

Regulations for the Doctoral Program Requirements in Electrophysics at National Yang Ming Chiao Tung University in Academic Year 2024

Amended and passed at 9th teaching counseling meeting Jan 7, 2014
Amended and passed at 6th dept meeting Feb 19, 2014
Amended and passed at 3rd col-level curriculum meeting Apr 17, 2014
Passed at 3rd univ-level curriculum meeting May 20, 2014
Amended and passed at dept's 4th teaching counseling meeting Oct 5, 2015
Passed at 2nd dept meeting Dec 25, 2015
Passed at 2nd col-level curriculum meeting Apr 13, 2016
Passed at 1st dept meeting Sep 28, 2017
Passed at 2nd univ-level curriculum meeting Dec 11, 2017
Amended and passed at dept's 7th teaching counseling meeting Mar 2, 2018
Passed at 5th dept meeting Mar 15, 2018
Passed at 2nd col-level curriculum meeting Apr 12, 2018
Amended and passed at dept's 8th teaching counseling meeting Apr 24, 2019
Amended and passed at dept's 8th teaching counseling meeting Mar 31, 2020
Amended and passed at 4th dept meeting Mar 31, 2021
Amended and passed at dept's 8th teaching counseling meeting Mar 10, 2023
Amended and passed at 3rd dept meeting Mar 22, 2023
Amended and passed at affairs meeting Dec 29, 2023

Article 1 Admission Requirements:

1. Candidates must hold a master's degree or an equivalent qualification from any departments at public or accredited private universities, independent colleges, or foreign universities recognized by the Ministry of Education. They must have successfully passed the entrance examination for doctoral programs at National Yang Ming Chiao Tung University (NYCU).
2. Individuals meeting the regulations for NYCU's students' direct admission to PhD programs are eligible, irrespective of their department of origin.
3. Prospective students must comply with both the "Regulations Regarding International Students Undertaking Studies in Taiwan" stipulated by the Ministry of Education and the "Regulations Governing the Admission of International Students to National Yang Ming Chiao Tung University."
4. Applicants with valid retention of admission qualifications are eligible for consideration.

Article 2 The duration of the doctoral program is restricted to two to seven years. Students enrolled in the in-service doctoral program may extend their period of study by up to two years.

Article 3 The doctoral program within the Department offers two tracks: Electrophysics Track and Quantum Science and Technology Track (conducted entirely in English). Students are required to select one of these two tracks for their academic pursuits.

Core Curriculum:

1. Electrophysics Track: (1) Quantum Mechanics, (2) Electrodynamics, (3) Statistical Mechanics, (4) Classical Mechanics, (5) Advanced Solid-State Physics, (6) Optoelectronics, (7) Semiconductor Physics and Devices, (8) Laser Fundamentals, (9) Laser Physics.
2. Quantum Science and Technology Track: (1) Quantum Mechanics, (2) Electrodynamics, (3) Advanced Solid-State Physics, (4) Statistical Mechanics, (5) Quantum Physics and Devices.

All courses mentioned above, spanning two or more semesters, shall count towards the core curriculum.

Article 4 Credit Requirements:

1. Regular doctoral students are required to fulfill a minimum of 18 credits, comprising four core courses provided by the Department and 6-credit Colloquium. For those graduating early or participating in overseas research programs, the credits earned from Colloquium must align with the number of semesters enrolled. Credits earned by doctoral students cannot be waived. However, doctoral students who have completed core courses offered by the Department within the past 10 years before pursuing their doctoral degree may be exempted from taking those courses if their grades are approved by the Department.
2. Direct-entry doctoral students from the master's program must complete a minimum of 30 credits, including four core courses offered by the Department and 6-credit Colloquium. Similarly, for those graduating early or participating in overseas research programs, the credits earned from Colloquium must match the number of semesters enrolled. All core and non-core subjects and credits completed or exempted during the master's program in the Department will count towards their doctoral program credits.
3. Bachelor's direct-entry doctoral students are required to complete a minimum of 30 credits, which includes four core courses offered by the Department and 6-credit Colloquium. For those who graduate early or participate in overseas research programs, the credits earned from Colloquium must align with the number of semesters enrolled. Post-graduate courses with identical titles taken during the bachelor's program in the Department may be applied for credit transfer or exemption for doctoral programs. However, Colloquium and courses with different titles may not be transferred or exempted. Waived courses must not be included in the minimum graduation requirements for the original degree.
4. Doctoral students whose study period has expired and is readmitted to the doctoral program in the Department may apply for exemptions for credits earned during the original doctoral program period, with the consent of

the original advisor. However, after two years of enrollment (without taking a leave of absence), students must submit a graduation application, and credit exemptions are limited to one time only.

5. Regular doctoral students and bachelor's direct-entry doctoral students must complete academic research ethics education courses before the end of the first semester of enrollment. Students who have not passed the comprehensive examination on academic ethics may not apply for a degree examination. Direct-entry doctoral students from the master's program who have passed the comprehensive examination during the master's program may be exempted.
6. If a student is unable to attend a course for six weeks or more during the semester due to reasons such as overseas exchange, internships, research, etc., as stipulated by the course instructor, the student must withdraw from the course.

Article 5 Requests for exemption from core courses must be submitted within two weeks of the commencement of the first semester of enrollment.

Article 6 Upon admission, doctoral students are required to select their thesis advisor before the conclusion of the first semester. They must complete an application form, which will be reviewed and approved by the Teaching and Counseling Committee. Missing the deadline will necessitate an explanation to the Committee, with the possibility of a one-semester extension if warranted. The thesis advisor assumes responsibility for guiding elective course selection, identifying core curriculum subjects for qualification exams, and supervising thesis research.

Article 7 Doctoral candidates must complete the qualification examination within three years of enrollment, following departmental regulations. However, students whose doctoral program period has expired and are subsequently readmitted to the Department's doctoral program may request exemption from the qualification examination if they have previously passed it during their initial doctoral program period, with the consent of their original advisor. Nevertheless, after two years of enrollment (without taking a leave of absence), students must initiate the graduation application process, with qualification examination exemptions limited to a single occurrence.

Article 8 Doctoral students must satisfy the following criteria to qualify as candidates for the doctoral degree:

1. Completion of the requisite doctoral courses and acquisition of the necessary credit hours.
2. Successful passage of the qualification examination for doctoral degree candidacy.

Article 9 Doctoral degree candidates who have garnered five or more points through

publications pertinent to their research endeavors may request a degree examination. This request must be accompanied by a written recommendation from the thesis advisor to the Teaching and Counseling Committee. To qualify, however, at least three points must stem from publications authored in collaboration with the candidate's advisor for the graduation thesis.

Article 10 Doctoral students desiring to select a thesis advisor from outside the Department must submit a written application delineating their research plan and rationale during the initial week of each semester. The application will undergo review and deliberation by the Teaching and Counseling Committee. If endorsed, the student is still required to have one co-advisor from within the Department.

Article 11 When a doctoral student wishes to change their thesis advisor, they must complete an application form containing the reason for the change, as well as the original and new directions and topics of their doctoral thesis research. The consent of the original thesis advisor is necessary for utilizing the original ideas and concepts provided by them, and research results obtained under their guidance as part of the doctoral dissertation. Otherwise, the student must provide a signed document agreeing not to incorporate any research papers, content, ideas, or original technical methods published or unpublished by their former thesis advisor into their doctoral dissertation. The application must be endorsed by the new thesis advisor (and co-advisor within the Department), reviewed and approved by the Teaching and Counseling Committee, and the former advisor must be notified before the change becomes effective. If the advisor wishes to terminate the advisory relationship, they must submit a written application to the Teaching and Counseling Committee, and the results of the review will be communicated to the student. The thesis advisor cannot be changed during the qualification examination period, including the oral defense until the submission of the thesis research proposal.

Article 12 The scoring method for doctoral students' journal publications upon graduation adheres to the scoring criteria established for faculty promotion journal papers within the Department. In cases where an external thesis advisor is involved, the Department's co-advisor must be included as one of the authors in the aforementioned papers. During scoring, thesis advisors or those holding the Department's co-advisory roles are not counted as authors. Should there be a change in the thesis advisor, all authors of previously published journal papers will be included in the scoring. Among the scored papers, there must be one representative work directly related to the graduation thesis, with the student listed as the first author among those considered for scoring. Scoring standards are as follows (select one applicable): (1) The first author constitutes 100%, the second author 70%, the third author 50%, and subsequent authors are not counted; (2) If the second author's contribution matches that of the first author, both are

assigned 85%, and the third author receives 50%; and (3) If none of the above scenarios apply, the advisor or co-advisor shall refer the matter to the Teaching and Counseling Committee for deliberation.

Article 13 The doctoral degree examination committee for doctoral students shall comprise five to seven members, with the thesis advisor ineligible to serve on the committee. The Department shall nominate academics and experts, both from within and outside the University, specializing in the research field of the doctoral candidate, who meet one of the following qualifications. These nominations are submitted to the University president for appointment and committee formation. Internal and external committee members must each constitute at least one-third or more:

1. Current or former professors or associate professors.
2. Academicians of the Academia Sinica, current or former research fellows, or associate research fellows of the Academia Sinica.
3. Individuals holding a doctoral degree with significant academic accomplishments, as endorsed by the faculty review committee.
4. Experts in rare or distinctive academic fields, with notable academic or professional achievements, reviewed and endorsed by the departmental affairs meeting.
5. Spouses of graduate students, blood relatives within the third degree of kinship, and in-laws are disqualified from serving as degree examination committee members.

Article 14 The doctoral degree examination shall primarily be conducted orally, with the possibility of written examinations when deemed necessary, and shall adhere to the following rules:

1. As a principle, oral examinations are conducted openly, with the examination date, time, location, and thesis topic announced in advance. The initial draft of the doctoral thesis and any published journal papers must be made available for public viewing at least 15 days before the oral defense.
2. Members of the degree examination committee must attend the committee meeting in person and are not permitted to delegate representation to others. The examination committee must have a minimum of five members in attendance for the examination to proceed.
3. The Department director shall appoint one member of the examination committee to serve as the convener.
4. Examination results shall be graded on a scale from B- (70 points on a 100-point scale) as a passing grade to A+ (100 points) as full marks. Only one evaluation is permitted, and the final score is determined by

averaging the scores provided by attending committee members. If more than one-third of the attending committee members assess the examination as failing, it shall be deemed a fail, and no averaging shall occur.

5. Prior to the thesis examination, an originality comparison report of the thesis must be completed and provided to the examination committee for reference. Following the conclusion of the thesis examination, it must be confirmed and signed on the degree examination results form by the thesis advisor.
6. If any fabrication, falsification, plagiarism, outsourcing of writing to others, or other fraudulent activities are detected in the thesis and confirmed by the degree examination committee, the examination result will be recorded as zero points, and no re-examination will be permitted.
7. Upon successful completion of the oral defense, the oral examination committee will provide guidance on the direction and key aspects of thesis revision, serving as the basis for the student's thesis modification. After the student revises the thesis, it must be submitted for thesis review. The thesis review process requires the approval of at least two-thirds of the examination committee for it to pass. The final draft of the revised thesis must undergo an originality comparison report and receive confirmation from the thesis advisor. The thesis review process does not involve additional grading. Upon passing the thesis review, the attending members of the thesis examination committee shall sign the "Thesis Oral Examination Committee Approval Form." Once the thesis review is concluded, the thesis examination result will be considered as the degree examination result.

Article 15 Graduate students who have gained direct admission to a doctoral program but who terminate their doctoral studies due to unforeseen circumstances may apply to transfer back to or into a master's program for study in accordance with the operational regulations governing direct admission to doctoral programs at NYCU. However, after enrolling in the master's program, they are not eligible to reapply for direct admission to the doctoral program.

Article 16 Graduate students who have gained direct admission to a doctoral program and who have passed the qualification examination for doctoral candidacy but have not passed the doctoral examination during their period of study may be granted a master's degree if their doctoral thesis is deemed to meet the standards for a master's degree by the doctoral examination committee.

Article 17 Doctoral students who fail to pass the degree examination within the prescribed period of study or fail to complete the required courses shall be required to withdraw from the program.

Article 18 The doctoral dissertation (including the abstract) must adhere to the "National Yang Ming Chiao Tung University Thesis Format Regulations." Upon passing the degree examination, the student is required to submit an originality comparison report for the dissertation, along with an academic ethics and originality comparison declaration. Furthermore, the abstract and full-text dissertation must be electronically uploaded in accordance with the "National Yang Ming Chiao Tung University Library Thesis Abstract and Full-Text Electronic File Archiving Regulations." Additionally, one soft copy of the dissertation in PDF format (for departmental collection - please indicate the student's ID and name on the CD) and two hard copies of the dissertation (one hardbound copy for display in the University library and another forwarded by the Office of Academic Affairs to the unit designated by the Ministry of Education for collection) must be submitted. In cases where the dissertation involves confidential or patent matters, or is legally restricted from disclosure, it shall be handled in accordance with the University's regulations concerning the delayed public disclosure of dissertations.

Article 19 Matters not addressed by these Regulations shall be governed by the operational regulations for the conferral of graduate degrees at NYCU and relevant educational laws and regulations.

Article 20 These Regulations shall be established by the departmental affairs meeting and implemented after review and approval by the College of Science's Curriculum Committee and the University-level Curriculum Committee. Any subsequent amendments shall follow the same procedure.