

School of Medical Instrument and Food Engineering

The School of Medical Instrument and Food Engineering provides study programs for undergraduate and graduate students on biomedical engineering, medical devices, pharmaceutical and food processing technology, food safety and quality.

The school has its unique schooling features of combining science and engineering with medicine while focusing on engineering. Medical instrument and food engineering discipline group is one of the six key discipline groups of USST. Medical instrument discipline is a key discipline of Shanghai Municipal, with its relevant majors included in Shanghai Undergraduate Education Highland Projects and Pilot Majors of Excellence Engineering Education.

The school has a competitive faculty, including 45 professors and associate professors, and 58 doctoral degree holders. Prof. Wang Weiqi, academican of Chinese Academy of Engineering

and an expert of Biomedical Engineering is the Honorary Dean. Prof. Hua Zezhao, who is a national outstanding teacher and an expert of Cryobiology and Medicine Technology, acts as the Chair Professor.

The Experimental Center for Medical Instrument and Food of the school has 18 public-platform and

professional laboratories with a total area of 4,000 square meters. Based on the platform of the Engineering Research Center of Modern Minimally Invasive Medical Devices and Technologies, the school actively conducts scientific researches and technological innovation and which has been leading in the research fields of modern medical equipment, intelligent medical instrument and system, thermal science and biological systems, food safety testing and monitoring. Recent years, the school has been awarded with many national and

provincial prizes. In addition, the school is enhancing industry-university-research cooperation with relevant enterprises, hospitals and government departments. We have built joint laboratories with leading companies like Nihon Kohden, Draeger, Braun Avitum and Fuji Medical. Many famous enterprises home and abroad such as MicroPort(Shanghai) Co.Ltd, Philips(China) Co.Ltd and Runda Medical Co.Ltd, have established innovation funds and scholarships for both undergraduate and postgraduate students, which encourage young generation to devote into the scientific research.

The school is constituted by 9 undergraduate majors and specialties:

Biomedical Engineering (including 3 specialties of Medical Electronic Instrumentation, Precision Medical Devices, Quality and Safety of Medical Devices), Medical Imaging Technology, Biomedical Information Engineering, Prosthetics and Orthotics Engineering, Pharmaceutical Engineering, Food Science and Engineering, Food Quality and Safety.

The school provides doctoral and master programs in Biomedical Engineering and master program in Food Science. The school also provides engineering master programs in Biomedical Engineering, Food Science and Biological Engineering. The multilevel system provides flexible opportunity for students to continue their studies.

Undergraduate Programs

1. Biomedical Engineering (including 4 specialties: Biomedical Engineering, Medical Imaging Technology, Biomedical Information Engineering, Prosthetics and Orthotics Engineering)
2. Chemicals & Pharmaceuticals (including 1 specialty: Pharmaceutical Engineering)

3. Food Science and Engineering (including 2 specialties: Food Quality and Safety, Food Science and Engineering)

Biomedical Engineering

Degree: Bachelor of Engineering.

Main Courses:

Advanced Mathematics,
Physics, Computer Programming, Principle and Applications of Microcomputer,
Human Anatomy, Electronic technology, Theory and Design of Medical Electronic Equipment, Biomedical Materials, Biomedical Detection Technology, Replacement Equipment for Human body, Testing Equipment for Medical Devices, Medical Optical Instrument, Hospital Equipment and Apparatus, the Supervision and Management Regulation on Medical Instruments, Active Medical Device Test Technology, Passive Medical Devices Test Technology, Electrics Safety Management of Medical Devices, Electromagnetic Compatibility of Medical Devices.

Medical Imaging Technology

Degree: Bachelor of Engineering.

Main Courses:

Advanced Mathematics,
Engineering Drawing, Fundamental Mechanical Design, Fundamentals of Electrotechnics, Analog Electronic Technology, Digital Electronic Technology, Principle and Applications of Microcomputer, Computer Programming, Digital Signal Processing, Computer Network Technology, Medical Imaging Equipment Management, Human Anatomy, Medical Imaging Physics, Radiation Measurement and Protection, Medical Imaging Anatomy, Medical Imaging Equipment, Digital Image Processing, PACS System.

Biomedical Information Engineering

Degree: Bachelor of Engineering.

Main Courses:

Human Anatomy, Human Physiology, Introduction to Clinical Medicine, Electronic Technology, Advanced Language Programming (C), Data Structure, Object-Oriented Program Design, Principle and Applications of Microcomputer, Operating System, Computer Networks, Principles of Database, Medical Information System, Technology of Medical Software Development, Medical Information Standards and Integration Technology.

Prosthetics and Orthopedics Engineering (Human Rehabilitation Engineering and equipment)

Degree: Bachelor of Engineering

Main Courses:

Advanced Mathematics, Physics, Basis of Medicine, Rehabilitation Medicine, Engineering Drawing, Mechanics, Biomechanical, Machinery Design, Fundamentals of Mechanical Manufacturing Technology, Fundamentals of Electrotechnics, Fundamentals of Electronic Technology, Principle and Applications of Microcomputer, C Programming, Hydraulic and Pneumatic Technology, Ergonomics, Biomedical Measurement Technology, Orthopedic technology, Introduction to Rehabilitation Engineering, Human-assisting rehabilitation devices, Rehabilitation Therapy and Training Equipment, Orthopedics Instruments.

Pharmaceutical Engineering

Degree: Bachelor of Engineering.

Main Courses:

Engineering Mechanics, Organic Chemistry, Principles of Chemical and Pharmaceutical Engineering, Computer Language (C), Engineering

Drawing, Fundamentals of Mechanical Design, Electrotechnics and Electronics Technology, Principle and Applications of Microcomputer, Test and Control Technology, Technology and Equipment of Pharmaceutical Preparation, Application of UG software, Electrical Control of Pharmaceutical Equipment and PLC Application, New Techniques for Making Chinese Medicine, Pharmaceutical Plant Layout Design, Typical Mechanical Design of Pharmaceutical Equipment, Industrial Pharmaceutical.

Food Science and Engineering

Degree: Bachelor of Engineering.

Main Courses:

Advanced Mathematics,
Organic Chemistry, Physical Chemistry, Engineering Mechanics, Heat and Mass Transfer, Engineering Drawing, Fundamentals of Mechanical Design, Electronics in Electrical Engineering, Instrument Analysis, Food Chemistry, Biochemistry, Food Microbiology, Principles of Food Engineering, Food Detection and Analysis, Food Processing Technology, Food Machinery, Food Refrigeration Principle, Food Engineering Measurement and Control Technology, Lectures on Special Topics of Food Engineering.

Food Quality and Safety

Degree: Bachelor of Engineering.

Main Courses:

Computer Application,
Inorganic and Analytical Chemistry, Organic Chemistry, Biochemistry, Physical Chemistry, Microbiology & Detection, Management Psychology, Food Detection and Analysis, Rapid Detection Technology of Food Safety, Instrument Analysis, Food rules & Standards, Food Storage and the Chain of Food Refrigeration, Food Security Information Management, Food Risk Analysis, Immunology, Teach for Certificate acquiring, Food Processing Technology, Food Quality Control.

