

# National Yang Ming Chiao Tung University Department of Mechanical Engineering Doctoral Program Regulations

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## I. Legal Foundation:

These graduations regulations for doctoral degree candidates (hereafter referred to as "doctoral students") of National Yang Ming Chiao Tung University (hereafter referred to as "the University") Department of Mechanical Engineering (hereafter referred to "the Department") are formulated in compliance with the National Yang Ming Chiao Tung University Regulations for Conferral .

## II. Admissions Channel:

Admission channels for the Department's doctoral degree are:

- (1) Recruitment and testing: Applications are open to those who have fulfilled one of the following requirements. Admission into the Department's doctoral program (including employed students) will be based on the University's open recruitment and testing:
  1. Master's degree qualification (including students graduating from a master's program and equivalent).
  2. Bachelor of Medicine qualification.

- (2) Master's to Doctoral Program: Admission into the Department's doctoral program is based on the Department's Master's to Doctoral program regulations
- (3) Dual Degree: For doctoral students enrolled in the department's Doctorate Program through the Dual Degree Program policies of this university and other universities.
- (4) Others: Admission into the Department's doctoral program is based on the University's regulations for recruiting doctoral students.

### **III. Change of Status:**

- (1) General student status applying for employed student status must fulfill the following requirements:
  1. Been in the program for two or more years or passed a requirement exam.
  2. Currently employed: Submit proof of employment for more than two year from the company or agency (must specify date of employment) and proof of income for the following year to the Department for verification.
  3. Return graduate scholarship received during time of employment.
- (2) Employed student status applying for general student status must fulfill the following requirements:
  1. Been in the program for one semester or more.
  2. Resignation or leave without pay from last place of employment: Submit proof from last place of employment.
- (3) Doctoral student applying for change in general or employed student status must submit application for status change, and upon approval by advisor, submit to the Department Faculty Meeting for approval, and obtain the approval and signature of the dean. Change in status is permitted only once.

### **IV. Transfer From Other Departments or Groups:**

- (1) The Department does not accept transfer doctoral students from other institutes, departments or groups.
- (2) Doctoral students in the Department are not permitted to transfer to other groups.

### **V. Time to Degree:**

- (1) The study period of the Department doctoral students must be completed in not less than two years and not more than seven years. For on-job graduate students, the study period may be extended for one year.
- (2) The above time limitation for program completion does not include leave of absence. Doctoral students are allowed one semester, one academic year or two academic years of leave of absence, but accumulated absence must not exceed two academic years.
- (3) Upon deadline for time to degree, doctoral students who have not fulfilled graduation requirements must drop out.
- (4) Master's to Doctoral Program students who fail to pass their doctoral exam, but who fulfill master's program requirements will be conferred master's degree subject to decision by the doctoral Exam Committee.

## **VI. Graduation Requirements:**

- (1) To graduate, the Department's doctoral students must fulfill the following requirements:
  1. Graduation credits:
    - (1) Completed at least 18 credits of graduate courses; Master's to Doctoral program students must complete at least 36 credits of graduate courses (including master's level credits and the transferred and waived credits from Bachelor to Doctoral program).
    - (2) Except for dual degree program students, Bachelor to Doctoral program students with approved transferred and waived credits and doctoral students who failed to graduate and re-tested into the program, credit requirement for graduation does not include English Language Study courses, credit transfer or course waiver.
  2. Completed at least 4 semesters of Seminar Discussion courses.
  3. Passed the Department's Regulations for Doctoral Student English Competency Evaluation.
  4. Passed the doctoral candidacy exam.
  5. Fulfilled thesis presentation requirements.
  6. Made at least one presentation in the Department's Seminar Discussion course.
  7. Passed the open doctoral thesis presentation.
  8. Passed the Review of the Department Faculty Meeting.
  9. Passed the doctoral Degree Exam, and submitted the Oral Defense Committee Report.
- (2) A score of less than B- (70/100) for doctoral students is a failing grade, and no credit will be awarded for that course. However, other eligibility criteria are used in Course Exams.
- (3) Credits, course and other relevant requirements for graduation are based on the graduation regulations for the year of admission into the doctoral program. Please refer any questions to the Teaching and Curriculum Committee.

## **VII. Advisor:**

- (1) Doctoral students in the Department must confirm their choice of advisor within the first semester, and submit a proof of confirmation signed by the advisor to the Department for records. If an advisor cannot be confirmed by the deadline, an extension is allowed before the beginning of the second semester. If a student cannot confirm an advisor after the extension, the Teaching and Curriculum Committee will handle the matter.
- (2) Advisors must be full-time or adjunct instructors in the Department. However, if the advisor is an adjunct instructor, another full-time instructor from the Department must act as the joint advisor.
- (3) For joint advising, a joint advisor agreement for the proposed thesis must be submitted for approval by the current advisor, joint advisor and Teaching and Curriculum Committee, and sent to the Department for records before the oral defense.

(4) Where the thesis advisor and the graduate student is or was the other party's spouse, a relative by blood within the third degree, or a relative through marriage, the relationship of thesis advisor and graduate student may not be established.

(5) Changing advisor:

1. Changing advisor form must be submitted to the department office by the student or original advisor, and is approved by the new advisor and the department chair. Changing advisor is allowed only once.
2. The student must return all facilities, equipment, and resources from the original advisor.
3. Publication and citation that include concepts, theories, and discoveries from the original advisor is prohibited unless approved by the original advisor.
4. A new thesis proposal must be re-submitted to the department office when changing advisor, except for the original advisor resigning or retiring.
5. The original thesis is valid only after approval by the original advisor and the new advisor.
6. Any dispute will be referred to the Teaching and Curriculum Committee, and settled by the Department Faculty Meeting.

### **VIII. Credit Transfer and Course Waiver:**

(1) Department doctoral students who have already passed the Course Exam for their group (including students who have taken elective courses in the Department prior to admission) must apply for course waiver within the first week of the first semester subject to approval by the advisor and the joint approval of instructors who have previously taught the course. Waived courses do not count toward graduation credits, and must be substituted with other courses to make up for graduation credits. The alternative courses must be designated by the advisor.

(2) Dual degree program students and doctoral students who failed to graduate and re-tested into the program may apply for credit transfer or course waiver for credits taken (including English courses and Seminar Discussion course). Upon approval by their advisor, the course instructor and Teaching and Curriculum Committee, the waived credits are counted toward graduation credits. However, a thesis proposal must be re-submitted and presented in the Seminar Discussion course. In addition, thesis presented prior to admission (including between semesters) must be approved by the previous advisor and the new advisor before it can be counted.

(3) Credit transfer limit for dual degree programs is based on the university's dual degree policies.

(4) Bachelor to Doctoral program students can apply for credit transfer or course waiver through the application process for graduate students. A maximum of 24 credits can be transferred and waived.

### **IX. Eligibility for Doctoral Candidacy:**

(1) There are two eligibility exams for students admitted based on master's qualification (including Master's to Doctoral program and other admissions channels:

**1. Basic Course Competency Exam:**

(1) Exam Criteria: A- (80/100)

(2) Exam Courses:

A. Energy and Thermofluids Group:

(A) "Viscous Fluid Flow" is a required course.

(B) Choose three of the following six courses: Heat Convection, Heat Conduction and Thermal Radiation, Introduction to Turbulent Flow, **Microfluidics and Surface Science**, Combustion Fundamentals, Advanced Applied Math.

(C) Choose at least one graduate professional course offered by instructors outside the group.

B. Solid Mechanics and Control Group:

(A) All three courses-Theory of Elasticity, Advanced Dynamics and Finite Unit (Element) Method are required, or all three courses- Linear Systems, Advanced Dynamics and Digital Control System, are required.

(B) Choose at least one graduate professional course offered by instructors outside the group.

C. Design and Manufacturing Group:

(A) Choose at least three of the following courses: Best Designs, Applied Biomechanics, Robotics, Applied Plastic Mechanics, Engineering Rheology, Electromechanical Systems Design and Practice, Engineering Design, Human Neuromechanics, Microelectromechanical Fabrication Lab, Intelligence Material and Nano and Micro Components.

(B) Choose at least one graduate professional course offered by instructors outside the group.

D. Micro and Nano Engineering Group:

"Introduction to Micro/Nano Engineering" is a required Course. Among the courses of "Micro Fabrication Laboratory," "Micro/Nano scale Energy Transport," "Smart Materials and Intelligent Micro/Nano Devices," "Biosensors," "Biochip and Chip Based Diagnosis" and "Biofluid Mechanics," "Microfluidic System and Applications," at least two courses must be selected.

(3) If exam courses are no longer available due to courses being canceled, no longer offered or name changed, students may use other exam courses newly offered in their group as recommended by their advisor and upon approval by the Teaching and Curriculum Committee.

**2. Thesis Proposal:**

- (1) Upon passing the basic course competency exam, doctoral students must submit their thesis proposal within 3 years of admission (excluding leave of absence and approved absence for overseas study) or after changing of advisor. In addition, the advisor must convene the first committee meeting to assist in the advising. For those failing the thesis proposal, only one more proposal may be re-submitted within 4 years of admission. Those who fail to pass their thesis proposal within the given time to degree must drop out.
  - (2) The committee must comprise at least 3 members (including the advisor), with the advisor as the convener.
  - (3) The committee must provide recommendations to the advisor and doctoral student concerning the student's learning and thesis proposal.
  - (4) Within one month of passing their thesis proposal defense, doctoral students must submit their transcripts and doctoral candidacy eligibility exam form to the Department for records.
- (2) There are two eligibility exams for students admitted based on Bachelor of Medicine qualification (including Master's to Doctoral program and other admissions channels):
1. Basic Course Competency Exam: Based on the research topic, the advisor will designate 4 graduate courses. The criterion is B- (70/100).
  2. Thesis Proposal: Same for students admitted on master's qualification.

#### **X. Doctoral Candidates:**

Those who fulfill the following requirements are eligible for the Department's doctoral candidacy:

- (1) Completed required doctoral courses and fulfilled required graduation credits.
- (2) Completed 2 years of the program
- (3) Passed the doctoral candidacy eligibility exam.

#### **XI. Thesis Presentation:**

(1) The Department's doctoral students must present their thesis, and their paper must fulfill the following requirements:

1. Those admitted on master's qualifications (including those admitted through Master's to Doctoral Program and other channels): must published at least 2 papers in EI or SCIE journals (including acceptance), and the student must be the first student author. In addition, at least one of the papers must be published in a SCIE journal.
2. Those admitted on Bachelor of Medicine qualification must fulfill one of the following three requirements:
  - (1) At least 3 papers must already be accepted by an international academic journal that has a review policy and a SCIE Thesis Impact Factor of 4.0 or more. In addition, the student must be the first author in at least one of the papers.
  - (2) Published 2 SSCI theses as the first student author.

- (3) The first student author means that the graduate student must be the first author except the case of first author is his/her supervisor (or co-advisor). If the supervisor is the first author, the graduate student must be the second author.

If the published papers have multiples first author, the number of papers will be counted according to the proportion of the number of people.

- (2) To be qualified, the thesis published in journals by the Department's doctoral students must fulfill the following requirement:
  1. The advisor or co-advisor must be listed as a first or corresponding author.
  2. The University and Department must be listed.
  3. The thesis content must be completed by doctoral student during their candidacy.

4. Published journal papers should be relevant to the PhD dissertation.

## **XII. Seminar Discussion Report:**

- (1) Doctoral students must complete at least one report in the Seminar Discussion Course prior to applying for evaluation by the Department Faculty Meeting.
- (2) Within one month of completing their Seminar Discussion report, students must submit proof of their Seminar Discussion report to the Department for records.

## **XIII. Open Thesis Presentation:**

- (1) Doctoral students who have passed their doctoral candidacy eligibility exam and fulfilled thesis presentation requirements must organize an open doctoral thesis presentation no earlier than 8 months after their thesis proposal, and invite instructors from their group to attend. To qualify, more than half the instructors from the entire group must approve.
- (2) Within one month after passing their open doctoral thesis presentation, students must submit their presentation report to the Department for records.

## **XIV. Department Faculty Meeting Review:**

- (1) Doctoral students who have passed their open doctoral thesis presentation must submit the following documents to the Department Faculty Meeting for review subject to advisor recommendation:
  1. Transcripts (Including proof of English competency evaluation).
  2. Doctoral candidacy eligibility exam form.
  3. Thesis publication list and published thesis.
  4. Proof of Seminar Discussion report.
  5. Thesis open presentation report.
  6. Initial draft of doctoral thesis.
- (2) Doctoral students must fulfill the following requirements to apply for Department Faculty Meeting review:
  1. Completed required graduation credits and Seminar Discussion courses.
  2. Passed English competency exam.
  3. Passed doctoral candidacy eligibility exam.
  4. Fulfilled thesis publication requirements.
  5. Completed at least one report for Seminar Discussion courses.

6. Passed the open doctoral thesis presentation.

**XV. Degree Exam Committee Members:**

- (1) The Department's doctoral Degree Exam Committee comprises 5-9 members from the Department's University and non-University experts whose area of specialty corresponds to the student thesis. The committee members must have the following qualifications and be recommended for appointment by the University president. At least one-third of the committee members must be from the University and non-University, respectively. The president will appoint a committee member as convener, but the advisor cannot be the convener:
  1. Is or was a professor or associate professor.
  2. Is a research fellow, or is or was a researcher or associate researcher of Academia Sinica.
  3. Holds a doctoral degree, and has outstanding academic achievements.
  4. Has been researching in a rare, or specific field, and has outstanding academic or professional achievements.
- (2) The criteria for determination of the requirements in subparagraphs 3 and 4 of the preceding paragraph shall be established by each degree-conferring academic unit.
- (3) The spouse of a doctoral student or any of his/her relatives by blood or marriage within the third degree may not serve as a member of the examination committee for his/her oral defense

**XVI. Degree Exam:**

- (1) Doctoral students may apply for the doctoral candidacy degree exam upon approval by the Department Faculty Meeting. Recommendation letter for the doctoral thesis oral exam must be submitted to the Department two weeks before the Degree Exam. The test is conducted by Exam Committee Members recommended to and appointed by the University president.
- (2) Prior to a thesis examination, a "thesis originality check" report shall be completed and submitted to the members of the examination committee for reference. After completion of the thesis examination, the thesis advisor shall sign the Degree Examination Grade Sheet for confirmation
- (3) The Degree Exam for the Department's doctoral candidates include thesis exam and thesis review:
  1. Thesis exam:
    - (1) Conducted orally, with written test or video meeting when necessary.
    - (2) In principle, the oral defense is opened to the public. The date, time, place and thesis topic must be announced at least one week before the defense.
    - (3) Initial draft for the thesis must be submitted to the Exam Committee for review at least 7 days before the oral defense, and one copy must be available in the professor's lounge for viewing.

- (4) At least 5 Degree Exam Committee members must be physically present (including advisor) for the exam to proceed, and no representative is permitted.
- (5) The Exam Committee must clearly state the direction and key areas for the student to make necessary corrections to the thesis.
- (6) The total score for the Degree Exam is A+ (100/100), and B- (70/100) is the passing grade. There is only one evaluation, the final score being the average of the scores given by the committee members. However, if more than one-third of the committee members present give a failing grade, then the final score is a failing grade, and an average score will not be taken.
- (7) Applicant who fail the Degree Exam and whose study period has not expired may retake the examination in the next semester or the following academic year, and the re-examination is limited to one time; those who still fail the re-examination should be withdrawn from the school.
- (8) An applicant will be deemed failed if the degree examination committee has found any fraud, alternation, plagiarism, ghostwriting, or other dishonest conducts regarding the applicant's thesis.
- (9) On the same day that the Department doctoral students complete their thesis exam, they must submit their Degree Exam result form, oral defense report from each committee member present and a list of oral defense fees to the Department.

## 2. Thesis Review:

- (1) Upon passing their thesis exam, the Department's doctoral students must make the necessary corrections as indicated by the Degree Exam Committee and return the corrected thesis to each committee member for review.
  - (2) The thesis review will not be graded; however, to pass, it must be approved by at least two-thirds of the Exam Committee.
  - (3) The passing score obtained for the thesis is the Degree Exam score, and Exam Committee members present at the exam will sign the Thesis Oral Defense Committee Review Report.
- (4) Doctoral students must complete the following within a month of passing their thesis exam and review:
1. Submit the hard copy of thesis to the Department.
  2. Upload a digital version of their thesis abstract and full-text to the National Yang Ming Chiao Tung University Dissertations and Theses Upload System according to National Yang Ming Chiao Tung University Library Dissertation Abstracts and Full-text Digital File Archiving Standard, and after review and approval by the library, print hard copies of the thesis.
- (5) In principle, the Department's doctoral theses (including abstract) are written in Chinese or English, and must comply with the National Yang Ming Chiao Tung University Thesis Formatting Requirements.

## **XVII Graduation:**

- (1) The Department will recommend doctoral students who have passed their doctoral Degree Exam, fulfilled doctoral graduation requirements and submitted their hard copy of thesis to the University for conferment of doctoral degree.
- (2) Following review and approval by the library, doctoral students must log in to the graduation system in the University's Office of Academic Affairs Registrar Division and print out the graduation procedure form, have it signed by the advisor, and submit it to the Department together with the following documents:
  1. Thesis digital file approval notice from the library.
  2. Two hard copies of the thesis (a blue hardcover copy and a green paperback cover copy): one copy will be shelved at the University library, and the other copy will be collected by the Office of Academic Affairs and sent to a Ministry of Education designated archive.
  3. Thesis full text digital CD: The Department will keep the full-text CD version of thesis.
  4. Other documents required by the University or Department.
- (3) Any student who has passed the degree examination shall submit the "Degree Examination Grade Sheet" to the Division of the Registrar during the semester in which the examination is conducted. The deadline for its submission shall be January 31 in the first semester or July 31 in the second semester.
- (4) The deadline for submission of a printed thesis shall be the final working day before the start of the following semester to the one in which the degree examination is conducted. Any student who has failed to submit a printed thesis by the deadline and whose study period has not expired shall still register in the next semester.
- (5) Any student whose study period has expired and who has failed to submit the Degree Examination Grade Sheet within the semester when his/her study period expires or submit a printed thesis by the final working day before the start of the next semester shall withdraw from the University.

## **XVIII. Cancellation of the conferred diploma certificate:**

- (1) If any of the following circumstances applies to any student who has been granted a master's or PhD degree, his/her degree shall be revoked, and the degree certificate awarded shall be canceled by announcement:
  1. His/Her admission eligibility or course of study involves misrepresentation or fraud.
  2. His/Her thesis, work, certificate of achievements or written, technical or professional practice report involves fraud, alternation, plagiarism, ghostwriting or other fraudulent practice.
- (2) After the degree has been revoked in accordance with the preceding paragraph, a notice shall be given to require the student to return his/her degree certificate, and other junior colleges, universities and competent authorities shall be informed of such revocation and cancellation.

### **XIX. Regulations Amendments:**

- (1) Matters not noted in these regulations will be dealt with according to relevant statutes and regulations of the Ministry of Education and the University. Any questions will be referred to the Teaching and Curriculum Committee, or decided by the Department Faculty Meeting.
- (2) These regulations are established by the Department curriculum committees, and approved by the Department Faculty Meetings, and implemented following review and approval by college and University curriculum committees and subsequent approval by the Academic Affairs meeting; and likewise for amendments.

These Regulations are adopted in Chinese, which shall prevail in case of any discrepancy between the English translation and the Chinese original.