**页眉：English-taught Master’s Programs**

**Engineering Simulation calculation and statistic**

This course is an academic master degree of the second disciplines approved by the state's independent setting; which is the cross discipline consisting of applied mathematics, computational science, financial and statistics, simulation technology, management decision-making, engineering economy, civil engineering and other fields.

The discipline is studying the applied mathematics problems with engineering background, studying of generic technology in the engineering technology or key technology. The theories and methods of these studies will be directly applied to the practical problems in the field of engineering.

This degree adopts English teaching and guidance. The training objective includes students mastering firm basic theories and systems expertise, engaging in scientific research, teaching work or expertise work independently,

Using the model to solve practical problems of engineering and financial engineering, application of computer simulation and big data processing, applying project management statistical methods for engineering project risk forecast and control, and so on.

**Enrollment Advantage**

The rapid development of Chinese economic construction and the "the Belt and Road" strategy have led to the great demand of high-level engineering talents.

Along with the modern engineering trending to ultra-large type development and the

structure becoming complex, the research methods based on the classical through a

large number of physical model test to seek laws are no longer applicable today. The

Engineering construction and management have shown a trend of internationalization,

informationization and integration development. The increasing complexification and

 large scale of engineering construction put forward higher requirements for talents.

Modeling study, simulation test, data management, visual computing, risk control and management decisions have become its innovation means. Engineering theory study has towards to quantification, systematic and accurate direction. Because "Engineering simulation and statistics" discipline advantage just reflects the change and development trend, the social demand of this discipline will present growth trend. Crossover high-level professional talents cultivation of engineering and mathematical has become the urgent needs of the sustainable development of each country.

The project is based on key construction disciplines of Zhejiang province and Zhejiang province first-class discipline with research institute and laboratory facilities. Scientific research ability and scientific research of the teacher’s team are on high level. Now we have an over 20-member team, including seven professors, and more than 10 Ph.D. with overseas study experience.

**Main courses**

Engineering Modeling and Simulation

Computer Simulation Technology

Numerical Calculation Method

Engineering Database

Advanced Statistical

Complex System Analysis and Application

Mathematical Finance

Project Investment

Engineering Economy

Risk Management and Control

**Major Specialties**

The theory and application of Engineering mathematics. To study the mathematical model of engineering problems in Applied Mathematics, engineering mechanics, building physics and mathematical statistics with the direction. For example, engineering transportation and transportation allocation model, security network model, input output and decision model, risk control and countermeasure model, etc..

(2) The numerical calculation and Simulation of engineering. The direction including engineering calculation, numerical analysis, structural analysis and numerical simulation, numerical simulation, structure CAD and engineering design and construction process of data processing, visualization, engineering structure simulation experiment. The numerical simulation is realized on the computer, and has the advantage of repeatability. The application platform through numerical calculation and simulation technology for engineering design and theoretical analysis to provide visualization.

(3) Statistics and its application in engineering. The study of engineering economics, financial engineering, management statistics, etc., study the statistical model, statistical forecast, risk assessment and control of engineering management.

(4) Quantum information and quantum computing, which focuses research orientations on the following topics: efficient quantum algorithms, construction of quantum hardware and devices, quantum measurement and control, quantum communication and error correction, as well as quantum metrology.

(5) The study of micro- and nano- optics with research topics of design and fabrication of micro/nano optical devices, development and application of micro/nano systems, micro/nano optical printing and application.

**Graduation Orientation**

The working area of the talents is very wide, including civil engineering, traffic engineering, environmental engineering, hydraulic engineering, construction engineering, urban construction, project management, construction economy, the financial industry, securities investment and industry work. And also can be engaged in financial engineering, computer science, data analysis, computer simulation, project management, engineering economy, risk management, system engineering, economics, statistics, mathematical statistics, graphics, operational research in the fields of research and related work.