

TJU master of Urban Planning in English

1.Course objective

The design courses were the most important course for the three majors to improve the students' comprehensive ability, the ability to analyze the question, propose the question and solve the question. According to the different design themes, the theory and design method of related professional knowledge were required to solve the practical design problems.

2.Duration of the Program

2 years.

3. Curriculum for Urban Planning Specialized Postgraduate Students

(1) General Degree Courses: Chinese (2 credits), General China (2 credits)

(2) Major-related Degree Courses (≥ 8 credits), 1-2 theory courses (2 credits)

| Programs | Course Name | Credit | Credit Hour |
|------------------------|---|--------|-------------|
| Architecture | Architecture Design (1) | 4 | 120 |
| | Architecture Design (2) | 4 | 120 |
| | Integrated building and urban design in a resource conservation perspective | 1 | 16 |
| | Design in Motion | 1 | 16 |
| Landscape Architecture | Landscape Architecture Design (1) | 4 | 120 |
| | Landscape Architecture Design (2) | 4 | 120 |
| | Landscape Ecology and Design/Planning Applications | 2 | 32 |
| Urban Planning | Urban design(1) | 4 | 120 |
| | Urban design(2) | 4 | 120 |
| | Ecological Environment and Urban Development | 1 | 16 |
| | International Comparative Planning | 1 | 16 |

(3) Major-related Optional Courses (≥ 8 credits)

| Course Name | Credit | Credit hour |
|--|--------|-------------|
| Engineering Practice and Experimental Skills | 4 | 120 |
| Research Method | 1 | 16 |
| Contemporary Architectural Theory And Review | 1 | 16 |
| Architecture and the Aesthetics of Compression | 2 | 32 |
| Sustainable Regeneration Theory and Practice of Historical Environment | 1 | 16 |
| Case Studies of the World Cultural Heritage | 1 | 16 |
| Design Thinking and Cognition | 1 | 16 |
| Close readings of architectural writings & projects | 1.5 | 24 |
| How to Make An Open Building | 1 | 16 |
| Keeping Memory Green: Sustainable Regeneration Theory and Practice of Historical Environment | 1 | 16 |
| Managing Global City Regions | 1 | 16 |

(4) Seminar/Academic Exchange/ Project report (2 credits)

(5) Graduation thesis (6 credits)

TJU master of Electronic Information Engineering in English

1.Course objective

This program aims to foster competitive EE professionals with comprehensive and solid electronic skills, excellent academic merits and global perspectives to meet the demands of international electronic industry.

Graduates will be able to apply their abilities, talents, and insights creatively and productively in fields and professions beyond those explicitly represented in, or anticipated by, the EE curricula.

2.Duration of the Program

2 years.

3. Curriculum for Electronic Information Engineering Specialized Postgraduate Students

(1) General Degree Courses: Chinese (2 credits), General Chinese (2 credits)

(2) Major-related Degree Courses (≥ 10 credits)

| Course Name | Credit | Credit Hour |
|----------------------------|--------|-------------|
| Stochastic Processes | 2 | 32 |
| Optimization Methods | 2 | 32 |
| Advanced Signal Processing | 2 | 32 |
| Digital Communication | 2 | 32 |
| Applied Machine Learning | 2 | 32 |
| Semiconductor Devices | 2 | 32 |

(3) Major-related Optional Courses (≥ 8 credits)

For communication, choose 4 courses from 8

| Course Name | Credit | Credit Hour |
|---|--------|-------------|
| Information Theory and Coding | 2 | 32 |
| Wireless Communications | 2 | 32 |
| Multimedia Compression and Communication | 2 | 32 |
| Computer Communication Networks | 2 | 32 |
| Optical Communication Networks | 2 | 32 |
| Statistical Signal Processing and Application | 2 | 32 |
| Queuing Theory and Traffic Systems | 2 | 32 |
| Satellite Communication | 2 | 32 |

For Information, choose 4 courses from 8

| Course Name | Credit | Credit Hour |
|---|--------|-------------|
| Information Theory and Coding | 2 | 32 |
| Multimedia Compress and Communication | 2 | 32 |
| Computer Vision | 2 | 32 |
| Speech Processing | 2 | 32 |
| Digital Image Processing | 2 | 32 |
| Statistical Signal Processing and Application | 2 | 32 |
| Theory and Design of Digital Filters | 2 | 32 |
| Fourier Transform and Its Applications | 2 | 32 |

For Electronics, choose 4 courses from 8

| Course Name | Credit | Credit Hour |
|---|--------|-------------|
| Analogue Integrated Circuits and Design | 2 | 32 |
| Electromagnetic and Antenna | 2 | 32 |
| Solid State Electronics | 2 | 32 |
| Radio Frequency Electronics and Design | 2 | 32 |
| VLSI Systems | 2 | 32 |
| Analysis and Design of Digital Integrated Circuit | 2 | 32 |

| | | |
|--|---|----|
| Micromachining and Microelectromechanical System(MEMS) | 2 | 32 |
| Computer-Aided VLSI Design | 2 | 32 |

(4) Seminar/Academic Exchange, 2 credits

(5) Graduation thesis / Project report, 6 credits

TJU master of Landscape Architecture in English

1.Course objective

The design courses were the most important course for the three majors to improve the students' comprehensive ability, the ability to analyze the question, propose the question and solve the question. According to the different design themes, the theory and design method of related professional knowledge were required to solve the practical design problems.

2.Duration of the Program

2 years.

3. Curriculum for Landscape Architecture Specialized Postgraduate Students

(1) General Degree Courses: Chinese (2 credits), General China (2 credits)

(2) Major-related Degree Courses (≥ 8 credits), 1-2 theory courses (2 credits)

| Programs | Course Name | Credit | Credit Hour |
|------------------------|---|--------|-------------|
| Architecture | Architecture Design (1) | 4 | 120 |
| | Architecture Design (2) | 4 | 120 |
| | Integrated building and urban design in a resource conservation perspective | 1 | 16 |
| | Design in Motion | 1 | 16 |
| Landscape Architecture | Landscape Architecture Design (1) | 4 | 120 |
| | Landscape Architecture Design (2) | 4 | 120 |
| | Landscape Ecology and Design/Planning Applications | 2 | 32 |
| Urban Planning | Urban design(1) | 4 | 120 |
| | Urban design(2) | 4 | 120 |
| | Ecological Environment and Urban Development | 1 | 16 |
| | International Comparative Planning | 1 | 16 |

(3) Major-related Optional Courses (≥ 8 credits)

| Course Name | Credit | Credit hour |
|--|--------|-------------|
| Engineering Practice and Experimental Skills | 4 | 120 |
| Research Method | 1 | 16 |
| Contemporary Architectural Theory And Review | 1 | 16 |
| Architecture and the Aesthetics of Compression | 2 | 32 |
| Sustainable Regeneration Theory and Practice of Historical Environment | 1 | 16 |
| Case Studies of the World Cultural Heritage | 1 | 16 |
| Design Thinking and Cognition | 1 | 16 |
| Close readings of architectural writings & projects | 1.5 | 24 |
| How to Make An Open Building | 1 | 16 |
| Keeping Memory Green: Sustainable Regeneration Theory and Practice of Historical Environment | 1 | 16 |
| Managing Global City Regions | 1 | 16 |

(4) Seminar/Academic Exchange/ Project report (2 credits)

(5) Graduation thesis (6 credits)

TJU master of Chemical Engineering in English

1.Course objective

Our program seeks to produce chemical engineers with a strong fundamental technical education, who master the theoretical course of chemical engineering and the experimental skills. Our program is for students who seek a broad education in the application of chemical engineering to a variety of specific areas, including energy and the environment, materials and nanotechnology, polymers, surface science, catalysis and reaction engineering, systems and process design, and biotechnology. Chemical engineering students acquire the necessary background and skills to design chemical processes, and know how to carry out the fundamental and applied investigation on the problems found in the chemical industry. In addition, our program aims to develop the independent innovation activities, the skills of international academic communication, and the spirit of collective cooperation, so that the students will become highly qualified professionals in the field of chemical engineering.

2.Duration of the Program

2 years.

3. Curriculum for Chemical Engineering Specialized Postgraduate Students

| (6) General Degree Courses: Chinese (2 credits), General China (2 credits) | | |
|--|--------|-------------|
| (7) Major-related Degree Courses (≥ 8 credits), 1-2 theory courses (2 credits) | | |
| Course Name | Credit | Credit hour |
| Chemical Reaction Engineering | 2 | 32 |
| Chemical Separation Processes | 2 | 32 |
| Chemical Engineering Thermodynamics | 2 | 32 |
| Mass Transfer Processes | 2 | 32 |
| Chemical Process Systems Engineering) | 2 | 32 |
| (8) Major-related Optional Courses (≥ 8 credits) | | |
| Course Name | Credit | Credit hour |
| Catalytic Kinetics and Reactor Design | 2 | 32 |
| Transport Phenomena | 2 | 32 |
| Environmental Biotechnology | 2 | 32 |
| Special Chemicals | 2 | 32 |
| Modern Experimental Technology | 2 | 32 |

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|--|---|----|
| for Chemical Engineering | | |
| Frontiers in Chemical Engineering | 4 | 64 |

(9) Seminar/Academic Exchange/ Project report (2 credits)

(10) Graduation thesis (6 credits)

TJU master of Architecture in English

1.Course objective

The design courses were the most important course for the three majors to improve the students' comprehensive ability, the ability to analyze the question, propose the question and solve the question. According to the different design themes, the theory and design method of related professional knowledge were required to solve the practical design problems.

2.Duration of the Program

2 years.

3. Curriculum for Architecture Specialized Postgraduate Students

(11) General Degree Courses: Chinese (2 credits), General China (2 credits)

(12) Major-related Degree Courses (≥ 8 credits), 1-2 theory courses (2 credits)

| Programs | Course Name | Credit | Credit Hour |
|------------------------|---|--------|-------------|
| Architecture | Architecture Design (1) | 4 | 120 |
| | Architecture Design (2) | 4 | 120 |
| | Integrated building and urban design in a resource conservation perspective | 1 | 16 |
| | Design in Motion | 1 | 16 |
| Landscape Architecture | Landscape Architecture Design (1) | 4 | 120 |
| | Landscape Architecture Design (2) | 4 | 120 |
| | Landscape Ecology and Design/Planning Applications | 2 | 32 |
| Urban Planning | Urban design(1) | 4 | 120 |
| | Urban design(2) | 4 | 120 |
| | Ecological Environment and Urban Development | 1 | 16 |
| | International Comparative Planning | 1 | 16 |

(13) Major-related Optional Courses (≥ 8 credits)

| Course Name | Credit | Credit hour |
|--|--------|-------------|
| Engineering Practice and Experimental Skills | 4 | 120 |
| Research Method | 1 | 16 |
| Contemporary Architectural Theory And Review | 1 | 16 |
| Architecture and the Aesthetics of Compression | 2 | 32 |
| Sustainable Regeneration Theory and Practice of Historical Environment | 1 | 16 |
| Case Studies of the World Cultural Heritage | 1 | 16 |
| Design Thinking and Cognition | 1 | 16 |
| Close readings of architectural writings & projects | 1.5 | 24 |
| How to Make An Open Building | 1 | 16 |
| Keeping Memory Green: Sustainable Regeneration Theory and Practice of Historical Environment | 1 | 16 |
| Managing Global City Regions | 1 | 16 |

(14) Seminar/Academic Exchange/ Project report (2 credits)

(15) Graduation thesis (6 credits)

TJU master of Software Engineering in English

1.Course objective

This program is designed to cultivate internationalized and advanced software engineers with a profound understanding of advanced and practical software development methods techniques, and tools related to each phrase of software development cycles and to equip students with comprehensive knowledge related to information technology and expertise in certain specialty.

2.Duration of the Program

2 years.

3. Curriculum for Software Engineering Specialized Postgraduate Students

(4) General Degree Courses: Chinese (2 credits), General Chinese (2 credits)

(5) Major-related Degree Courses (≥ 10 credits)

| Course type | Course title | Credit hours | Credits |
|---------------------|--|--------------|---------|
| Public Courses | Chinese Culture | 60 | 3 |
| | Comprehensive Chinese 1 | 40 | 2 |
| | Foundation of Engineering Mathematics | 80 | 4 |
| | Project Management | 32 | 2 |
| | Java 8 Programming with the FX libraries | 32 | 2 |
| | Computer Architecture | 32 | 2 |
| | Data Mining for Big Data | 32 | 2 |
| Practical Training | Practical Project Training | | 6 |
| | Project Report | | 2 |
| Specialized Courses | Algorithms and Visual Analytics for Big Data | 32 | 2 |
| | Algorithmics and Informatics | 32 | 2 |
| | Web-based Knowledge Representation | 32 | 2 |
| | Distributed System and Cloud Computing | 32 | 2 |
| | Comprehensive Chinese 2 (optional) | 40 | 2 |

(3) Seminar/Academic Exchange, 2 credits

(4) Graduation thesis / Project report, 6 credits

TJU master of Civil Engineering, Hydraulic Engineering, Naval

Architecture and Ocean Engineering in English

1.Course objective

Graduate students from this program are expected to have capabilities in the following three important aspects: (1) the ability to integrate and apply basic, professional knowledge in their fields to solve engineering problems in related fields; (2) the ability to skillfully participate in technology developing and managing of large-scale engineering projects; (3) the ability to independently and creatively conduct scientific research in their fields.

2.Duration of the Program

2 years.

3. Curriculum for Civil Engineering, Hydraulic Engineering, Naval Architecture and Ocean Engineering Specialized Postgraduate Students

(1) General Degree Courses

| Course Name | Credit | Credit Hour |
|--|--------|-------------|
| Chinese | 2 | 32 |
| China Studies | 2 | 32 |
| Advanced Structural Dynamics | 2 | 32 |
| Advanced Fluid Mechanics | 2 | 32 |
| Advanced Geotechnical Mechanics | 2 | 32 |
| Elasticity and Plasticity in Engineering | 2 | 32 |

(2) Major-related Degree Courses

| Course Name | Credit | Credit Hour |
|---|--------|-------------|
| Theory and Technique of Engineering Structure Experiments | 2 | 32 |
| Finite Element Analysis | 2 | 32 |

(3) Major-related Optional Courses

| | Course Name | Credit | Credit Hour |
|-------------------|--|--------|-------------|
| Civil Engineering | Structure Wind Engineering | 2 | 32 |
| | Advanced Steel Structures | 2 | 32 |
| | Advanced Reinforced Concrete Structures | 2 | 32 |
| | Stability of Steel Structures-The theory and implement | 2 | 32 |
| | Large-span Structural Systems | 2 | 32 |
| | Advanced Bridge Structures | 2 | 32 |
| | Theory and Application of Aseismic Engineering | 2 | 32 |
| | Design of High-rise Buildings | 2 | 32 |
| | Advanced Constructions Materials | 2 | 32 |
| | Modern theory of tunnel and underground engineering | 2 | 32 |

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|-----------------------|--|---|----|
| Hydraulic Engineering | Computational Fluid Dynamics | 2 | 32 |
| | Water Resources Management | 2 | 32 |
| | Green Infrastructure for Water Management | 2 | 32 |
| | Water Ecological Engineering | 2 | 32 |
| | Urban Hydrology | 2 | 32 |
| | Satellite Remote Sensing and Geographic Information System | 2 | 32 |
| | Rock Mechanics | 2 | 32 |
| | Distributed Hydrological Modeling | 2 | 32 |
| | Mechanics of Sediment Transport | 2 | 32 |
| | Global Construction Practices and Innovations | 2 | 32 |

| | Course Name | Credit | Credit Hour |
|--|---|--------|-------------|
| Naval Architecture and Ocean Engineering | Offshore Geomechanics | 2 | 32 |
| | Offshore dynamics | 2 | 32 |
| | Course introduction_ Subsea Riser Design Technology | 2 | 32 |
| | Calculation of structural response under dynamic load | 2 | 32 |
| | Advanced Mobile Offshore Platforms | 2 | 32 |
| | Dynamics of Offshore Structures | 2 | 32 |
| | Design principles for offshore floating structures | 2 | 32 |
| | The nonlinear vibration in the Ship and Ocean Engineering | 2 | 32 |
| | Marine Renewable Energy | 2 | 32 |

(4) Seminar/Academic Exchange, 2 credits

(5) ☒ Graduation thesis / Project report, 6 credits

TJU master of Pharmaceutical Technology in English

1.Course objective

This program is customized for international students who are interested to study pharmacy related subjects in China. The program focused on the pharmaceutical technology particularly in basic theoretical and practical knowledge of pharmaceutics, making a good career foundation for the professional pharmacist.

A batch of well-known international scholars headed by the Dean of School of Pharmaceutical Science and Technology, Prof. Jay Siegel, make this program really international, although it's located in China.

2.Duration of the Program

2 years.

3. Curriculum for Pharmaceutical Technology Specialized Postgraduate Students

(1) General Degree Courses: Chinese (2 credits), General Chinese (2 credits)

(2) Major-related Degree Courses (≥ 10 credits)

| Course Name | Credit | Credit Hour |
|-------------------------------------|--------|-------------|
| Pharmaceutics1: Solid dosage forms | 2 | 32 |
| Pharmaceutical Calculations | 1 | 16 |
| Pharmaceutics2: Liquid dosage forms | 2 | 32 |
| Statistics | 1 | 16 |
| Pharmaceutical Analysis | 2 | 32 |
| Traditional Chinese Medicine (TCM) | 2 | 32 |

(3) Major-related Optional Courses (≥ 8 credits)

Provide students with abundant pharmacy-related optional courses including pharmaceutical chemistry, pharmaceutical analysis, pharmaceutical formulation, pharmacognostics, Microbial and Biochemical Pharmacy, pharmacology and pharmacy administration (the above courses may vary annually).

(4) Seminar/Academic Exchange, 2 credits

(5) Project report, etc, 6 credits

TJU master of Mechanical Engineering in English

1.Course objective

Mechanical Engineering includes thermal and power, mechanical design and other engineering subjects. Based on nature science, technology and practical experience, Mechanical Engineering solves the theoretical and practical problems involved in the research, development, design, manufacturing, installation and maintenance for all different kinds of mechanical devices.

The Master Program in Mechanical Engineering is offered based on the three major first-level disciplines (Power Engineering and Engineering Thermal Physics, Mechanical Engineering, and Mechanics) in the School of Mechanical Engineering of Tianjin University. It includes three options: Energy and Power Option, Mechanical Design Option, Mechanics Option.

2.Duration of the Program

2 years.

3. Curriculum for Mechanical Engineering Specialized Postgraduate Students

(16) General Degree Courses: Chinese (2 credits), General China (2 credits)

(17) Major-related Degree Courses (≥ 8 credits), 1-2 theory courses (2 credits)

| Direction | Course Name | Credit | Credit Hour |
|-------------------|---|--------|-------------|
| Energy and Power | Advanced Combustion | 2 | 32 |
| | Advanced Thermodynamics | 2 | 32 |
| | Advanced Heat Transfer | 2 | 32 |
| | Renewable Energy Technology | 2 | 32 |
| | Advanced Theories and Technologies of Internal Combustion Engines | 2 | 32 |
| Mechanical Design | Advanced Dynamics | 2 | 32 |
| | Advanced Manufacturing Technology | 2 | 32 |
| | Mechanical Properties of Structures | 2 | 32 |
| | Human-Machine Interaction | 2 | 32 |
| | Mechatronic Systems | 2 | 32 |
| Mechanics | Advanced Experimental Mechanics | 2 | 32 |
| | Advanced Solid Mechanics | 2 | 32 |
| | Linear Vibration | 2 | 32 |
| | Numerical Methods in Fluid Dynamics | 2 | 32 |
| | Continuum Mechanics | 2 | 32 |

(18) 8 credits are required, and 4 credits from other directions are allowed.

| Direction | Course Name | Credit | Credit Hour |
|-------------------|---|--------|-------------|
| Energy and Power | Advanced Fluid Mechanics | 2 | 32 |
| | Numerical Heat Transfer | 2 | 32 |
| | Fuel Cell Technology | 2 | 32 |
| | Optical Instrumentation and Diagnostics of Combustion Processes | 2 | 32 |
| | Fuel and Combustion Chemistry | 2 | 32 |
| | Turbulent Combustion | 2 | 32 |
| Mechanical Design | Robotics | 2 | 32 |
| | Nano-Technology and Precision Engineering | 2 | 32 |
| | Design Management | 2 | 32 |
| | Mechanical Vibration | 2 | 32 |
| | Product Design and Development | 2 | 32 |
| Mechanics | Dynamics of Surface Water Waves | 2 | 32 |
| | Computational Engineering Fluid | 2 | 32 |
| | Random Vibration and Control | 2 | 32 |
| | Ordinary Differential Equations and Stability of Motion | 2 | 32 |
| | Turbulence Theory | 2 | 32 |

(19) Seminar/Academic Exchange, 2 credits

(20) ☒ Graduation thesis / Project report, 6 credits

Students are required to obtain at least 30 credits, with 4 credits of general degree courses, 10 credits of major-related degree courses, 8 credits of major-related optional courses (4 credits from other directions are allowed), 2 credits of academic activities, and 6 credits of graduation thesis or project report.