

General Requirement for NTHU Engineering-oriented Doctoral Students in Nano Science and Technology Program, TIGP, Academia Sinica

	Doctor Program
Minimum Credits	A minimum of 18 credits. (5000 level or above), in addition to seminar. Credit transfers are limited to 3 credits each in the major and minor fields.
Grade Requirements	Grades below 70, on basis of 100, will not be accepted toward degree requirements.
Required Courses	<ol style="list-style-type: none"> 1. Nano Science and Technology – Overview I and II (3 credits each) 2. Four semesters of seminar (1 credit each) during the first two years. 3. Department colloquium (0 credit) before passing qualifying oral exam. 4. Four semesters of research and thesis (0 credit).
Other Regulations	<p style="text-align: center;">Examinations / Time Constraints</p> <ol style="list-style-type: none"> 1. The Ph.D. qualifying written examination should be taken and passed before the end of second year of graduate study. 2. After passing his/her qualifying written examination, the student should take and pass the Ph. D. qualifying oral examination before the end of third year of graduate study. 3. Final oral examination should be taken and passed before the end of seventh year of graduate study. <p style="text-align: center;">Other Assessments / Time Constraints</p> <ol style="list-style-type: none"> 1. Students must submit the doctoral plan (courses and research) of study before the beginning of second year of graduate study. At least four courses (12 credits, 5000 level or above, either already taken or intend to take) are required to satisfy his/her technical backgrounds in major field. At least three courses (9 credits, 5000 level or above, either already taken or intend to take) are required to satisfy his/her technical backgrounds in minor field. The NSTP Engineering-oriented courses are for major filed. The NSTP physics-oriented and chemistry-oriented courses are for minor field. Five members in the qualifying oral exam committee should be proposed, at least two of them are from outside NTHU. 2. Student must publish at least two technical papers, listed as principal author, in the international recognized SCI journals whose areas are related to his/her thesis. <p style="text-align: center;"><i>For details, please read the rules on the next pages.</i></p> <ol style="list-style-type: none"> 3. Proof of English proficiency (international TOEFL: CBT 213 or iBT 79-80, or GEPT: High-intermediate level) is required. 4. A one-year Mandarin course is also required. <p>Note: The above is a condensed translation. See you advisor if any doubt exists.</p>

PhD Qualification Exam
Department of Engineering and System Science
National Tsing Hua University

The rules are approved by the Departmental Affairs Meeting in June 2005.

➤ **Rules for the Written Exam**

1. The subjects covered in the written exam include:

➤ **Group of Nuclear Engineering and Energy Engineering:**

Reactor Physics, Reactor Engineering, Nuclear Radiation Measurement, Radiation Protection and Shielding, Principles of Nuclear Engineering, Transport Calculations and Medical Physics, Heat Transfer, Fluid Mechanics, Engineering Thermodynamics, Applied Mechanics (including Engineering Mechanics and Material Mechanics)

➤ **Group of Nano/Micro Systems:**

Circuits Analysis, Electronic Devices, Electronic Systems, Control Systems, Metallurgical Thermodynamics, Physical Metallurgy, Crystal Defects, Principles of Microsystem Engineering, Biochemistry and Analytical Chemistry, Introduction to Nano-Technology, Computational Material Science, Fabrication and Analysis of Advanced Nano-Structures, Introduction to Solid State Physics, [Quantum Mechanism](#), [Introduction to Nano-biophotonics](#)

➤ **Group of Engineering Physics:**

Electromagnetics, Plasma Physics, Plasma Engineering, Modern Physics, Introduction to Solid State Physics, Nuclear Radiation Measurement

2. All Students are required to choose 3 subjects from one of the above groups for the written exam and hand in the Application Form. The minimum requirement of score for each subject in the written exam is 70/100. Students who have not passed the review of courses and research plan should hand in these materials when applying for the written exam.

3. Students failed in the first written exam can attend the second one. Student failed in the second written exam can attend the third one **ONLY with the Committee of Department Affairs' approval**. Students without this approval or failed in the third written exam have to drop out. **Students attending the third written exam still have to finish the oral exam within 3 years after enrolment.**

4. Once the registration of the written exam is finished, students cannot cancel the exam. Students absent from the exam will get a score of 0. This is included in the two chances for the written exam.
5. Students attending the qualification exam must register in the same semester. Students cannot attend the qualification exam during suspension of schooling.
6. Students have to pass the written exam within 2 years after enrolment. Students failed in achieving this requirement have to drop out.

➤ **Rules for the Oral Exam**

1. Students can apply for the oral exam with the signed approval of thesis advisor, the Committee of Oral Qualification Exam and other related committees. With the approval of the chairman of the department, students should contact the department office 20 days before the oral exam. The department office will inform students about the oral exam uniformly.
2. The members of the Committee of Oral Qualification Exam are chosen according to the former rules.
3. The Committee of Oral Qualification Exam should select a member as the chairman of the committee. The chairman is responsible for hosting and arranging the oral exam.
4. Students should hand in 6 paper copies of the abstract thesis to the department office 2 weeks before the oral exam.
5. The oral exam usually takes 2 hours. Students should contact the department office to arrange the required equipment and place.
6. The Committee of Oral Qualification Exam will decide the details of the oral exam and inform every attendant.
7. Results of the oral exam with signed approval of the committee will be sent to the department office within 3 days after the oral exam.

8. Students failed in the oral exam can apply for the make-up exam 2 months after knowing the results. There is only 1 chance for the make-up exam. Students failed in the make-up exam have to drop out.

9. After enrolment, students MUST finish the qualification exams within 3 years. (For students with suspension of schooling for 1 or 2 semesters, it is usually before July 31 or January 31.) Students failed in achieving this requirement have to drop out.

10. The oral exam has no fixed date.