

國立交通大學工業工程與管理學系
博士班研究生修業辦法（107 學年度適用）

Department of Industrial Engineering and Management at National Chiao-Tung University
Academic Guidelines for PhD Students (Academic Year 2018)

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Revised at Departmental Conference, Oct. 14, 1998
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Revised at Departmental Conference, Sep. 29, 1999
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第一條 為督導工業工程與管理學系（以下簡稱本系）博士班研究生進修，並維持博士班學術水準，特訂定本辦法。

Article 1. This guideline has been proposed in order to provide a general instruction and maintain the academic standards of doctoral students of Industrial Engineering and Management at National Chiao-Tung University.

第二條 國內各公立或立案之私立大學或獨立學院或經教育部認可之外國大學研究所獲碩士學位或碩士班應屆畢業，或具有同等學力之資格，經本校博士班研究生入學考試通過者，得進入本系博士班修讀博士學位。

本系或本校其他系所之碩士班研究生修業一年以上，具有明顯之研究潛力，且修業期間各學期學業成績均在該碩士班前三分之一以內，或有其他特殊情形（如發表論文）經評定為成績優異者，得提出申請進入本系修讀博士學位。

Article 2. Applicants who have obtained a master degree or equivalent from a national or private university, individual colleges, or an accredited foreign institution approved by the Ministry of Education and also passed the entrance exam are qualified to enter the Department of Industrial Engineering and Management as doctoral students. Master students from this department or other departments of NCTU who have taken courses more than a year, achieved outstanding academic performance (ranked top 1/3 of the class every semester), and passed a distinguished screening process hold by the recruiting committee are eligible to apply for the PhD program.

第三條 博士班研究生（含一般生及在職生，以下亦同）入學後即可敦請論文指導教授，最晚須於修課第一學年結束前完成敦請論文指導教授；若無法按時完成，由系

主任協助該生尋找論文指導教授。博士論文指導教授，至少一位應由本系專任助理教授以上之教師擔任。更換指導教授時，須知會原指導教授並向系上報備；師生雙方有爭議時，則依本校論文指導教授與研究生互動準則，由學生或指導教授以書面文件向本系提出申請，經系務會議裁決後，於通知雙方後終止指導關係。

- Article 3. PhD students (including fulltime doctoral students and part-time doctoral students, same situations as below) can consult with advising professors for their dissertations after being admitted and the deadline of the same shall be at the end of the first academic year. Failure of the same within such term shall lead to assistance of the Chairman of Department in looking up advising professors for the said student's dissertation. At least one among advising professors for the PhD dissertation shall be one teacher who acted as a full-time assistant professor of the Department. In the replacement of an advising professor, the former advisor shall be given a notice and the same shall be reported to the Department. Should there be any disputes between teachers and students, teachers and students can submit a written request to the department for terminating the advisory relationship. The teachers and students will be informed after the decision is made by the department.

第四條 教師每屆可指導博士生人數上限：每屆二名。每位教師指導博士班學生總人數達 5 人時，不可再收博士班學生；但過去 3 年內曾獲本校彈性薪資研究類獎勵之教師得放寬至 7 人。兩位老師共同指導一名學生，視為 0.5 名。本系老師與非本系老師共同指導一名學生，視為 1 名。學生之論文指導教授名單須送院行政主管會議核備。

- Article 4. Maximum number of doctoral students a teacher may instruct number in each term: Two in each term. When the total number of students each teacher guides for the doctoral class reaches five, no more students may be admitted to the said class. However, a teacher who has won incentives for studies with flexible salary hosted by the School over the past 3 years may be granted up to seven students. In a case of two teachers' guidance of one student, the number of students shall be deemed as 0.5. In the case of guidance of a teacher in this Department and another teacher in peer department of one student, the number of student shall be deemed as 1. The list of students' advising professors for dissertations shall be submitted to the Administrative Supervisors' Meeting for further checks.

第五條 本系博士班課程分若干組，研究生需擇定一組為其主修組別，另一組為其副修組別。組別更改時，需經系務會議通過。各組課程規劃相關事宜，由系主任指定召集人負責。

- Article 5. Doctoral program is divided into sub-divisions and students have to choose a division as their major and another as their minor. Students who wish to change their major or minor will need to obtain permission from departmental committee. A convener appointed by the departmental director will be responsible for the course planning of each division.

第六條 博士班修業年限以二至七年為限，在職生之修業年限得增加一年。若有博士生修業未滿三年擬申請畢業，需經系務會議審議通過，再經教務處核備後，方同意其畢業。博士生最少須修滿二十七課程學分，直攻博士學位者至少須修滿四十二課程學分（可包含直攻前碩士班一年級已修之學分數）。博士班研究生修課科目由其畢業論文指導教授來決定，系上只核對畢業學分。（含至少 9 學分本系所開授之「博士班專業課程」，或經指導教授同意之本院開授之「博士班專業課程」。）

- Article 6. Full-time students are required to complete the degree from two to seven years while part-time students are able to complete with one additional year. Students who wish to apply for graduation without completing three years of study will have to obtain

- permission from the departmental committee and office of academic affairs. Normal doctoral students are required to complete at least 27 credits in order to graduate whereas students who only complete their first year master degree are required to complete at least 42 credits (including courses taken during master year). The courses for the students will be determined by the thesis advisor and the department will only be responsible for verifying whether enough credits have been reached. (Included 9 credit points acquired in “PhD Professional Courses” launched by this Department, or “PhD Professional Courses” launched by the Institute approved by the advising professors.)
- 第七條 博士班研究生修業期間必須選修本系四學期論文研討課程（博一上、博一下、博二上及博二下），第一學年修課不得少於 12 學分。
- Article 7. It is required to take (and earn credits of) four seminar courses, typically in the first four semesters enrolled. The credits will not be counted as the minimum credits for graduation. The total credit points for the first academic year shall be at least 12.
- 第八條 博士班學生須通過博士班資格考。資格考以審查方式進行，符合下列 2 項視為審查通過：
- Article 8. PhD students have to pass the Qualification Examination of PhD Classes. Such exams shall be executed via review where students who meet two of the following conditions are deemed as pass:
- 一、基礎課程：非工工相關背景學生由其論文指導教授決定需補修之大學部課程，補修之課程學期成績均達 70 分以上。
 1. Basic course: University Courses which need supplementary credit points for students who studied non-industrial programs shall be determined by the advising professors for dissertations, where such supplementary courses shall be scored at least 70.
 - 二、專業核心課程：見核心課程列表附件一。由其論文指導教授指定四門課修習（可算畢業學分）。
 2. Professional Core Courses: Please refer to **Annex 1** for List of Core Courses. Four of them are designated by the advising professors for further studies (credit points incurred therein may be included into ones for graduation).
- 博士生須通過博士班資格考，並經指導教授同意後，方可舉行其論文計畫書審查。
- PhD students have to pass the Qualification Examination of PhD Classes. With approval of the advising professor, students may launch dissertation proposal reviewing process.
- 第九條 博士班研究生通過資格考與修滿畢業學分，即成為本系博士候選人。
- Article 9. After passing the doctoral qualification examination and completing required number of credits, student will be regarded as a PhD candidate.
- 第十條 博士班研究生之論文指導教授經本系審核通過後，該生應擬具博士論文計劃，經論文指導教授簽證後，送本系轉交該生「博士論文指導及審查委員會」審查。
- Article 10. After the status of dissertation advisor is verified by the department, students will submit a dissertation proposal to the “PhD Dissertation Supervision and Review Committee” with signature of their advisors.
- 第十一條 博士班研究生之博士論文指導及審查委員會（以下簡稱論文委員會），由該生之論文指導教授，在該生通過資格考之後，就本校副教授以上之教師中，推薦二人以上，經本系聘請組成之，論文指導教授為當然委員。論文委員會負責審查該生之論文計畫書、論文研究題目或方向之變更、指導教授之更換、論文研究進度及擔任系上博士論文口試等事宜。
- Article 11. After passing the doctoral qualification examination, the dissertation advisor of PhD candidates will recommend two or more supervising members (associate

professors or above) in addition to him or herself to form a PhD Dissertation Supervision and Review Committee (hereon will be refer to as the dissertation committee). The dissertation committee will be responsible for supervising dissertation proposals, alteration to research topic, direction, or advisor, progress of the entire dissertation, and the final oral examination.

第十二條 博士候選人在論文研究進行中，不得任意變更論文指導教授或論文計劃（指研究方向）。如因故確需更換者，須先以書面向論文委員會提出申請，經審查通過後，方得變更。依前述第十一條及第十二條之程序，經重新組成之論文委員會審查通過，以重新取得博士候選人之資格。

Article 12. During study period, PhD candidates are not allowed to change dissertation proposal (research direction) or advisor regularly. If for any reason that the research direction need to be changed, candidates will have to submit a written request to the dissertation committee for approval. In order to change a research direction or topic, candidates will need to follow the procedures stated previously to obtain an approval from the dissertation committee for their new topic and regain the PhD candidate status.

第十三條 博士候選人修業符合部定最低年限，修畢本系所訂應修學分，且距離博士論文計畫書受審通過日期至少四個月以上，方可提出博士學位考試。但若修業年限只剩一學期時，博士學位考試可不受四個月之限制。博士候選人通過計畫書口試後須符合下列 2 項要求方具申請博士學位考試之資格：

Article 13. Candidates to PhD programs shall have the minimum number of years of studies as stipulated by the Department. They have to fulfill given credit points by this Department, plus at least 4 months must have passed since dissertation proposal was reviewed as pass to be legible to propose an examination for a PhD degree. However, when only one semester is left in the time limits for studying, the exam may go beyond such term. Upon passing the oral test of the proposal, candidates to PhD programs have to fulfill two of the following conditions to be eligible to apply for the test for a PhD degree:

一、必須有兩篇論文發表（或被接受）於國際 SSCI/SCI 期刊。

1. Candidate has two papers released (or accepted) in International SSCI/SCI Periodical.

二、英文能力檢定：須具備下列任何一種能力之證明（請檢附成績單正本驗證）：

2. English Proficiency Examination: Candidate has to present one certificate proving any capability as follows (please also present original transcript for validation):

（一）、曾在國外取得英語系國家之學士以上學位。

Has acquired at least bachelor's degree in English-speaking country.

（二）、通過全民英檢（GEPT）「中高」級測驗之初試及複試且成績達 80 分。

Has passed preliminary exam & reexamination of GEPT "Intermediate to High" Quiz with scored at 80.

（三）、劍橋大學英語能力認證分級測驗（Cambridge Main Suite）達到 First Certificate in English (FCE)。

Has achieved First Certificate in English (FCE) in Cambridge Main Suite).

（四）、外語能力測驗（FLOT-English）達 195 分。

Scored at FLOT-English by 195.

（五）、大學院校英語能力測驗（CSEPT）第二級達 240 分。

Scored at 2nd Grade of CSEPT by 240.

- (六)、托福測驗 (TOEFL) 網路化 IBT 達 80 分。
Scored at Internet-based IBT of TOEFL by 80.
- (七)、托福測驗 (TOEFL) 電腦化 CBT 達 213 分。
Scored at Computer-based CBT of TOEFL by 213.
- (八)、IELTS 達 6.0。
Achieved 6.0 in IELTS.
- (九)、多益測驗 (TOEIC) 達 750 分。
Scored at 750 in TOEIC.
- (十)、劍橋大學國際商務英語能力測驗 (BULATS) 達 ALTE Level 3。
Achieved ALTE Level 3 in BULATS.

第十四條 博士候選人在符合博士學位考試資格且經論文指導教授認可後，由論文指導教授以書面向本系推薦舉行博士學位考試（推薦書中須列明該候選人在被接受或刊登論文中之貢獻及博士論文在學術上之貢獻），並由本系據以提送校方報教育部備案。經本校博士學位考試通過後，即成為國立交通大學工業工程博士。學位考試委員依學校博士班學位考試之規定組成。

Article 14. Upon being eligible for attendance in PhD degree examination and approved by the advising professors, the advising professors shall make a written reference to this Department for said candidate's launch of the exam for PhD Program (in such reference, there shall be contributions by the said candidate's being accepted or his own paper is published and contributions by his dissertation in the academic circles). Then, the Department shall submit this evidence to the School for submission to the Ministry of Education for future checks. Upon passing in the School's test for PhD degree, the candidate hereby becomes a Doctor of Industrial Engineering, National Chiao Tung University. The Committee in charge of the degree exam shall be organized pursuant to the regulations as to PhD degree examination in the School.

第十五條 依本校「碩士學位及博士學位授予作業規章」之規定，博士學位考試委員會置委員五至九人，由系上就校內外學者專家中對研究生所提論文有專門研究，並具備下列資格之一者，向校長推薦，由校長遴聘組成之，校內外委員均各須佔三分之一（含）以上。

Article 15. According the "Master and doctoral degree offering regulation", the doctoral degree examination committee is made up of five to nine members. The members are usually chosen from experts from the department or outside the school, who not only possess thorough understanding in presenter's research field but also meet one of the following requirements:

一、曾任教授者。

1. Has taken the position of professor.

二、擔任中央研究院院士或曾任中央研究院研究員者。

2. Has been an academician or researcher of Academia Sinica.

三、曾任副教授或擔任中央研究院副研究員，在學術上著有成就者。

3. Has taken the position of associate professor or been an associate researcher of Academia Sinica.

四、獲有博士學位，在學術上著有成就者。

4. Has obtained a PhD degree and made significant academic achievements.

五、屬於稀少性或特殊性學科，在學術或專業上著有成就者。

5. Pursued studies in a rare or specialized field and be able to obtain significant academic achievements.

前項第三款至第五款之提聘資格認定標準，由本系系務會議訂定之。

The qualification for item 3, 4 and 5 listed above will be determined by the teacher examination committee of the department.

第十六條
Article 16.

博士學位候選人之論文考試，以口試行之，並依下列規定辦理：

The dissertation exam held for candidates to PhD degree shall be conducted orally and subject to the following regulations:

一、口試以公開舉行為原則，須於事前公佈口試時間、地點及論文題目。

1. Oral examination should be public and the time, place, and thesis topic should be announced beforehand.

二、學位考試委員應親自出席委員會，不得委託他人為代表，委員會至少應有委員五人出席，始得舉行。博士生論文口試審查時，除指導教授外至少應有一位本系專任教師擔任口試委員。如本系無適當人選時，應以本院其他系所之專任教師擔任之。

2. Degree examination members should attend the exam in person and should not entrust other personnel to represent him or herself. The exam will only start when at least five committee members are present.

三、學位考試委員會，由校長指定委員一人為召集人，但指導教授不得兼任召集人。

3. The university principal will appoint a committee member as the convener of the exam. However the dissertation advisor of the student should not be appointed as the convener.

四、論文考試成績，以七十分為及格，一百分為滿分，評定以一次為限，並以出席委員評定分數平均決定之，但有三分之一以上出席委員評定不及格者，以不及格論，不予平均。

4. The passing grade for the degree examination will be 70 and full grade will be 100. Exam will be graded only once and final grade will be the average from all attending members of the committee. However when more than half of the committee members come to a decision to fail the examinee, no average will be counted and the exam will be considered failing.

五、論文有抄襲或舞弊情事，經學位考試委員會審查確定者，以不及格論。

5. If any cheating or plagiarism were found on the dissertation, students will be penalized with a fail grade.

六、論文口試成績應於口試結束後，三天內由召集人送交系辦公室。「論文口試委員會審定書」應於口試結束後，二個月內由召集人送交系辦公室。

6. The score in the oral paper test shall be submitted by the caller to the office of Department within 3 days upon oral test ends. "Review of Oral Paper Test Report by Committee" shall be submitted by the caller to the office of Department within 2 months upon such oral test ends.

第十七條
Article 17.

依本校「碩士學位及博士學位授予作業規章」之規定：

In accordance with the regulations set forth in the "Regulations for Master and Doctoral Degrees Conferment" by the School:

一、學位考試含論文考試及論文審查。

1. The degree exam consists of paper test and paper review.

二、論文通過口試者由口試委員明示論文修改方向及要點，做為學生修改論文之依據，學生修改論文後應提交論文審查，論文審查至少須經三分之二考試委員同意始為通過。論文審查不另評分，論文審查通過者，由出席論文考試之委員簽署「論文口試委員會審定書」。完成論文審定者，論文考試成績即為學位考試成績。

2. Oral Test Committee shall indicate direction and focus of amendments to the paper explicitly for the basis of modification by the candidates who pass oral paper test. Upon being amended, candidate students shall submit paper for review. There shall be at least two-third seats of examination committee to approve the paper, which will thus deemed as pass. Paper review will not be

scored additionally. Committee members who appeared in the paper test shall sign the “Review of Oral Paper Test Report by Committee” for candidates who pass the review. For candidates who fulfilled review of paper, the score they acquired in the paper test shall be the final score in the degree examination.

- 三、於 1 月 31 日或 7 月 31 日前通過論文考試，未能於次學期二週內完成論文審查繳交「論文口試委員會審定書」者，則次學期仍應註冊。至修業年限屆滿時仍未繳交者，該學位考試成績以不及格論，並依規定退學。
3. Candidates who have passed paper tests on January 31 or by July 31, but have failed to fulfill paper review and submit “Review of Oral Paper Test Report by Committee” within 2 weeks of the second semester shall still need to register with the School. In the case of failure of the same until the period of studies expires, the score of said degree examination shall be recognized as FAIL and the student shall be withdrawn from the school pursuant to the regulations.
- 四、通過論文考試及完成論文審查者，除修讀教育學程學生經師資培育中心證明需繼續在學修讀教育學程外，本系應於一週內，將論文考試成績及「論文口試委員會審定書」影本一併送交教務處註冊組登錄。畢業學期為繳交論文考試成績及「論文口試委員會審定書」之在學學期。已完成論文考試成績及「論文口試委員會審定書」繳交，跨越新學期仍未辦理離校程序者，其學籍依已畢業處理。
4. Candidates who have passed paper examination and have fulfilled review of their papers, except students who studied educational credits and evidenced by Center for Teacher Education to advance the same in the school, the Department shall submit transcripts of paper tests and copies of “Review of Oral Paper Test Report by Committee” to the Registration Group, Academic Affairs Department within one week. Graduation semester refers to a semester with submittal transcript of paper test and “Review of Oral Paper Test Report by Committee”. In cases where candidates have accomplished submission procedures of transcript of paper test and “Review of Oral Paper Test Report by Committee” and pending in the exit procedure while going across new semester, their school rolls shall be processed on the graduated basis.

第十八條 博士學位論文（含摘要）以中文撰寫為原則，並須符合「國立交通大學學位論文格式規範」。學位考試通過後一個月內應將論文摘要及全文電子檔上網建檔（依照「國立交通大學圖書館學位論文摘要及全文電子檔建檔規範」辦理），並繳交論文三冊（一冊本系收藏，一冊本校圖書館陳列，一冊由教務處彙轉教育部指定之度藏單位收藏）。

Article 18. As a general rule, doctoral dissertation (including abstract) will be written in Chinese and follow the format stated in the “National Chiao-Tung University Thesis Format Regulation”. According to the school library regulation, students should submit an electronic copy of their dissertation and abstract and three formal copies (one for the department, one for the school library, and one for the Ministry of Education where the copy will be distributed to destined locations) of their dissertation within one month after they passed their oral defense.

第十九條 本校對已授予之博士學位，如發現論文有抄襲或舞弊情事，經調查屬實者，則撤銷其學位，追繳其已發之學位證書。

Article 19. If any cheating or plagiarism were to be found on the dissertation of those who had already obtained a PhD degree, the degree will be rescinded and the diploma will be returned.

- 第二十條 博士候選人在學期間研究成果論文之發表，須以國立交通大學全銜刊登，本系始給與承認。研究論文之抽印本一本或影印本一本須送本系存查。
- Article 20. The Department shall not acknowledge any release of PhD candidates' research papers during studies until the paper is published with full title in National Chiao Tung University. One set of printed research paper or copy shall be submitted to the Department for further checks.
- 註： 依教育部臺陸字第 1000164032 號函~論文必須掛名「Taiwan」或「R. O. C.」，如掛名「China」或「Taiwan, China」，一概不承認。
- Remark: In accordance with the Letter, letter No. Ministry of Education-Tai-Lu-Tzi No. 1000164032~ The dissertation shall be in the name of "Taiwan" or "R.O.C.". Failure of the same as above, such as, titled "China" or "Taiwan, China", may be rejected without exception.
- 第二十一條 博士班之一般研究生至少每週須留校四天，在職研究生至少每週須留校三天。但基於論文研究需要，必須使用其他單位研究設備者，經由論文指導教授同意，准予減少留校時間。論文委員會得視實際情形，延長該生修業年限。
- Article 21. Fulltime doctoral students have the responsibility to occupy at least four days on campus each week whereas part-time doctoral students will need to spend three days. However, students are able to request for shorter occupancy from their dissertation advisor if extra research time is needed. Depending on different situation, the dissertation committee will determine whether an extension of study will be granted to the students.
- 第二十二條 博士班研究生得由論文指導教授指定研修第二外國語言，修滿六學分課程。
- Article 22. Doctoral students will be responsible to complete six credits of a foreign language course, assigned by the dissertation advisor.
- 第二十三條 本修業辦法未盡事宜，悉依本校碩士學位及博士學位授予作業規章辦理之。
- Article 23. Any revisions necessary to this guideline will follow the procedures stated in the "Master and doctoral degree offering regulation".
- 第二十四條 新辦法實施後可溯及既往（適用舊生，但新、舊辦法需二擇一）。
- Article 24. The enforcement of measures herein may be retroactive (applicable to existing students; however, only either the new or the old measure prevails).
- 第二十五條 本辦法經本系系務會議出席人數 2/3（含）通過，經管理學院課程委員會及校級課程委員會審查，再送教務會議核備後實施，修正時亦同。
- Article 25. This guideline has been carried out after the approval of 2/3 attending members of the departmental meeting, evaluation of the course committee members of College of Management and the university, and the review of the university academic meeting. Any revision to this guideline will follow the same procedures.

本法規有中英文兩個版本，在有疑義的情況下以中文版為準。

The Regulations were drawn up in Chinese and translated into English. In the event of any discrepancy between the two versions, the original Chinese version shall prevail.

國立交通大學工業工程與管理學系
博士班專業核心課程列表

Department of Industrial Engineering and Management at National Chiao-Tung University
Professional Core Course List for Ph.D. Students

107. 3. 23 更新
Update at Mar. 23, 2018

半導體製造管理 Semiconductor Manufacturing Management

多目標決策分析 Multiple Criteria Decision Making

供應鏈管理 Supply Chain Management

排程理論與應用 The Theory and Application of Scheduling

統計推論 Statistical Inference

進階資料分析 Advanced Data Analysis with R

萬用啟發式演算法 Metaheuristic Algorithms

資料包絡法研究 Seminar on Data Envelopment Analysis

資料採礦 Data Mining

實驗設計 Experimental Design

製程能力分析 Process Capability Analysis

線性規劃 Linear Programming

隨機過程 Stochastic Process