manufacturing and Automation was established in 2004. It is the third batch of applied undergraduate pilot majors in Shanghai-affiliated colleges and universities. This major not only pays attention to the study of modern design,



advanced manufacturing and automation in the field of large machinery, but also takes into account the expansion of knowledge of equipment operation and fault diagnosis in the energy industry.

Mechanical design, manufacturing and automation trains senior mechanical engineers with energy characteristics, with professional knowledge and equipment management capabilities, and can be engaged in scientific research and development, design and manufacturing, applied research and operation supervision of energy equipment in the energy industry. Application-oriented, complex type technical talents.

Students mainly study the basic theory of mechanical design and manufacturing, learn the basic knowledge of microelectronic technology, computer technology, information processing technology and modern design methods, receive the basic training of modern mechanical engineers, and master the design, manufacturing and equipment control of mechanical products. Basic skills in technology, production organization and management.

- Main courses

Theoretical Mechanics, Mechanics of Materials, Descriptive Geometry and Mechanical Drawing, Electrical and Electronic Technology, Fundamentals of Mechanical Engineering Control, Engineering Materials, Mechanical Principles, Mechanical Design, Tolerance and Technical Measurement, Fundamentals of Material Forming Technology, Hydraulic Transmission, Fluid Mechanics and Thermal Engineering Basic, numerical control technology, mechatronics system design, mechanical manufacturing technology, mechanical innovation design, electrical machinery, etc.

- Industries and fields for graduates

Graduates can adapt to energy, machinery, electronics and other manufacturing enterprises, scientific research units, government agencies and institutions of higher learning to engage in design, manufacturing, operation management, scientific research and teaching, especially in energy equipment, computer control systems,



production Design, development, research, testing and operation management of automation systems, CNC machining, computer-aided manufacturing and mechanical and electrical products.

3. New Energy Science and Engineering

New Energy Science and Engineering takes the adjustment of the energy pattern and the development of the power industry as the background, and is positioned at the introduction of new energy with the distributed energy system as the clue. Senior engineering and technical personnel who are familiar with the needs of management talents and are familiar with the process mechanism of new energy conversion and utilization and the coupling utilization method of new energy and traditional energy.

This major is oriented to the new energy industry. According to the development trend of the energy field and the needs of national economic, it trains students who are engaged in development research, engineering design, optimized operation and production management in the fields of solar energy, wind energy, distributed energy systems, smart energy and other emerging energy fields. Interdisciplinary and compound technical talents, and specialized talents with strong engineering practice and innovation ability to meet the development needs of national strategic emerging industries.

- Main courses

Computer Fundamentals, Mechanical Drawing, Engineering Mechanics, Fundamentals of Mechanical Design, General Chemistry, Electrical and Electronic Technology, Automatic Control Principles and Systems, Engineering Thermodynamics, Fluid Mechanics, Heat Transfer, Thermal Test Instruments, Wind Turbine Aerodynamics, Solar Energy Utilization Technology, new energy power generation and grid connection technology, refrigeration and air conditioning principle, energy storage principle and technology, distributed energy and cogeneration of heat, power and cooling, heating engineering, etc.



- Industries and fields for graduates

Graduates can be adapted to work in equipment operation, design, manufacturing, installation, commissioning and scientific research departments in emerging energy fields such as solar energy, wind energy, distributed energy systems, and smart energy, as well as coal power, gas power, nuclear power, oil , chemical, energy, metallurgy, light industry and other industries of power equipment and refrigeration and air-conditioning equipment operation, design, installation, commissioning and other work.

➤ **Master program**

Power Engineering and Engineering Thermophysics

The discipline of Power Engineering and Engineering Thermophysics was found in 1951 at the start of our university. It was selected as a key discipline of Shanghai in 2003. It was approved by Minister of Education to be a master of secondary discipline of Thermal Engineering in 2006 and to be a master of primary discipline of Power Engineering and Engineering Thermophysics in 2010. In 2019, it supported the engineering discipline to be selected as the top 1% discipline of ESI. Since its establishment, the discipline has cultivated more than 20000 professionals for the power industry. Currently, the discipline has 20 professors and 26 associate professors. More than 90% full-time teachers have doctoral degrees, and more than 50% staff have overseas study and work experience in famous universities, forming a high-level teaching team with foreign academicians, national high-end talents, the "Excellent Talents in the New Century" of the Ministry of Education and Shanghai high-end talents. It has national engineering practice education center, Key Laboratory of clean power generation and environmental protection technology in machinery industry, four Shanghai Engineering Technology Research Centers, Shanghai key disciplines and other national, provincial and ministerial teaching and research bases and platforms. In the past five years, it has undertaken about 300 scientific research projects such as International Scientific and Technological Cooperation of the



Ministry of Science and Technology, National Natural Science Foundation of China and sub topics of national key R & D projects, with a total fund of more than 100 million yuan. The research results of the integration of industry and education have been applied in the national demonstration project of thermal power, wind power and comprehensive intelligent energy, and won more than 10 provincial and ministerial scientific and technological progress awards, including one first prize and five second prizes.

The discipline has four sub disciplines. Engineering Thermophysics focuses on the flow, heat transfer and heat storage in thermal power generation and new energy conversion and utilization; Thermal engineering focuses on fuel combustion, thermal energy utilization, flue gas pollutant control and power plant energy conservation in thermal power generation; In the direction of new energy and comprehensive intelligent energy, research is carried out around the integrated utilization of photovoltaic light and heat, the performance optimization of wind turbines and the planning of distributed energy systems; The direction of power machinery and engineering focuses on the control and safe operation, fault diagnosis, life evaluation and life extension of power equipment in power generation system. The discipline has formed distinctive features in power production energy conservation, combustion and pollutant control, power equipment safety, energy storage, new energy and comprehensive intelligent energy.

Contact: Ms. Li, Mr. Fu and Ms. Ji (Discipline introduction)

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Contact: Ms. Wu (Enrollment matters)

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College website: <http://energy.shiep.edu.cn/>

III. Tutor Introduction

- **Weiguo Pan**, professor, Ph.D., doctoral supervisor, graduated from Zhejiang University in 1997, majoring in engineering thermophysics, new century



outstanding talent of the Ministry of Education, Shanghai Shuguang Scholar. The main research direction is the research and development of energy saving and environmental protection and greenhouse gas control technologies in the field of power engineering. He is currently the director of the School of Energy and Mechanical Engineering, the director of the Key Laboratory of Clean Power Generation and Environmental Protection Technology in the Mechanical Industry, and the executive deputy director of the Shanghai Power Generation Environmental Engineering Research Center. Academic part-time jobs include the director of the Chinese Society of Power Engineering, the vice chairman of the Shanghai Society of Engineering Thermophysics, and the chairman of the Environmental Protection Committee of the Chinese Society of Power Engineering. Hosted and participated in national "973", key research and development programs, National Natural Science Foundation and other projects, obtained special government allowances from the State Council, won the Shanghai Youth Science and Technology Star Program, Baosteel Outstanding Teacher Award, Shanghai Education Talent Award and other honors, and published high-level awards. More than two hundred academic papers, more than sixty patents applied and authorized, six academic books and textbooks published in Chinese and English, three first and second prizes of Shanghai Teaching Achievement Award, more than ten first and second and third prizes of Provincial and Ministerial Science and Technology Achievement Award.

- **Jiang Wu**, professor, Ph.D., graduated from Shanghai Jiao Tong University in 2003, majoring in thermal engineering, doctoral supervisor, Shanghai Pujiang Scholar, Shuguang Scholar, Magnolas Science and Technology talent, engaged in combustion and pollutant control, solar photochemical utilization, CO₂ conversion and utilization, novel catalysis/energy storage, etc. National Natural Science Project evaluation expert, secretary general of Environmental protection Special Committee of China Power Engineering Society, deputy director of clean Energy special Committee of Shanghai Energy Research Society, visited and



studied in Western Kentucky University for nearly 3 years. He has won the Special government allowance of The State Council and the "Young Scientific and technological Innovation Talent Award" of Shanghai. He has charged more than 20 projects sponsored by National Natural Science Foundation of China, National Key Research and Development Program, Shanghai Science and Technology Committee, and industries. He has published more than 130 SCI papers as the first and/or corresponding author, including 5 highly cited ESI papers and 1 inside cover paper, published one textbook, 4 monographs and 2 chapters as the first author, more than 40 authorized invention patents, 6 Provincial Level of Awards including Second prize of Shanghai Scientific and Technological Progress and 2 first prize of Shanghai Teaching Achievement Awards. Email: wjcf2002@163.com

- **Zhengrong Shi**, Professor, Ph.D in Optical Engineering, Master's supervisor, the first group of the National High-end Talents, Follow of the Australian Academy of Technological Sciences and Engineering. Focused on researches on photovoltaic, hydrogen energy and new generation of energy technologies. Achieved internationally recognized outstanding contributions in R&D and industrialization practice on polycrystalline silicon thin film solar cells and high efficiency crystalline silicon cells. Realized the successful transformation of photovoltaic technologies from lab to commercial production, reduced the cost of photovoltaic power generation with orders of magnitude, and hence made important contributions in promoting the grid parity of photovoltaic power generation. Covered the Fortune Magazine, issued as "50 People Who Could Save the Planet" by The Guardian, and elected as "Meritorious people of energy in 70 years". Served as committee member in IEC and SEMI. Published more than 100 papers in journals and conferences and applied more than 60 patents. Email: shi@zrshi.com
- **Qunzhi Zhu**, Professor, Ph.D in thermodynamics engineering, Georgia Institute of Technology, USA, Shanghai High-Level Talents, Shuguang Talent, Pujiang

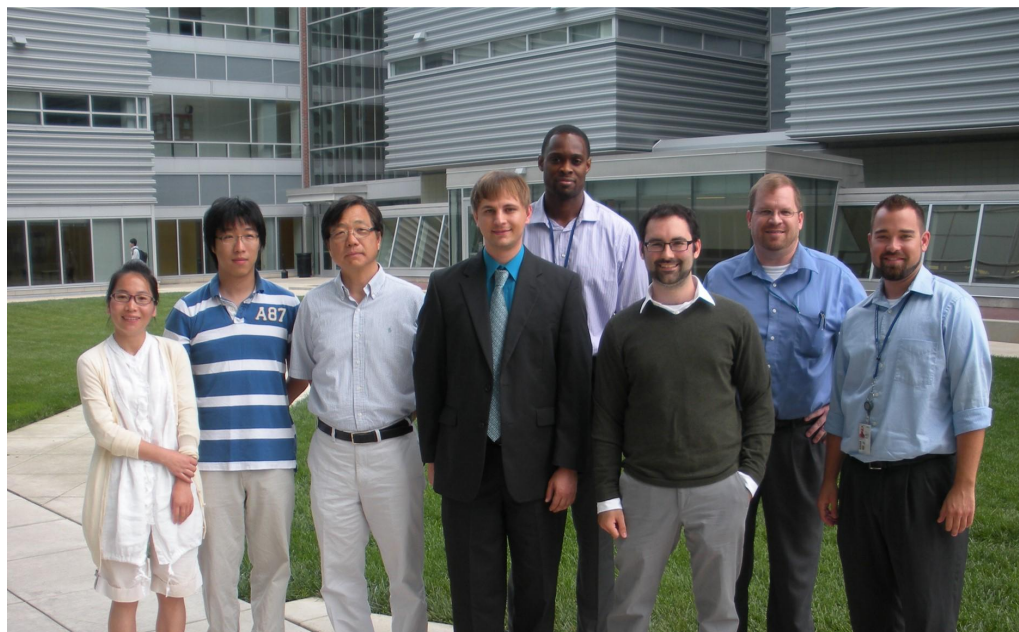


Talent, doctoral supervisor. His research interests include solar energy utilization, distributed energy systems, industrial energy-saving technologies, etc. Concurrently he serves as board members of Chinese Society of Power Engineering, Solar Thermal Power Generation Committee of the Chinese Renewable Energy Society, Shanghai Mechanical Engineering Society, etc. He has presided over and participated in the national "973" sub-projects, National Natural Science Foundation Project, Shanghai Key Basic Research Project, Shanghai Science and Technology Commission Key Projects, and several enterprise-funded projects. He has published more than 100 scientific papers and authorized more than 10 invention patents. He is the winner of the Shanghai Science and Technology Progress Award, the China Energy Conservation Association Energy Conservation and Emission Reduction Invention Award, the Shanghai Teaching Achievement Award, the Baosteel Outstanding Teacher Award, and the American Institute of Aeronautics and Astronautics (AIAA) Thermophysics Best Paper Award, etc. E-mail: zhuqunzhi@shiep.edu.cn

- **Naichao Chen**, Professor, He received his Ph. D in Mechanical Manufacture and Automation from Shanghai Jiaotong University in 2013. Now he is a master supervisor, He has received Shanghai talent development subsidization in 2020. His current research interests include intelligent machine, industrial software, intelligent control, thin film, interface mechanics and physics, surface modification, numerical control technique and equipment. Now Dr. Chen is the vice dean of School of Energy and Mechanical Engineering, a director of Intelligent Manufacturing Institute. He has served on some technical committees, including a senior member of Chinese Society of Micro-Nano Technology, a member of a council of Intelligent Manufacturing and server branch of Chinese Creative Society, a member of Numerical Factory Equipment and Intelligent Manufacturing technique committee of Chinese Electrotechnology Association and a national registered software engineer. He worked as a visiting scholar at University of California at Los Angeles (UCLA) for one year. The number of his



PIs is about 20, including National Natural Science Foundation of China, province-level and enterprise projects. In recent years, He published about 50 peer-peer papers, where more than 30 papers indexed by SCI and EI. Four and five invention patents were authorized and applied, respectively. Two patents already transferred to the enterprises. He also won the third prize of Shanghai Science and Technology Progress Award (rank 1). E_mail: yeiji_chen@126.com





College of Electrical Engineering

I. Faculty Introduction

College of Electrical Engineering (CEE) is born from the power industry and is based on electricity. It is the college with the longest history, the strongest strength and the most distinctive power characteristics in the university. There are 120 faculty members, including 93 full-time teachers and nearly 2,400 undergraduate and postgraduate students and international students.

The college has a first-level discipline doctoral program in electrical engineering, a first-level discipline in electrical engineering, and a master program in electrical engineering and an undergraduate major in electrical engineering and automation. It cultivates talents to fully dock power system of power generation, transmission, substation, power distribution and power consumption. It has cultivated more than 20,000 electric power talents during 71 years of development.

There are 120 faculties and staffs in the college, including 19 professors and 40 associate professors, 1 member of "New Century Talents Project", 1 national high-level young talent, 1 national excellent teacher, and 2 special government allowance experts, 1 Shanghai high-level talent and 1 Shanghai Outstanding Teacher.

The college has the featured research directions: (1) Green energy grid connection and safe operation: it carries out scientific research on the series of problems brought about by the large-scale access of green energy, and improves the efficiency and stability of green energy grid-connected. (2) Active distribution network: the active distribution technology is studied to realize the observability and controllability of distribution system, pro-mote the optimization of distribution network operation state, and enhance the security of distributed energy distribution system with high penetration. (3) Intelligent electricity technology: The development of intelligent power utilization technologies such as power demand side management and electricity price mechanism can improve power utilization efficiency, in-novate power utilization management mode and realize efficient allocation of social resources.

In past five years, the college undertook more than 240 scientific research projects.



There are more than 40 government sponsored projects with a total funding of 20 million RMB, and 200 industry sponsored projects with a total funding of 120 million yuan. It published more than 500 papers, including more than 250 SCI/EI-indexed papers. It was awarded 14 scientific awards, including 2 national-level awards, and 4 provincial-level first awards. It applied more than 200 invention patents, in which 87 were authorized.

The College of Electrical Engineering has always served the country's major demand for electric power and energy, strengthened the construction of high-level teachers, and comprehensively improved the comprehensive strength and academic status of the electrical engineering discipline. It has become one of most important bases for talent training, scientific research and international exchange in China's power industry.

II. Major Introduction

Serving for the power industry and social and economic development, the college aims to cultivate the talents with a sense of social responsibility and good professional ethics, who have basic theory, professional technology, engineering practice, self-learning and innovation capabilities in the field of electrical engineering, and are engaged in power engineering design, research and development, system operation and test analysis, and project management.

➤ Undergraduate Students

Electrical engineering and automation major is one of the most powerful majors in our university. There are more than 1,800 undergraduate students. The college recruits students from 31 provinces, cities and autonomous regions across the country, and the quality of students is excellent. They are evaluated as "permanent brand" talents who can adapt to the development of the power industry because of "going down to basic, staying with it, doing well, and being practical". They are called "bright messengers" by the society. In the past three years, the school employment rate has remained above 97%.



➤ **Graduate Students**

The College of Electrical Engineering started to recruit the graduate students since 2007. There are more 800 MS graduate students in the college. The ratio between the number of the enrolled students and the number of the students who passed the national score line is about 1:3. The employment rate is 100%. The electrical engineering first-class discipline was granted as the doctoral degree authorization point by the Degree Committee of the State Council in May 2018. The College of Electrical Engineering has achieved an important leap in the connotation, level and reputation of the talent cultivation. The college recruited the first group of nine doctoral graduate students in 2019. There are 33 PhD graduate students in the college. Graduate students generally have industry practice and academic innovation.



Degree Level	College	Major	Main Courses	Campus
Bachelor program	College of Electrical Engineering	Electrical Engineering and its Automation	<p>Linear Algebra, Advanced Mathematics, College Physics, Complex Function and Integral Transformation, Probability and Statistics, Computing Methods of Power System Engineering, Circuit Theory, Analog Electronic Technology, Analysis and Processing of Signal, Digital Electronic Technology, Automatic Control Principle, Power Electronics Technology, Electric Machinery, Fundamentals of Engineering, Electromagnetics, Microprocessor and Interfacing Technology, Principle of Microcomputer and Interface Technology, Stability Analysis of Power System, Transient Analysis of Power System.</p> <p>Theory of Protective Relaying in Power System, Main Electric System of Power Plants High Voltage Technology, Automation Equipment of Power System, Introduction to New Technology of Electric Power, Power Engineering Management and Practice, Planning and Optimum Operation of Power System, Wind Farm and the Grid, Smart Grid Technology.</p> <p>Distribution Network Operation and Analysis, FACTS Technology, Dispatching Automation of Power System, Distributed Power Generation, Renewable Energy Power Generation Control Technology, Microcomputer-Based Relaying,</p>	Yangpu



Bachelor program	College of Electrical Engineering	of Electrical Engineering and its Automation	<p>Distribution Automation, Online Monitoring and Diagnosis of Electric Devices, Economic Analysis of Electricity Transmission Grid Operation, HVDC Transmission, Insulation Test of Electric Devices, Distributed Equipment and System, Reactive Power Compensation & Harmonic Restriction, Computer Analysis and Design of Power Electronic, Fundamental of Wind Power Generation, Power Quality Analysis and its Control, Power Electronic Devices and Control,</p> <p>Electric Energy Metering, Power Consumption Management, Renewable Energy and Storage Technology, Power Plant Power Project, Industry Electrical Equipment, Power Engineering Technology, Economics, Electric Power Market, Power Engineering Assessment</p>	
Master program	College of Electrical Engineering	of Electrical Engineering	<p>Computational Method, Computational Method, Matrix theory, Modern Control Theory, Advanced Power System Analysis, Modern Power Electronic Technology, Power Systems Stability and Control, High voltage test technology, Theory and Technology for Electricity Market, Electric Power Systems Planning, Power System Protection and Automation Technology, Power System</p>	Yangpu



			Overvoltage and Insulation Coordination, Direct Current Transmission and Distribution.	
Doctoral program	College of Electrical Engineering	of Electrical Engineering	Scientific Ethics and Academic Norm, Advanced Functional Analysis, Advanced Numerical Analysis, Dynamic Power System Theory, Advanced Energy Conversion and Control Technology, Power Internet of Things Technology and Big Data Analysis, Intelligent Control Theory and It's Application.	Yangpu



III. Tutor Introduction

- **FU Yang:** Ph.D, Professor, Doctoral Supervisor. He enjoys the special allowance of the state council and received the award of China National Outstanding Teacher. Professor Fu's researching areas include off-shore wind power integration and control, power network planning and operation.
- **HUANG Dongmei:** Professor, Doctoral supervisor. She focuses her research on the theory and new technology of electrical engineering, electrical network theory.
- **WANG Xiaoyu:** Ph.D, Professor, Doctoral Supervisor. He is a recipient of China's national talent plan. His research interests include power system analysis, power electronics, microgrid, power quality, and power system real-time simulation.
- **TANG Zhong:** PhD, Professor, Doctoral supervisor. His research fields includes power system operation and control, new energy and smart microgrid and power information technology.
- **LI Dongdong:** PhD, Professor, Doctoral supervisor. He works as the dean of College of Electric Power, and was granted as the Shanghai Rising-Star Program and Shanghai Shuguang scholarship. His research interests include wind power generation, stability and control of the power system, power-electronics-enabled power systems.
- **ZHAO Jinbin:** PhD, Professor, Doctoral supervisor. Shanghai high-level talent, Pujiang Scholar. He focuses his research on high proportion renewable energy grid-connected control technology, wide gap semiconductor device research, wireless power transmission technology and DC microgrid coordinated control technology.
- **MI Yang:** Ph.D, Professor, Doctoral supervisor. Her research interests include microgrid stability and control, renewable energy power system stability, energy internet modeling and control.



- **YANG Xiu:** Ph.D, Professor, Doctoral supervisor. He was granted as the Shanghai Rising-Star Program and Shanghai Shuguang Scholarship. His research interests include AC/DC power grid planning and operation, distributed power generation, microgrid operation and control, big data application in power system.
- **ZHANG Zhousheng:** Ph.D, Professor, Doctoral supervisor. His research focuses on state monitoring and fault diagnosis of electric power equipment, the intelligent of electrical equipment, dielectric physics theory and dielectric phenomena and gas discharge.
- **LIN Shunfu:** Ph.D, Professor, Doctoral supervisor. He was granted as Shanghai Shuguang Scholarship. His research interests include smart grid demand-side technology, power quality analysis and control.

IV. Research







College of Automation Engineering

I. Faculty Introduction

College of Automation Engineering has four undergraduate majors: Automation, Measurement and Control Technology and Instrument, Nuclear Power Technology and Control Engineering, and Intelligent Science and Technology. Among them, Automation is selected for national first-class undergraduate majors, national characteristic specialty construction, Shanghai Education highland construction, excellent engineer training plan and Shanghai first-class undergraduate majors. Automation, Measurement and Control Technology and Instrument are included in the applied undergraduate pilot majors of Shanghai Municipal Colleges and universities.

The college now has 70 faculty members, including 9 professors, more than 30 associate professors and more than 30 master supervisors. At present, the college has more than 1100 undergraduate students and more than 450 master graduate students.

This discipline has Shanghai Key Laboratory of Power Station Automation Technology, Shanghai Power Generation Process Intelligent Control Engineering Technology Research Center, Shanghai Power Safety Technology Research Center, Shanghai Key Discipline of "Modern Power System and Power Station Automation" and Shanghai Municipal Education Commission discipline of "Power Safety and Energy Saving".

At present, there are nearly 10 colleges and universities that keep close contact with our college, including The University of Texas at San Antonio in the United States, Manchester University in the United Kingdom, Curtin University in Australia, Moscow Power Engineering Institute in Russia, Federation University Australia in Australia, Université Toulouse III Paul Sabatier in France, etc.

Students are mainly employed in power grid companies, power research institutes, power generation groups, power plants, power design institutes, power equipment manufacturing, automation companies and institutions for serving the field of energy and power. The graduates actively serve the projects in the Belt and Road region.



II. Major Introduction

Degree	College	Major	Main Courses	Campus
Bachelor program	College of Automation Engineering	Automation	Fundamentals of circuit and electronics(Circuit, Electronic Technique), Signal and System, Automatic Control Principle, Computer Hardware Technology, Computer Software Technology, Industry Control Network, Sensors and Measurement Technology, Automatic Instrument, Computer Measurement and Control Technology; Process Control Technology, etc.	Yangpu
Master program	College of Automation Engineering	Control Science and Engineering	Modern Measurement and Control Technology , System Identification and Modeling, echnology, Advanced Control Theory , Modern Detection Technology , Modern Digital Signal Processing, Advanced Process Control, Modern Control Engineering, Detection and Control for New Energy Power Generation, Artificial Intelligence and Mac	Yangpu



			<p>Line Learning, Equipment State Monitoring and Fault Diagnosis, Industrial Control Network Technology and Application, Machine Vision, Power Station Control System, Embedded-System and Application, Intelligent Power Generation Technology.</p>
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III. Tutor Introduction

The college now has 70 faculty members, including 9 professors, more than 30 associate professors and more than 30 master supervisors. At present, the college has more than 1100 undergraduate students and more than 450 master graduate students.

This discipline includes intelligent power generation automation, power security and risk assessment, intelligent energy control and optimization, advanced detection and automation devices, robots and intelligent autonomous systems. Scientific researches are carried out in the fields of intelligent power generation, power security, nuclear power instrument and control, integrated intelligent energy, energy Internet, electric robots and intelligent systems. The scientific research projects mainly come from the National Natural Science Foundation of China, Science and Technology Commission of Shanghai Municipality, Shanghai Municipal Education Commission, and energy-power enterprises, which has an annual scientific research fund of about 10 million yuan. In recent five years, more than 500 papers have been published in important academic journals and conferences.

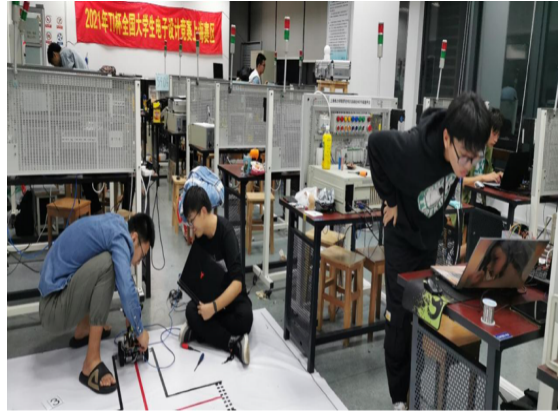
IV. Research

This discipline has Shanghai Key Laboratory of Power Station Automation Technology, Shanghai Power Generation Process Intelligent Control Engineering Technology Research Center, Shanghai Power Safety Technology Research Center,



Shanghai Key Discipline of "Modern Power System and Power Station Automation" and Shanghai Municipal Education Commission discipline of "Power Safety and Energy Saving". The research platforms include thermal power full range excitation simulation system, nuclear power operation and simulation system, distributed control system for power station, nuclear power thermal instrument integrated system, thermal power hardware-in-loop model and control system, control system information security protection platform, new energy microgrid control system, industrial control network system, power intelligent robot, etc. These platforms are important parts of the national experimental teaching demonstration center - "new energy power system" and Shanghai Municipal experimental teaching demonstration center - "Intelligent power generation". In addition, the college has jointly built automation system laboratories or research platforms with international famous automation enterprises, such as Rockwell, Siemens, Phoenix, Emerson, Foxwave and Schneider.







College of Computer Science and Technology

I. Faculty Introduction

College of Computer Science and Technology consists of four departments: Computer Science and Technology, Software Engineering, Information Security and Experimental Teaching Center. We have Electric Power Enterprise Information and Decision supported by Shanghai leading academic subjects, Smart Grid Technology and Engineering supported by Shanghai Municipal Education Commission, Computer Science and Technology supported by Talent Highland in Shanghai and so on. There are 59 faculty members in the school, including Shanghai Shuguang Scholar, Shanghai Chenguang Scholar, Shanghai Pujiang Scholar and Shanghai Sailing Program. The scientific research of the college is strong. Now we have more than 40 projects of National Natural Science Foundation of China, Key Projects of Shanghai Science and Technology Commission, Innovation Action Plan of Shanghai Education Commission and so on, with the funds more than 5 million yuan per year. The college adheres to the combination of industry, education and research. Computer Science and Technology (Electric Power Enterprise Informatization) is one of the first undergraduate majors implemented in the National Education and Training Plan for Outstanding Engineers. According to the new teaching mode and program, computer technology applied talents with electric power knowledge background are trained. The college pays great importance on international exchanges and cooperation. Now there are 22 international students in the college. At the same time, the college has close cooperation with many foreign universities. Students are selected and sent to study, practice and international exchange abroad every year.



II. Major Introduction

Degree	College	Major	Main Courses	Campus
Bachelor program	College of Computer Science and Technology	Computer Science and Technology	Advanced Language Programming, Principles of Computer Composition, Principles of Database, Operation System, Computer Network, Compilation principle, Software Engineering, Data Mining, Big Data Technology and so on.	Lingang
		Software Engineering	Object-oriented Analysis and Design, Introduction to Software Engineering, Software Testing and Quality, Software Project Management, Java EE, Big Data Processing and Cloud Computing and so on.	Lingang

➤ Bachelor program

1. Computer Science and Technology

The college of computer science and technology trains the students that have good scientific literacy, master the basic knowledge of mathematical and natural science, and computer system related basic theory, knowledge, skills and methods. The graduates should have stronger professional ability, good comprehensive quality, innovative and international vision, qualified for computer science, computer systems design, development and application of engineering and technical personnel. At present, this major has been included in the construction of national first-class undergraduate major. The major is divided into two directions: computer application, electric power enterprise information. The direction of computer application focuses on training students to have the basic theoretical knowledge of computer software and hardware, master the basic methods and skills of computer application, and have the ability to solve practical problems and innovation ability. Electric power enterprise



informatization is one of the first undergraduate majors to enter the National Outstanding Engineer Program. It aims at the needs of computer science and information technology talents in the informatization construction of electric power generation and power supply enterprises, and cultivates both solid professional theories and skilled professional skills in computer science and technology. They also have the power industry production and operation of professional foundation and professional skills of senior engineering and technology. Graduates of this major can adapt to the needs of scientific research departments, educational institutions or relevant departments of enterprises, institutions, technical and administrative departments, and can engage in the design, research and development of computer and Internet application systems. The employment channels for graduates of this major are very wide. The employment rate of graduates of this major in the past three years is above 95%.

2. Software Engineering

The major of software Engineering is oriented to the needs of national economy and social informatization, oriented to the software industry, and takes the conception, design, implementation and operation of practical projects as the engineering education background. It cultivates the students that master solid basic theoretical knowledge of computer. The graduates could use professional knowledge to analyze and solve practical software engineering problems, have practical experience in software industry, adapt to the needs of modern engineering team, new product and new system development; They should be also oriented application and compound software engineering technology with strong innovation and entrepreneurship ability, strong engineering practice ability and teamwork ability, morally, intellectually. The employment situation of the major is good. Graduates can be engaged in system design and development, software project management, database system management, software process management and software testing, big data technology application development, game and entertainment software development, mobile App development and other work in scientific research departments, IT enterprises, educational institutions, enterprises and administrative departments.



III. Tutor Introduction

There are 59 teachers in the college of Computer Science and Technology, including 7 professors, 28 associate professors and nearly 30 teachers with doctor's degree. Their research interests include: power information system, power big data analysis, artificial intelligence, machine learning, distributed systems, information security, etc.

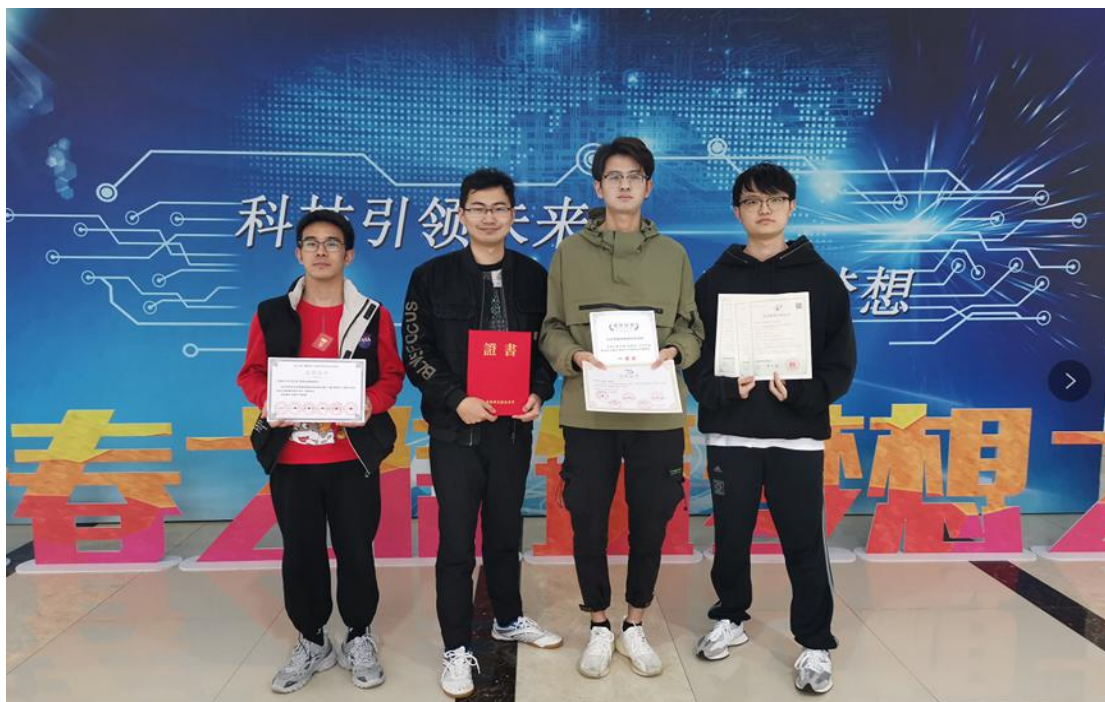
IV. Research



Equipment of Teaching Experiment site



Two Special Prizes in 2019 China Education Robot Competition



2020 Gold Medal of the 12th Challenge Cup Shanghai College Students' Business Plan Competition (Certificate)



Robots in College of Computer Science and Technology



Subjects Characteristics in College of Computer Science and Technology



College of Electronic and Information Engineering

I. Faculty Introduction

College of Electronic and Information Engineering is a college of electrical disciplines and majors of Shanghai Electric Power University. It has a long history. It is an important school for talent training in emerging ICT industry and information construction in power industry. The college has more than 70 teaching staff, and is a teaching team with strong youth and high academic level. There are more than 30 professors and associate professors and nearly 50 doctors. Many teachers have been selected into Shanghai Oriental Scholars, dawn talents, Pujiang talents, sailing, young science and technology stars and Chenguang programs. The college has a Joint College of artificial intelligence, an electronic academy, a department of communication, an information department, an electronic department, a department of optoelectronics, an electronic technology teaching and Research Office, an experimental center, a science and innovation center, a counselor's comprehensive office of academic affairs and other institutions. It has four undergraduate majors in electronic information engineering, communication engineering, electronic science and technology, photoelectric information science and engineering, and five master's programs in information and communication engineering, electrical theory and new technology, smart grid information and communication engineering, power Internet of things and energy and power intelligent information processing. More than 10 teaching and research teams including ubiquitous Internet of things, artificial intelligence and 5g communication have been established. The college has established off campus practice bases and joint laboratories with a number of well-known enterprises such as China Telecom, China Mobile and State Grid, and has cooperated with a number of co construction service units to build a collaborative innovation education platform, so as to cultivate students' innovative spirit, entrepreneurial awareness and practical ability. Students won more than 100 awards in the National College Students' electronic design competition, the National College Students' smart car competition and other competitions. In the past three years, the employment rate



of undergraduate students has been more than 98%, and the employment rate of graduate students has been nearly 100%. They mainly enter the fields of communication, power, ubiquitous Internet of things, artificial intelligence and other industries.

II. Major Introduction

➤ Bachelor program

Electronics Engineering is a wide caliber major involving the fields of electronics and information engineering. It mainly cultivates senior engineering and technical talents who have the basic knowledge of electronic technology and information system and can be engaged in the design, manufacturing, application and development of various electronic equipment and information systems. The major pays attention to the application of electronic technology and information technology in the power industry, carries out extensive industry university cooperation with enterprises in the formulation and implementation of talent training plan, the construction of teaching staff, the construction of production University base, talent training evaluation and quality assurance, fully reflects the requirements of industry enterprises for talent training, and integrates information such as enterprise employment demand, employment standards and technology foresight into the process of talent training, Focus on improving students' engineering awareness, engineering quality and engineering practice ability, and cultivate professional and technical talents with the integration of information technology, modern electronics and communication technology.

➤ Master program

The discipline of **Information and Communication Engineering** takes modern electronic information, communication theory and cutting-edge technology as the leading direction and features energy and power. It carries out scientific research and trains high-level talents in the directions of energy Internet information and communication technology, power sensor network, Internet of things and wireless big data, 5g mobile communication network, multimedia information processing and



transmission technology, etc. This discipline is supported by the key disciplines of Shanghai and the key disciplines of Shanghai Education Commission. It has an important influence in the research fields of power communication network technology, power information management and security, power optical fiber sensing and so on. This discipline has good postgraduate training conditions and has key disciplines such as "smart grid technology and Engineering", a key discipline of Shanghai Municipal Education Commission. In recent years, teaching and scientific research platforms such as "fourth generation mobile communication experimental platform", "power mobile communication experimental platform" and "cloud computing platform" have been built, which effectively ensures the training quality of Postgraduates in this discipline.

III. Tutor Introduction

● Professor Haoyang Cui

Presided over and participated in more than 10 scientific research projects, including the National Natural Science Foundation of China, the scientific research and innovation project of Shanghai Education Commission, and the scientific and technological research projects of Hunan electric power company. It has conducted in-depth research in the fields of infrared detection materials and devices, infrared diagnosis and condition detection methods of electrical equipment, and the research results of substation equipment temperature monitoring system have been put into trial operation in Hunan electric power company. In recent years, as the first author, he has published more than 50 academic papers in important academic journals and international conferences at home and abroad such as applied physics letter, opt quant electron and Journal of physics.

● Professor Wu Zhu

Mainly engaged in signal processing, detection technology, electrical equipment fault diagnosis, electromagnetic compatibility and high-power ultrasonic application. In recent years, he has presided over and participated in more than 10 projects, including key projects of Shanghai Science and Technology Commission, key projects of scientific and technological innovation of Shanghai Education Commission, projects of



the State Education Commission, scientific and technological innovation projects of Shanghai Education Commission and key projects of enterprise technology, applied for 4 national invention patents, authorized 2 patents, authorized 1 utility model patent, published more than 50 papers, of which more than 20 articles were included by EI or ISTP. A variety of electronic devices have been successfully developed, such as high-power ultrasonic power supply, 30KV electrostatic discharge generator, precision AC ammeter (linearity of 70ppm), power frequency overvoltage test device with capacity of 360kw, double base current transformer (linearity of 10ppm), current withstand test system of 15000a power frequency transformer and high-frequency electric fast transient pulse group generator.

- **Professor Yilong Cao**

He has published more than 30 papers, spent more than 4 million yuan on scientific research projects, obtained 1 invention patent, 7 utility model patents and 2 high-tech achievement transformation projects. The project "high-power high-frequency switching power supply battery charging device" won the second prize of Shanghai Science and technology invention in 2009; The project "key technologies and equipment for collaborative optimization of motor load group and energy saving" won the third prize of science and technology in 2014. At present, it undertakes the projects of Shanghai Science and Technology Commission, "Research on Key Technologies of electric vehicle intelligent charging station", the projects entrusted by enterprises, "Research on electric vehicle DC charging device", and "development of active power filter device". In addition, he led graduate students in the development of intelligent microgrid test platform.



IV. Research





College of Economics and Management

➤ Bachelor program

1. International Economy & Trade

The students are expected to proficiently command English, master the basic theories of International Economics and International Trade, and be familiar with China's foreign trade laws and policies. With the fundamental knowledge and skills of international trade business, the students are expected to grow into professionals who can be engaged in practical business, management, R&D, promotion and planning in the foreign-related trade units, foreign-invested enterprises and government institutions.

The major of International Economy and Trade enjoys a long history, the predecessor of which is the three-year foreign-related economic speciality started by the university in the early 1980s. In 2003, the undergraduate program of International Economics and Trade was successfully applied. In the fall of 2004, this major initiated the students enrollment, both liberal arts and science, with bachelor's degree in Economics. Approved by the Shanghai Municipal Education Commission, in 2005, this major, as a part of the professional group of "Electric Power Economics and Management", aimed at building an *undergraduate education highland*. In 2008, the major passed the inspection and acceptance of the construction of new undergraduate majors organized by the Shanghai Municipal Education Commission and the audit of the authorization of the Shanghai Municipal Education Commission for additional bachelor's degree granting majors. The graduates were generally well received by the society, with the one-off employment rate above 92% on average.

The major focuses on cultivating foreign-related economic and trade professionals who have solid basic knowledge of international economics and trade and practical skills in international trade, as well as knowledge background of electric power and energy industries, along with strong foreign language application competence. Thus, courses in microeconomics, macroeconomics, management, international trade theory,



international trade practice, international settlement, international finance, international marketing, foreign-related business negotiations, etc., have set up, covering more than 20 related professional courses. Students are expected to complete 145 credits in 4 years, with a total of 2320 credit hours, of which 1968 credit hours are compulsory and 352 credit hours are optional.

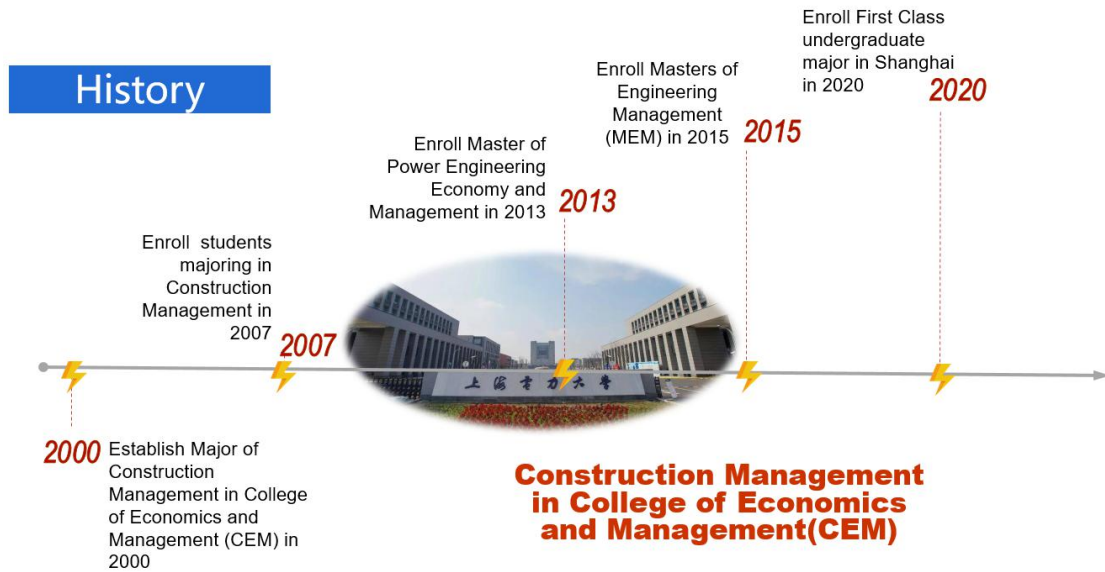
This major has 20 teachers, including 3 professors, 10 associate professors and 7 lecturers. 14 of them are PhDs, all of whom graduated from 985 and 211 universities. Being wide-scope, international, pragmatic and vocational is our specialty orientation. The main goal is to cultivate wide-scope, international, pragmatic and vocational talents specializing in foreign trade and economic cooperation in electricity, who are capable of combining theory with practice, who have solid professional foundation, obvious industrial characteristics, high comprehensive quality and strong application ability. Based on electricity, orient to the society. Based on Shanghai, aim at the whole country.

Graduates are mainly employed in various foreign-related enterprises and institutions, foreign trade companies, joint ventures, commercial institutions, financial institutions, government departments, engaged in foreign economic and trade, especially in the management of international trade and commerce of electricity.

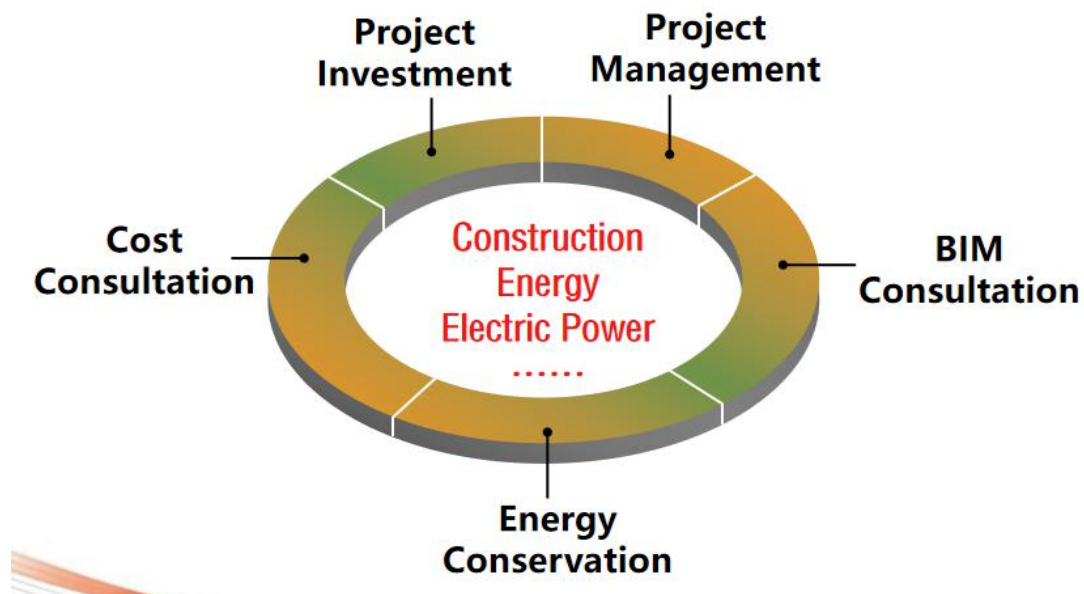
➤ **Bachelor program**

2. Construction Management

Construction Management Major in College of Economics and Management (CEM) Shanghai University of Electric Power was established in 2000. In 2007, after full preparation, the first freshmen of Construction Management were recruited. Till 2021 there are about 1500 graduate students. Now, we are the First Class undergraduate major in Shanghai.



As a application-oriented specialty major our mission is to graduates highly valued management consulting staff in Construction, Energy or Electric Power Industries. So we set up the syllabus covering four parts of courses , such as “Construction Technology”, “Project Management”, “Engineering Economy” and “Laws and Regulations”. There are more than 30 related courses in this rang. The students must required 169.5 credits to graduate in 4 years.



The teachers in our major totals 20, including 15 PHD and more than half of whom have acquired technician-teachers’ qualificaions in Construction Industry. The



employment situation of our graduates is good enough too. The overall employment rate of undergraduates is above 90% in recent five years.

There is a magnificent Construction Management Training Center in our major, covering a total area of nearly 1000 square meters, which consists of 4 laboratories opening to undergraduates. In this center, a wide choice of instruments and equipment are employed.

We also have established long-term exchange partnership relations with some foreign colleges and universities in recent years. Various forms of exchange with overseas universities, such as student exchange, short-term visiting and community culture exchange, summer camp, etc. are warmly accepted by us.



➤ Master program

Management Science and Engineering

This major focuses on energy and power, serves the needs of the industry, and closely focuses on the training objectives of master of management science and engineering with distinctive energy and power characteristics. Facing the front line of energy and power production and modern economic construction, based on a solid scientific theory of management, with the research direction of system optimization and decision-making, industrial engineering and management, energy and power planning and management, to cultivate high-level compound application talents who can use scientific management theories and methods to conduct management research and practice.

This major has good postgraduate training conditions. It owns the key research bases of humanities and social sciences in Shanghai universities — — “Belt and Road” energy and power management and development strategy research center, and the



Shanghai postgraduate practice base——The power engineering safety management postgraduate practice base. With the support of Shanghai key discipline "power enterprise informatization and decision support", Shanghai Municipal Education Commission key discipline "modern electric power enterprise management", Shanghai university connotation construction 085 project "energy economy and service management" and central and local joint construction projects, the "Power Information Management Research Platform" has been constructed, including "New Energy Economic Simulation Laboratory, Power Enterprise Management Simulation Laboratory under Smart Grid, Electric Power Economics and Management Experimental Center, Engineering Management Training Center, Logistics Management Training Center", and many other laboratories and training centers.

In addition, it has enough scientific research projects and funds to support the training of postgraduates, undertaking 12 national-level projects and 17 provincial and ministerial-level projects, of which 11 are under research, with an average annual scientific research funding of more than 10 million yuan. 3 awards, published more than 20 academic monographs, in Energy, Journal of Renewable and Sustainable Energy, Journal of Cleaner Production, Renewable Energy, International Journal of Mobile Communications, Enterprise Information Systems, International Journal of Computers Communications & Control, Chinese Management Science, Systems Engineering Theory and Practice, Industrial Engineering and Management, China Soft Science, Journal of Systems Management, Systems Engineering and other well-known academic journals at home and abroad have published more than 150 high-level papers; the perfect study style and academic ethics construction system, the ideological and political education Incorporated into the whole process of postgraduate training, established the first postgraduate ideological and political education base in the country, and piloted the mentor group model; the laboratory supporting the training of postgraduates in this discipline, with a total laboratory area of 2500M², including 1 national-level experimental teaching center, national There is a high-level engineering practice education base, which effectively guarantees the training quality of postgraduates in this discipline.



This major focuses on cultivating high-level specialized technical and management talents in the field of management science and engineering who can meet the needs of my country's socialist economic and social development with the comprehensive development of morality, intelligence, physique, beauty, and labor. To this end, this major has set up three research directions: system optimization and decision-making, industrial engineering and management, and energy and power planning and management. The training of master students adopts the tutor responsibility system, combining course study and dissertation research work. Through course study and dissertation research work, systematically master the theoretical knowledge in the subject area, and cultivate students' ability to analyze and solve problems. Emphasizes the initiative and consciousness of postgraduates in the training process, adopts heuristic and seminar-style teaching methods more, encourages participation in social practice and social investigation, and strengthens postgraduates' self-learning ability, practical ability, expression ability and writing ability.

As an important supporting subject of Shanghai Electric Power University' Smart Energy Management subject group, this major has rich teaching and research resources, and currently has 30 full-time instructors, including 6 professors and 19 associate professors. This major focuses on energy and power, serves the needs of the industry, closely focuses on the distinctive energy and power characteristics of management science and engineering master training objectives, and cultivates high-level compound application talents who can use scientific management theories and methods to conduct management research and practice.

Graduates are mainly engaged in decision-making consulting, business operation and management in administrative departments at all levels of the state, domestic and foreign large and medium-sized industrial and commercial enterprises, foreign-funded enterprises, multinational companies, and foreign-funded enterprises; institutions of higher learning or scientific research institutions are engaged in related majors teaching and research work.

Warmly welcome overseas students from all countries to join us and start a new study journey in Shanghai, China. Let's share a bright future together!





College of Environmental and Chemical Engineering

I. Faculty Introduction

The Predecessor of the **College of Environmental and Chemical Engineering** of Shanghai Electric Power University dates back to 1951, when Chemistry was one of the three main disciplines of the University, namely Electricity Power, Dynamics and Chemistry. The Department of Environment was established in 2000, and the College of Energy and Environmental Engineering was set up with the Department of Dynamics in 2004. In order to accommodate the development of national economy and the overall planning of the university, the College of Environment and Chemical Engineering was found in 2012. The College offers majors in Applied Chemistry, Chemical Engineering and Technology, Material Chemistry and Material Science and Engineering. The College also has Shanghai key Laboratory of New Materials and Protection of Electric Material, the former State Electric Power Corporation Key Laboratory of Corrosion and Protection of Thermal Equipment (at ministerial level), Shanghai Key University Laboratory of Electric Corrosion Control and Applied Electrochemistry, as well as four engineering technology research centers, namely, Shanghai Electric Energy Conversion, New Anti-corrosion Materials, Energy Conservation of Heat Exchange System and Environment Protection of Generate Electricity. The discipline of Applied Chemistry of Electric Power Plant and Environmental Protection was listed a key discipline in Shanghai in 2005. In 2006, the Mater Station of Applied Chemistry was established in the college. In 2010, it was authorized to be the first-level Master's Degree Station in Chemical Engineering and Technology, and in 2017, it was selected in the Shanghai IV Gaofeng Project for University Academic Program Development let by Tongji University. In 2018, the College began to train and recruit doctoral students in the direction of Electric Energy Storage.



II. Major Introduction

➤ Master program

Chemical Engineering and Technology of the College is a key discipline of Shanghai, with five research directions in Electric Power Chemistry, Energy Catalysis, Electrochemical Energy Storage Engineering, Electric Power Environmental Protection and New Energy as well as Chemical Materials. The discipline has advantages and features in electrochemical energy storage, efficient catalytic conversion of energy, new technology of energy saving and environmental protection, with which it provides major chemical talents and key chemical technologies for clean, low-carbon, safe and efficient transformation and development of modern energy. In the terms of platform construction, the discipline of Chemical Engineering and Technology has built four engineering technology research centers, namely, Shanghai Key Laboratory of Power Material Protection and New Materials, Key Laboratory (at ministerial level) of Thermal Equipment Corrosion and Protection of Former State Electric Power Corporation, Shanghai Key University Laboratory of Electric Corrosion Control and Applied Electrochemistry, there are also four engineering technology research centers, namely, Shanghai Electric Energy Conversion, New Anti-corrosion Materials, Energy Conservation of Heat Exchange System and Environment Protection in Power Generation.

40% of graduated students went on to work for power-related enterprises such as State Grid Corporation of China, China Huaneng Group Corporation and China Datang Group Corporation. In the last three years, 20.8% of graduates have gone on to study for their doctoral degree. The suitable employment fields for graduates of this discipline include the R&D of new products such as power supply materials, nano materials, anti-corrosion materials and fine chemical products, the development and process design of water treatment technology, water quality and atmosphere monitoring and material performance testing.



III. Tutor Introduction

The discipline has a rich pool of supervisors. There are 18 professors and 20 associate professors. What's more, the discipline has one Double-employed Academician, one national outstanding youth, one national top level talents, two experts with special government allowance of the State Council, two leading talents in Shanghai, one outstanding discipline leader of Shanghai, four Oriental Scholars of Shanghai, two outstanding talents in the New Century of Ministry of Education, six Dawn scholars of Shanghai, two Pujiang talents of Shanghai, five young Phosphorus of Science and Technology of Shanghai, two talents of Shanghai Chenguang Project, two winners of Talent Development Fund of Shanghai and two scholars of Shanghai Sailing Project. The college also has two high-level foreign experts, four Shanghai Famous Overseas Teachers and five adjunct professors from famous universities and research institutions at home and abroad. A team of supervisors has been formed under a reasonable and high-level structure. In the past five years, the supervisors have presided over and participated hundreds of projects, including the National Natural Science Foundation of China, the National 864 Program, key projects of the Ministry of Education and Scientific and Technological Research Projects of Shanghai Municipal Commission of Science and Technology etc. The research projects have been funded with over 90 million RMB. Some of the research fields have reached the international advanced level and achieved significant economic and social benefits.

IV. Research

Platforms and equipment of teaching and scientific research





<p>Field Emission Transmission Electron Microscope (TEM) (JEM-2100F/HR)</p>	<p>Scanning Electron Microscope(SEM) (JSM-7800F)</p>	<p>X-ray Diffractometer (XRD) (BRUKER D8 ADVANCE)</p>
<p>Steady-state/lifetime Spectrofluorometer (Edinburgh FS5)</p>	<p>Particulate size description analyzer (PSDA) (SALD-2201)</p>	<p>Atomic Force Microscopy(AFM) (Agilent 5500)</p>
<p>Micro-Raman spectroscopy (MLRM) (LabRam HR Evolution)</p>	<p>In-situ FTIR (Nicolet iS50)</p>	<p>Synthetic Thermal Analyzer (STA 409 PC)</p>
<p>High Performance liquid chromatograph (Agilent 1260)</p>	<p>Total Organic Carbon Analyzer (MULTI N/C 3100)</p>	<p>Integrated test instrument of electrochemical (12608W)</p>



College of Mathematics and Physics

I. Faculty Introduction

College of Mathematics and Physics consists of Department of Mathematics, Department of Physics, and Institute of Solar Energy. There are two undergraduate majors, “Information and Computing Science” and “Applied Physics”, an academic master’s degree program of “Physics”, and professional master’s degree programs of “Clean Energy Technology” and of “Big Data Technology and Engineering”. There are 87 staff in total, including 82 faculty members and 56 with doctoral degrees. We also employs many distinguished professors, such as Professor Zhonglin Wang at Georgia Institute of technology, Professor Wenxiu Ma at the University of South Florida, and Professor Xianfeng Chen at Shanghai Jiaotong University.

The main disciplines of our school are mathematics and physics, which are application-oriented and have the advantages of dislocation development with other universities. It is the only mathematics and physics platform focusing on supporting the development of energy and power industry in Shanghai. The school has a large number of advanced instruments and equipment. The total number of instruments and equipment reaches more than 300 sets, with a total value of more than 51 million yuan, including more than 50 sets of instruments and equipment above 100000 yuan. Many teachers have been selected into talent projects such as Shanghai excellent academic leader program, Shanghai "Shu Guang" program, science and technology "Qi Ming Xing" program (tracking), and "Chen Guang" program. Our school has a solid foundation and outstanding achievements in research fields related to energy and environmental materials, has been fully affirmed by peers at home and abroad, and has maintained extensive academic exchanges and cooperation with foreign academic circles in the United States, the United Kingdom, Japan, etc.



II. Major Introduction

➤ Master program

Physics is a key discipline of our university, and it is also the only physics discipline focusing on supporting the energy and power industry in Shanghai. There are 50 faculty members in this major with 49 having doctoral degrees. This major mainly focuses on issues related to energy and environment and specializes in preparation and physical properties of low dimensional materials, physical properties and quantum phase transition of strongly correlated systems, new solar cell materials and device design, novel heterojunction semiconductor photovoltaic devices, superconducting physics, quantum optics and quantum information, biophysics, and nonlinear physics. There are a number of advanced instruments and equipment, such as a high performance computer system, 10kW photovoltaic building integrated experimental platform, household microgrid system, physical property measurement system (dynacool-9), multi-target magnetron sputtering system.

In the past five years, this major has presided over 23 projects of National Natural Science Foundation of China and more than 70 provincial and ministerial projects such as the Key Projects of the Science and Technology Commission of Shanghai Municipality, has published more than 200 papers in famous international journals such as Nature Mater., PNAS, Nature Commun., Acta Mater., J. High Energy Phys., Adv. Energy Mater., Adv. Funct. Mater., Nanoscale, and J. Comput. Phys, and won (as the first author) the second prize of Shanghai Natural Science Award and many other scientific and technological awards.

The employment rate of previous graduates is close to 100%, of which 50% enter power related enterprises. Graduates' employment units include Huadian, Guodian, Datang, Shenhua, XJ, COMAC and other large enterprises. Other students are admitted to Fudan University, Suzhou University, Southeast University and other universities to continue their further study for doctoral degrees.



III. Tutor Introduction

- **Yongsheng Liu**, Professor, Ph.D., Shanghai excellent academic leader, mainly engaged in the research fields of material physics and photovoltaic power generation technology, involving magnetic and magnetic materials, solar cell materials and photovoltaic power generation systems, structure and physical properties of nano materials, etc. He won (as the first author) the second prize of Shanghai Natural Science Award.
- **Jia Lin**, Professor, Ph.D., distinguished professor of "Oriental Scholars" in Shanghai. His main research interests are optical and optoelectronic materials, including experimental and theoretical research on functional photonics, new solar cells, energy-saving luminescent materials, etc. Representative achievements have been published in international famous journals such as nature materials, PNAS, Nature Communications, etc.
- **Li Zheng**, Professor, Ph.D., distinguished professor of "Oriental Scholars" in Shanghai, mainly engaged in the research of nano energy materials, energy collection and application, self driving system and sensing. Representative achievements have been published in international famous journals such as nano energy and advanced energy materials.



IV. Research

