

# School of Environment and Architecture

**School of Environment and Architecture** (SEA) consists of 3 departments: Department of Environmental Science and Engineering, Department of Civil Engineering, and Department of Building Environment and Energy Engineering. It also includes two research center and one experiment center, i.e. Energy and Environmental Pollution Control Research Center, Environment and Low-carbon Research Center, and Experiment Center of SEA that covers Environmental Engineering Lab, Civil Engineering Lab, and Construction Engineering Lab as well.

The school now boasts an academic faculty of 56, including 11 professors and 25 associate processors. Among them, there are 7 faculties with doctoral degree from famous overseas universities and 26 faculties with doctoral degree from prestigious universities of China. The school has about 1200 undergraduates and 300 graduates in total.

## Undergraduate Program

### 1) Bachelor-degree Program on Environmental Engineering

Main Courses: Engineering Fluid Mechanics, Wastewater Pollution Control Engineering, Water Treatment, Air Pollution Control Engineering, Indoor Air Pollution and Its Control, Theoretical Chemistry for Environmental Engineering, Environmental Monitoring, Environmental Microbiology.

### 2) Bachelor-degree Program on Civil Engineering

Main Courses: Engineering Geology, Civil Engineering Materials, Structural Mechanics (1), Structural Mechanics (2), Theory of Concrete Structure, Fundamental Theory of Steel Structures, Soil Mechanics, Design of Concrete and Masonry Structure.

### 3) Bachelor-degree Program on Building Environment and Energy Utilization Engineering

Main Courses: Engineering Thermodynamics, Building Environment, Air Conditioning Engineering, Refrigerating Technology for Air-conditioning, Ventilation Engineering, Heat-supply Engineering, Automatic Controls for Building Facilities, Electrical System of Building.

## Research Institutes & Centers

4 institutes and 3 research centers have been constructed, named Institute of Environmental Engineering, Institute of Structure Detection and Strengthening Engineering, Institute of Heat Addition Ventilation and Air-conditioning Engineering, Institute of Construction Power Conservancy, Energy and Environmental Pollution Control Research Center, Environment and Low-carbon Research Center, and Development Research Center of the Green Community.

### **Graduate Program**

#### 1) Energy and Environmental Engineering (doctoral program)

Major aspects of research:

- (1) Control and management of coal-burning pollution
- (2) Development and utilization of new energy source
- (3) Sewage treatment and reclaimed water reuse
- (4) Energy conservation and building environment

#### 2) Heating, Gas-supply, Ventilation and Air Conditioning Engineering (Master program)

Major aspects of research:

- (1) Research and testing of indoor thermal environment for buildings with large space
- (2) Integration and optimization of HVAC systems
- (3) Energy efficiency improvement for building and services
- (4) Air cleaning technologies
- (5) Ventilation and dust removal technologies
- (6) Automatic control of building environment and equipment
- (7) Research on application of natural energy in buildings

#### 3) Environmental Engineering (Master program)

Major aspects of research:

- (1) Control engineering of water pollution
- (2) Control engineering of air pollution
- (3) Development of new environmental protection materials and Application
- (4) Reclamation and treatment technology of waste water
- (5) Control technology of atmosphere and indoor air pollution

#### 4) Structural Engineering (Master program)

Major aspects of research:

- (1) Theory of design, computation and reliability evaluation in structural engineering;
- (2) Health-diagnosis and reinforcing techniques of engineering structures;
- (3) Techniques of complicated ground treatment;
- (4) Influence of underground construction to environment and engineering countermeasures;
- (5) Advanced construction technique and management.

#### 5) Environmental Science (Master program)

Major aspects of research:

- (1) Environmental chemistry
- (2) Development of environment friendly Materials and application
- (3) Development technology of environmental monitoring instruments
- (4) Air pollution control theory and technology
- (5) Water pollution control theory and technology

#### 6) Geotechnical Engineering (Master program)

Major aspects of research:

- (1) Static and dynamic characteristics of rock-soil body
- (2) Soft soil foundation treatment and foundation engineering
- (3) Environmental geotechnology

#### 7) Bridge and Tunnel Engineering (Master program)

Major aspects of research:

- (1) Multi-field coupling theory and its applications to tunnel surrounding rock
- (2) Theory and technologies of tunnel engineering construction
- (3) Nonlinear theory in bridge engineering under wind load

#### 8) Environmental Engineering (Professional master program)

Major aspects of research:

- (1) Water pollution control engineering
- (2) Air pollution control engineering
- (3) Development of environment friendly Materials and application
- (4) Water treatment and water source utilization
- (5) Indoor air pollution control

#### 9) Construction and Civil Engineering (Professional master program)

Major aspects of research:

- (1) HVAC engineering
- (2) Construction engineering
- (3) Environmental engineering
- (4) Construction design
- (5) Landscape planning

### **Scientific research**

The faculties undertake 8 state-level and 12 provincial-level projects, including projects by National Natural Science Foundation, "Chen Guang" project by Shanghai Municipal Education Commission, Key Project of Shanghai Science and Technology Commission, Innovation Program of Shanghai Municipal Education Commission, and projects from Shanghai Municipal Environmental Protection Bureau et al. Now the research fund has aggregated to ¥11.37 million, increased by 10.9 % year-on-year, More than 120 academic papers are published and 30 patents are approved every year, including 14 invention patents and 16 utility model patents.

### **International exchanges and cooperation**

The school has been cooperating with universities in German, U.S., Britain, Japan, and Australia to carry out scientific programs. About ten professors from well-known universities, such as Aachen University of Technology, Jackson State University, Cambridge University, Hong Kong Polytechnic University, and University of Wollongong, are invited to give lectures annually. Faculties in our school attend international conferences and other academic exchanges over ten times per year. Specifically, one joint research project is granted by South Korea government.

Annually, two undergraduates have access to further master and doctoral program in Kyung Hee University, South Korea. Two undergraduates go to Aachen University of Technology, German for study and two students go to Jackson State University, U.S., as exchange students. Every year the school receives two foreign students and three from Taiwan, Hong Kong and Macao. The school also receives two groups of undergraduates from Department of Civil Engineering and Environmental Engineering of Jackson State University and Department of Civil Engineering of Aachen University of Technology, respectively.