

**General Requirement for NTHU Engineering-oriented Doctoral Students in  
Nano Science and Technology Program, TIGP, Academia Sinica**  
**Applied on students enrolled in/after 2012**

	Doctor Program
Minimum Credits	<ol style="list-style-type: none"> <li>1. For students enrolled with a master degree, a minimum of 18 credits. (graduate level, course number 5000 above), in addition to seminar.</li> <li>2. For students enrolled with a bachelor degree, a minimum of 30 credits. (5000 level or above), in addition to seminar.</li> </ol> Credit transfers are limited to 6 credits taken in the master program.
Grade Requirements	Grades below 70, on basis of 100, will not be accepted toward degree requirements.
Required Courses	<ol style="list-style-type: none"> <li>1. Introduction to Nanotechnology and Advanced Nanotechnology (3 credits each)</li> <li>2. Four semesters of seminar (1 credit each) during the first two years.</li> <li>3. Department colloquium (0 credit) before passing qualifying oral exam.</li> <li>4. Four semesters of research and thesis (0 credit).</li> </ol>
Other Regulations	<p>※ Examinations / Time Constraints</p> <ol style="list-style-type: none"> <li>1. The Ph.D. qualifying written examination should be taken and passed before the end of second year of Ph.D. graduate study.</li> <li>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 Ph.D. graduate study.</li> <li>3. Thesis defense should be taken and passed before the end of seventh year of Ph.D. graduate study.</li> <li>4. Students enrolled with a bachelor degree should apply for advancing to Ph.D. candidacy at the end of their first year of study. After approval, follow the regulations listed above.</li> </ol> <p>※ Other Assessments / Time Constraints</p> <ol style="list-style-type: none"> <li>1. Students must submit the doctoral plan (Courses and Research Plan Application Form) of study before the beginning of second year of Ph.D. graduate study.           <ul style="list-style-type: none"> <li>✓ For students enrolled with a master degree, at least four courses (12 credits, graduate level, course number 5000 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, graduate level, course number 5000 above, either already taken or intend to take) are required to satisfy his/her technical backgrounds in minor field. Courses taken during the master program can also be listed in the major or minor fields, but no more than four courses i.e., 12 credits (attach the transcript).</li> </ul> </li> </ol>

- ✓ For students enrolled with a bachelor degree, at least eight courses (24 credits, graduate level, course number 5000 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, graduate level, course number 5000 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, and 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.

*For details on qualification exams, please read the rules on the next pages.*

- 3. Proof of English proficiency (international TOEFL: CBT 213 or iBT 79-80, or IELTS 5.5, or GEPT: High-intermediate level) is required for all students.
- 4. A one-year Mandarin course is also required for foreign students.

Note: The above is a condensed translation. See you advisor if any doubt exists.

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

*The rules are approved by the Departmental Affairs Meeting in August 2008.*

**Rules for the Written Exam**

1. The subjects covered in the written exam include:
  - Heat Transfer, Electronic Systems, Physical Metallurgy, Semiconductor Devices Physics, Physical Chemistry, Principles of Nuclear Engineering, Fluid Mechanics, Circuits Analysis, Introduction to Nano-Technology, Electromagnetics, Modern Physics, Nuclear Radiation Measurement, Engineering Thermodynamics, Electronic Devices, Thermodynamics of Materials, Principles of Microsystem Engineering, Computational Materials Science, Quantum Mechanism, Introduction to Solid State Physics, Plasma Engineering, Principles of Electrochemistry
2. All Students are required to choose 2 subjects 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 will get the second chance to make up.
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.
7. **The rules are applied on students who are enrolled in/after 2008.**

**Supplementary explanation for Rule 3:**

1. The rule restricts the number of the written exams taken to maximally twice and not the number of subjects taken in each written exam.
2. If the subject taken in each written exam is less than two, students can still only take the written exam twice within two years after enrollment.

## **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.