

# International Master Program in Nuclear Engineering and Management

## 1. Overview of the Program

Nuclear power is a low carbon power generation method of producing electricity. China has always been one of the main forces in the peaceful use of atomic energy. Through dozens of years of development, China's nuclear power technology has developed better. The implementation of going out strategy is willing to share new technology and achievements of nuclear engineering with other countries, to support the development of nuclear power in all countries.

Nuclear power is a technology intensive industry. Personnel's training is the basis for the development of nuclear power. Tsinghua University is one of the world's leading universities. Department of Engineering Physics (DEP) and Institute of Nuclear and New Energy Technology (INET) are in the forefront of the world in the field of nuclear engineering and technology and enjoy a high reputation at home and abroad. They have cultivated a large number of talents for the development of China's nuclear power.

Tsinghua University is one of the world's leading universities. Department of Engineering Physics in nuclear power personnel training has a long history and enjoys a high reputation at home and abroad. Ministry of Education and Scholarship Council also attaches great importance to and support of training foreign students. The Government has used a number of scholarships to support graduate students train from France, Jordan, Pakistan and other countries, and some have even got a doctor degree from Tsinghua University.

The purpose of this program is to train high-level nuclear engineering and management master degree covers the areas of nuclear science and engineering, nuclear fuel cycle and materials, radiation and environmental protection.

The program is designed to train students with solid theoretical and systematic professional knowledge and the skills in the field of nuclear engineering and management, and to prepare to approach the forefront of nuclear engineering and management with a combination of coursework and research components. Highly flexible study is a distinguishing feature of this program which allow for development of either intensive or broadened abilities of the students. The project is strongly supported by the National Energy Administration of China and the Ministry of Education of China with a full scholarship. At the same time, various nuclear power groups such as the China National Nuclear Corporation (CNNC), the China General Nuclear (CGN) and the Sino-Nuclear Power Technology Corporation (SNPTC) give strong support; all students have a wealth of opportunities to practice.



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## 2. Application Guidance

### 2.1 Degree Offered

Master of Engineering

In the field of Nuclear Energy and Nuclear Technology Engineering

Students must complete the course of study to meet the credits requirement. A thesis research is considered an essential part of the degree.

### 2.2 Professional Courses Offered in English

#### Courses Structure

Students are required to take Chinese courses, professional courses, internship and academic activity. The program provides a comprehensive professional education and research in the area of nuclear engineering including thermodynamics, heat transfer, fluid flow, electrical science, instrumentation and control, chemistry and chemical engineering, material science, mechanical science, nuclear physics, reactor theory, fuel cycling and radiation protection. The courses are scheduled to permit either intensive study in a single area or interdisciplinary study between areas. Comprehensive introductory courses are given to provide a common basis of understanding among those with dissimilar backgrounds. Professional courses are selected in consultation with the graduate coordinator or a faculty advisor to meet his/her academic and career goals. An internship is designed for students to gain professional experiences in a company of nuclear industry in China. The normal period of this program is 2 years.

#### Spring Semester:

Numerical Methods of Reactor Thermal-hydraulics

Advanced Reactor Physics

Accident Analysis of Nuclear Power Plant

Advanced Environmental Chemistry

Nuclear Reactor Engineering and Safety

Advanced Thermal Hydraulics of Nuclear Reactor



Software Engineering and Design

Isotope Separation

Modern Control Theory and Its Application in Nuclear Power Plants

Autumn Semester:

Chinese Study

Elementary Chinese

Literature Review and Thesis Proposal

The Fundamental Principles of Nuclear Engineering

Introduction of Nuclear Reactor Engineering

Nuclear Power Plant Systems and Safety

Advanced Health Physics

Reliability Engineering and Risk Assessment

Energy and Environment

Energy and Environment Assessment Methodology

Energy and Resource Management

Advanced Nuclear Power Plants

Modern Project Management

Introduction of New Energy

Advanced Water Distribution System and Management

Challenges for Advanced Nuclear Reactor Technology: Global Seminars

Note: Relevant courses for thesis from other schools or departments can also be selected. Most courses given in Chinese are also available for foreign students.

### 2.3. Internship

Based on the coursework, the two-year master program requires an internship/on-spot survey. During the on-spot survey, student will design and conduct scientific survey on



china-specific issues with the help of supervisors. A diverse number of practice opportunities are available in nuclear industry companies of CNNC, CGN and SNPTC. During the on-spot survey, students will be exposed to methods and techniques used by natural and social scientists to identify, analyze and interpret nuclear engineering problems. The on-spot survey will be in Beijing or in other parts of China, and usually conduct in the summer after the first academic year.

#### 2.4. Thesis

Students are required to conduct an independent research project supervised by a faculty member with an interest in the particular topic or issue of their own research. A written master thesis research proposal and a formal presentation are required in the second term. Students are required to submit a thesis in English with an executive summary in Chinese or a thesis in Chinese and the final oral defense is required.

Research work for the thesis is usually supervised by an associate professor or above.

#### 2.5. Qualification of Applicants

Applicants should have a Bachelor degree or receive a Bachelor degree when enroll, majoring in nuclear engineering, management, or other relevant fields. Working experience is preferred.

All the applicants should have basic knowledge in calculus ( $\cong 4$  credits), physics ( $\cong 4$  credits), engineering ( $\cong 4$  credits). If the applicants want to focus on nuclear engineering, knowledge in at least one of the following area is required: thermodynamics, heat transfer, fluid flow, electrical science, instrumentation and control, chemistry and chemical engineering, material science, mechanical science, nuclear physics, reactor theory, fuel cycling and radiation protection. If the applicants want to focus on management and planning, they should have knowledge in probability and statistics. The applicants should use a table to clarify how they can meet these requirements in their personal statement.

For non-English native speakers, ONE of the following conditions should be met.

a. Major courses in undergraduate period were given in English and it should be clearly stated in the applicants' transcripts.

Or

b. Applicants provide the transcript of either TOEFL (the test of English as a foreign language) or IELTS (international English language testing system).

#### 2.6. How to Apply

Applicants should complete the Online Application on the website of the THU Graduate Programs Application System for International Students



(<http://gradadmission.tsinghua.edu.cn>) during the designated THU application period. Applicants should fill in the application information online, upload the application documents listed below to the online application system, and pay the application fee online at the time of submission.

Application	1st Round	2nd Round
Date	Nov 15,2016 -- Jan 15, 2017	Feb 15, 2017 -- Mar 1, 2017

In order to successfully get the Chinese Government Scholarship, please complete the Chinese Government Scholarship online application from the website of the China Scholarship Council (<http://www.csc.edu.cn/laihua/scholarshipen.aspx>) before December 31, 2016.

## 2.7. Documents for Application

Please upload all the listed documents below to the application system:

- (1) Personal statement.
- (2) Degree certificate. Applicants should submit a bachelor's degree certificate. Those who have not graduated yet must provide a proof of education in current academic institution.
- (3) Academic transcript. Applicants should submit an academic transcript of undergraduate study.
- (4) Two academic recommendation letters from scholars of associate professorship (with referee's phone number and email address on the letter). One of the recommendations from CNNC/CGN/SNPTC is priority. Please follow system instructions for submission of online recommendation letters.
- (5) Passport personal information page (personal and ordinary passport).

Note: Use the online application to apply. The online application offers tools for collecting and submitting some, but not all, of the documents and information required for application. Departments may require additional information, so please check their individual admissions pages as well as the remarks below.

### Application Remarks

- (1) Applicants are required to submit scanned images of all required documents at the time of application. All uploaded documents should be in Chinese or in English; otherwise notarial translations in Chinese or English are required. Once translated, the original documents and certified translations are to be submitted together to the application system.



(2) Please scan the original or notarial application documents in color using a scanner. Documents images captured by mobile phone or camera are not acceptable. Copies are also not acceptable.

(3) Application fee must be paid at time of application submission. THU is not responsible for errors made by applicants during the application process. There are no application-fee refunds.

(4) Applications with incomplete documents or without application fee payment will not be processed.

(5) THU may request some applicants to offer original or notarial hardcopies of application documents for further qualification check if uploaded documents are not sufficient. Applicants shall guarantee all the information and application documents submitted in this application are authentic and accurate, otherwise, the admission will be disqualified.

(6) None of the above application documents will be returned.

## 2.8. Admission Process

After the complete application documents are reviewed, an online interview will be organized before March 31, 2017 and you will get an interview notice one week in advance if you pass the initial screening process.

Decisions of the faculty are reviewed and confirmed by the Associate Dean for Academic Affairs. The accepted applicant is required to sign and submit a formal letter to declare one's acceptance of the offered admission and fully understanding of the acceptance condition. Offers of admission which are not accepted by the applicant in a timely manner will be withdrawn.

Admission to the graduate programs of Department of Engineering Physics is competitive: not all applicants who satisfy the minimum requirement for admission can be accepted. The international office is not responsible for explaining the admission results.

No enrollment action shall be taken and automatically viewed as withdrawal, if applicants is absent during the registration without giving reasons in advance.

### Visa Application and Admission Registration:

The admitted students should bring their personal and ordinary passport, Admission Notice, Visa Application Form (JW202/ JW201), and original Form of Physical Examination Record for Foreigners as well as other original documents of physical examination to the Embassy or Consulate of the People's Republic of China, and apply for student visa (X1 visa). Students shall come to International Students Office, Tsinghua University for registration during the



dates indicated on the Admission Notice. Students must use personal and ordinary passport and X1 visa, and must apply for Residence Permit within 30 days after arrival in China.

Application Fee, Tuition, and Other Costs:

- (1) Application Fee: RMB 800
- (2) Tuition: RMB 39,000/year.
- (3) Accidental Injury and Hospitalization Insurance: RMB 600/year.

Accommodation:

Due to limited dormitory capacity, on-campus rooms can only be reserved for those who have successfully applied online. For Chinese Government Scholarship (full-scholarship) recipients, a dormitory on campus will be reserved by the University. Those who fail to apply for the dorm online have to find off-campus accommodation independently.

Detailed information regarding THU academic life, accommodation, student activities, visa, and residence permit application, as well as other useful information, is available at <http://www.is.tsinghua.edu.cn/EN/campus/accommodation.html>

### 3. Scholarship

International students of Tsinghua University may apply for Chinese Government Scholarship (CGS). For detailed information, please refer to the link:

<http://www.csc.edu.cn/laihua/scholarshipen.aspx>

Furthermore, the scholarship granted by the government and university cover full time students only, the spouse of the student is not considered.

### 4. Contacts

Website: <http://gradadmission.tsinghua.edu.cn>

Vice Dean: Prof. Gao, Zhe

Manager of this Program: Dr. Yu, Jiyang

E-mail: yujy@tsinghua.edu.cn

Tel: 86-10-62794070

Fax: 86-10-62782658



Manager of Academic Affairs Office: Ms. Hao, Ying

E-mail: [gwjw@tsinghua.edu.cn](mailto:gwjw@tsinghua.edu.cn)

For those who hope to get a recommendation from CGN, please contact:

Mr. Zheng, Hua. [zhenghua@cgnpc.com.cn](mailto:zhenghua@cgnpc.com.cn)

Mr. Wang, Kai. [wangk@cgnpc.com.cn](mailto:wangk@cgnpc.com.cn)