

國立交通大學工業工程與管理學系
碩士班研究生修業辦法（109 學年度適用）

Department of Industrial Engineering and Management at National Chiao-Tung University
Academic Guidelines for Master Students (Academic Year 2020)

Ratified at Departmental Conference, Sept. 22, 1994
Revised at Departmental Conference, Sept. 13, 1995
Revised at Departmental Conference, Mar. 19, 1997
Revised at Departmental Conference, Nov. 5, 1997
Revised at Departmental Conference, Feb. 25, 1998
Revised at Departmental Conference, June 2, 1999
Revised at Departmental Conference, Sept. 29, 1999
Revised at Departmental Conference, Nov. 17, 1999
Revised at Departmental Conference, Apr. 19, 2000
Revised at Departmental Conference, Nov. 8, 2000
Revised at Departmental Conference, Mar. 21, 2001
Revised at Departmental Conference, Sept. 19, 2001
Revised at Departmental Conference, Jan. 15, 2002
Revised at Departmental Conference, Mar. 6, 2002
Revised at Departmental Conference, May 12, 2004
Revised by Departmental Conference Questionnaire, May 27, 2004
Revised at Departmental Conference, Jan. 12, 2005
Revised at Departmental Conference, May 11, 2005
Revised at Departmental Conference, May 17, 2006
Revised at Departmental Conference, June 7, 2006
Revised at Departmental Conference, Mar. 7, 2007
Revised at Departmental Conference, May 14, 2008
Revised by Departmental Conference Questionnaire, June 2, 2009
Revised at Departmental Conference, Apr. 7, 2010
Revised by Departmental Conference Questionnaire, July 23, 2012
Revised by Departmental Conference Questionnaire, Nov. 29, 2012
Revised at Departmental Conference, Oct. 30, 2013
Revised by Departmental Conference Questionnaire, Mar. 23, 2018
Revised by Departmental Conference Questionnaire, Mar. 28, 2019

第一條 國內各公立或立案之私立大學或獨立學院（含香港立案各校院）或經教育部認可之外國大學各學系畢業具有學士學位，或應屆畢業或具有同等學力之資格，經本校碩士班研究生入學考試通過者，得進入本系碩士班修讀碩士學位。
國內外各大學校院各學系成績優異之應屆畢業生，經原就讀學校推薦，經甄試達本校招生委員會所定之最低錄取標準者，得進入本系碩士班修讀碩士學位。
符合教育部訂定之「外國學生來臺就學辦法」及「國立交通大學外國學生入學規定」者，得進入本系碩士班修讀碩士學位。

Article 1. Applicants who have obtained a bachelor's degree or equivalent from a national or private university, individual colleges (including colleges of Hong Kong) in Taiwan, or an accredited foreign institution approved by Taiwan's Ministry of Education and also passed the entrance exam are eligible to apply for the master degree.
Undergraduate students with outstanding academic performance, recommendation from the university, and passed a distinguished screening process hold by the recruiting committee are eligible to apply for the master degree.
Applicants are eligible to apply for the master degree ,who satisfy the conditions of the following two regulation formulated by the Ministry of Education: "Regulations Regarding International Students Undertaking Studies in Taiwan" or "NCTU Regulations Regarding International Students Admissions"

第二條 本系研究生修業年限以二至四年為限，在職生得增加一年。若有修業未滿二年擬申請畢業，需經系務會議審議通過，再經教務處核備後，方同意其畢業。

Article 2. Full-time students are required to complete the degree from two to four years while part-time students are able to complete within five years. Students who wish to apply for graduation without completing three semesters (for full-time students) or four semesters (for part-time students) of study will have to first obtain permission from

- the departmental committee and office of academic affairs.
- 第三條 本系依研究方向分為三學程：系統決策、人因工程、生產與製造系統，研究生得依研究興趣以其中一組為主修。
- Article 3. Research direction in Department of Industrial Engineering and Management can be roughly divided into three fields: system decision-making, human factor engineering, and production and manufacturing systems. Students are required to choose one field according to their research interest.
- 第四條 本系研究生入學後，至少得修滿二十四學分（包括當學期）。二十四學分中至少需修本系十八學分，另六學分可選擇相關研究所（台灣聯合大學及教育部承認之國外大學）所開之課程。系內之十八學分需至少包含主修組之十二學分課程。
- Article 4. Full-time students are required to complete at least 24 credits in order to graduate. 18 out of the 24 credits should be the offered by the Department of Industrial Engineering and Management while the others should be courses offered from other relative departments in the University System of Taiwan and/or foreign universities approved by Taiwan's Ministry of Education). 12 out of the 18 credits should be core courses in the chosen field.
- 第五條 碩士班入學考報考丙組學生錄取後，限主修人因工程，須轉組時，需向系上提出書面申請，由系主任召集課程委員會議決之。申請轉組之條件：錄取後，需修課一學期且需修滿人因組必修課程至少六學分後方可提出。
- Article 5. Applicants who registered and admitted to Category C of the department were prescribed to major in human factor engineering. If applicants wish to transfer to another category group a written application is required and a final decision will be evaluated by a departmental meeting directed by the departmental director. Transfer condition: completing one semester of study and completing human factor engineering core courses (six credits) before requesting a transfer.
- 第六條 大學部非工業工程相關科系同學需補修大學部工業工程與管理概論（不計入畢業學分）。曾修過該門課程或相關課程，經提出證明並由當學期任課老師或指導教授認可者可免修該科。
- Article 6. Applicants who were non-industrial engineering bachelor should complete the undergraduate course of Introduction to Industrial Engineering and Management (no credits). The course can be exempt if applicants were able to provide certification that similar courses have been completed during undergraduate years and are approval by professor who offers the course or thesis advisor.
- 第七條 本系研究生必修習且通過四學期論文研討課程（論文研討課程不計入畢業學分），提早畢業之學生可依畢業時間申請免修尚未修完之論文研討課程。論文研討課程實施辦法另訂之。
論文的準備與進度，詳閱工業工程與管理學系碩士論文之準備與進度考核之規程。
- Article 7. It is required to take (and earn credits of) four seminar courses. Students can apply for the exemption of untaken seminars if they fulfill all other requirements of completing the degree within two years. The credits will not be counted as the minimum credits for graduation. Regulation regarding Thesis Seminar course is subject to another policy. Regarding thesis preparation and progress, please refer to the Department of Industrial Engineering and Management master thesis preparation and progress assessment guidelines.
- 第八條 本系各組主修課程如後：
- Article 8. Major courses of each category group of the department are as follows:
一、系統決策：線性規劃、整數規劃、高等數學規劃、網路模式與方法、組合優選學、等候理論、多目標決策分析、多變量分析、實驗設計、迴歸分析、隨

機過程、高等模擬設計與分析、乏晰集合及其應用、類神經網路及其應用、排程理論與應用、可靠度工程。

1. System Decision-Making:

Linear Programming, Integer Planning, Advanced Mathematics Planning, Network Modeling and Algorithms, Combinational Optimization, Queueing Theory, Multi Criteria Decision Making, Multivariate Analysis, Experimental Design, Regression Analysis, Stochastic Process, Advanced Simulation Design and Analysis, Fuzzy Sets and Its Applications, Introduction to Neural Networks and Applications, The Theory and Application of Scheduling, and Reliability Engineering.

二、人因工程：

(一)、必修：高等人因工程、人類資訊處理、電腦系統人機介面、研究方法論、實驗設計（此為跨組必修課程）

(二)、選修：人機系統、人員績效測量與評估、人因專題、系統安全工程與管理、注意力與知覺、人員作業模型、人因分析與設計、人類問題解決專題、認知科學理論與應用、生物力學、工作生理學。

上列人因工程組修課架構適用 91 學年度（含）之後入學研究生。

2. Human Factor Engineering:

Core: Advanced Human Factors Engineering, Human Information Processing, Human-Computer Interaction, Research Methodology, Experimental Design (also a core course for cross-group students)

Electives: Human-Machine System, Human Performance Measurement and Evaluation, Special Topics on Human Factor, System Safety Engineering and Management, Attention and Perception, Human Performance Modeling, Human Factor Analysis and Design, Special Topics on Human Problem Solving, Cognitive Science: Theories and Applications, Human Biomechanics, and Human Physiology.

三、生產與製造系統：排程理論與應用、高等排程理論、製造資源計劃、物流系統設計、品質工程、品質管理專題、高等生產管理、現場監控系統設計、生產管理專題（一）、生產管理專題（二）、人工智慧、電腦輔助製造、實體模型系統、智慧型製造系統、電腦視覺理論與應用、製造工程專題、製造管理專題、可靠度工程。

3. Production and Manufacturing Systems:

The Theory and Application of Scheduling, Advanced Scheduling Theory, Manufacturing Resource Planning, Material Handling Systems Design, Quality Engineering, Special Topics in Quality Management, Advanced Production Management, Special Topics in Production Management(II), Artificial Intelligence, Computer Aided Manufacturing, Solid Modeling System, Computer Vision and Inspection, special Topics in Manufacture Engineering, Topics in Manufacture Management, and reliability Engineering.

第九條 本系研究生入學後，皆由系方指定一選課指導教授，負責學生之選修課程事宜。

Article 9. Upon acceptance, each applicant will be assigned a professor to provide instruction and guidance regarding course selection.

第十條 本系研究生入學後，須於修課第一學期 11 月 15 日以後，第二學期結束前選定論文指導教授並送系上報備。學生若於修業第二學期結束前仍無法提出其敦聘「論文指導教授」申請表時，由系主任協助該生尋找論文指導教授。換指導教授時，須知會原指導教授並向系上報備；若師生雙方有爭議，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。論文指導教授以系上教授為主，

得視需要，學生可選定校內它系或校外教授共同指導。系上每位教師每屆可指導碩士生五名，名額不可轉讓（在職生選指導教授之年限可延長至入學後兩年內，仍依下列規定計算指導研究生點數，以入學年度（學號）為計算基準）；惟碩士生在取得正式入學資格後，註冊並完成六學期的修業，若申請更換指導教授，新的指導教授可逕行指導該生，該生名額不列入指導總額計算。兩位老師共同指導一名學生，視為 0.5 名。本系老師與系外老師共同指導一名學生，視為 1 名。

Article 10. Upon admitting into the department, master students should choose a professor as their thesis advisor from November 15th of first semester to the end of the second semester. Part-time students on the other hand, could choose thesis advisors within two years after they are admitted. 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. Students should inform their previous thesis advisors and report to the department if they wish to change their thesis advisor. 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. Fundamentally, students should choose their thesis advisors from the department. However under special occasions, students may apply for co-direction with professors from another department or school. Each professor from the department, in each year, is allowed to supervise **five** master students. If an MS student enrolls for 6 semesters and applies for changing advisor, the new advisor is allowed to supervise and the number of student the new professor instructs will be counted as 0. When two professors co-direct a student, the number of student each instructs will be counted as 0.5. However if a professor from the department co-directs a student with a professor from another department, the number of student the professor from the department instructs will be counted as 1.

第十一條 本系各組中主修課程因故未能開授者，研究生可取得指導教授同意後，向其它相關組或系所修取等效課程。
如新開未列入主修課程或因特殊原因，則由指導教授與系主任核定之。

Article 11. If a specific core course of a major group cannot be offered, students are able to take courses from other major groups or department with their thesis advisors' permission.
When a new course is offered and has not been listed under the core course category, the thesis advisor and the departmental director will determine whether the course can be substituted for a core course of a specific major group.

第十二條 依本校「碩士學位及博士學位授予作業規章」之規定，碩士學位考試委員會置委員三至五人，由系上就校內外學者專家中對該研究生之研究領域有專門研究，並具備下列資格之一者，向校長推薦，由校長遴聘組成之。

Article 12. According to the "Regulations for Master and Doctoral Degrees Conferment", the Examination Committee of each master's candidate must consist of three to five members recommended to the president by department from among the scholars and experts inside and outside of NCTU specializing in the area of research or study of the applicant. These members must fulfill at least one of the following requirements. The organization of the committee shall be subject to the president's decision.

一、現任或曾任教授、副教授、助理教授。

1. Is or was a professor, associate professor, or assistant professor.

二、中央研究院院士、現任或曾任中央研究院研究員、副研究員、助研究員。

2. Is a research fellow, or is or was a researcher, associate researcher, or assistant

researcher of Academia Sinica.

三、獲有博士學位，且在學術上著有成就。

3. Holds a doctoral degree, and has outstanding academic achievements.

四、研究領域屬於稀少性、特殊性學科或屬專業實務，且在學術上或專業上著有成就。

4. Has been researching in a rare, specific, or practical field, and has outstanding academic or professional achievements.

前項第三款、第四款資格之認定基準，由本系系務會議訂定之。

The determination criteria of the qualifications in subsections 3 and 4 of the foregoing paragraph shall be prescribed by the departmental committee.

第十三條

研究生於入學四個月後可隨時參加碩士論文計劃書之鑑定考試，相關規定請見「碩士論文之準備與進度考核之規程」辦法。研究生在完成碩士學位應修課程，獲得應修學分數，並通過論文計劃書之鑑定考試，提出論文，完成「論文原創性比對」後得申請碩士學位考試，經學位考試委員會口試通過者，由本校授予碩士學位。

當學期結束才可以完成碩士學位應修課程及應修學分數者，若提出論文，經指導教授推薦，得提早舉行學位考試，俟課程完成並獲得應修學分數後授予碩士學位。未能於該學期完成應修課程者，學位考試成績不予採認。

Article 13.

Students who admitted into the program after four months are free to participate in the master thesis proposal review exam at any time. Rules regarding this issue are listed under the “Academic guidelines for master thesis preparation and progress evaluation”. Students who successfully complete the required courses and credits, pass the thesis proposal review exam, and complete the “thesis originality check” are able to apply for the degree examination upon submitting their thesis. Students who pass the oral defense conducted by the examination committee will be awarded a master degree by the university.

Students can apply for degree examination in advance, when they submit their thesis with recommendation from their thesis advisors but are only able to complete their required courses and credits till the end of semester. The degree will be awarded after the required credits are completed.

第十四條

Article 14.

碩士論文考試，以口試行之，並依下列規定辦理：

The dissertation exam held for candidates to MS 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三人出席，始得舉行。

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 three 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 thesis 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，但有二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、論文有假造、變造、抄襲、由他人代寫或其他舞弊情事，經學位考試委員會審查確定者，以不及格論。

5. If any fraud, alternation, plagiarism, ghostwriting, or other dishonest conducts were found on the thesis, a fail grade will be granted.

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 oral examination grade should be given to the department by the convener within three days after the oral examination. "The Thesis Oral Committee Validation Document" should be given to the department by the convener within two months after the oral examination.

第十五條

Article 15.

依本校「碩士學位及博士學位授予作業規章」之規定：

According to the "Regulations for Master and Doctoral Degrees Conferment":

一、碩士生應完成「論文原創性比對」，供學位考試委員參考。

1. Student who conducts the oral defense shall first complete the "thesis originality check" and submit the result to the members of the oral defense committee.

二、學位考試含論文考試及論文審查。

2. The degree test includes a thesis proposal and a thesis defense.

三、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。

3. Jury members should offer advice or suggestions on alterations or research points after passing a thesis. After the student has edited their thesis, they should submit it for review. At least 2/3 of the review committee should approve for the thesis to pass. The review is not graded. Present members of the review committee should sign the Thesis Oral Committee Validation Document after passing the thesis.

四、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。

4. Students that have passed the thesis examination before January 31st or July 31st but cannot complete and turn in their thesis oral committee validation within two weeks of the beginning of semester must complete their registration for the next semester. If a student's study time limit is up and they have not turned in their Validation Document, their degree examination is labeled failed and they must withdraw from school.

五、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。

5. Excluding students enrolled in the Education Program, students that have passed their thesis examination and review should send a copy of their

examination grades and the Thesis Oral Committee Validation Document to the Registrar Division to keep on file.

The semester students turn in their examination grades and Validation Document is the semester they graduate.

Students that have turned in all paper but have yet to sign their Graduation Process papers will still be marked as graduated.

第十六條 碩士學位論文（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），並繳交論文兩冊（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）。

學位論文之保存或提供依學位授予法第十六條辦理。但涉及機密、專利事項或依法不得提供者，則依「國立交通大學學位論文延後公開處理辦法」處理。

Article 16. As a general rule, master thesis (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 thesis and abstract and two formal copies (one for the school library, and one for the Ministry of Education where the copy will be distributed to destined locations) of their thesis within one month after they passed their oral defense.

The storage or provision of theses and dissertations shall be subject to Article 16 of the Degree Conferment Law. Notwithstanding, any content related to confidential or patent matters or the provision is prohibited by the law, shall be subject to the “National Chiao Tung University Regulations for Embargo of Thesis/Dissertation.”

第十七條 本校對已授予之碩士學位，有下列情事之一者，將予撤銷，並公告註銷已頒給之學位證書。

一、入學資格或修業情形有不實或舞弊情事。

二、論文有造假、變造、抄襲、由他人代寫或其他舞弊情事。

依前項規定撤銷學位後，將通知當事人繳還該學位證書，並將撤銷及註銷事項，通知其他專科學校、大學及相關機關。

Article 17. NCTU will cancel the master's degree that has been conferred to a student, and announce the cancellation of the conferred diploma certificate in any of the following situations:

1. Any admission qualification fraud, or any misrepresentation or dishonesty during the study period.

2. Any fraud, alternation, plagiarism, ghostwriting, or other dishonest conducts regarding the thesis.

After the degree has been cancelled pursuant to the foregoing paragraph, NCTU will notify the student to return his or her diploma certificate(s), and notify other colleges, universities, and relevant institutions about the cancellation.

第十八條 本修業辦法追溯適用本所在學學生，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 18. The enforcement of measures herein may be retroactive (applicable to existing students). Any revisions necessary to this guideline will follow the procedures stated in the “Regulations for Master and Doctoral Degrees Conferment”.

第十九條 本修業辦法係依工業工程與管理學系系務會議通過，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 19. This guideline has been carried out after the approval of the departmental meeting of Department of Industrial Engineering and Management, 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
碩士論文之準備與進度考核之規程

Department of Industrial Engineering and Management at National Chiao-Tung University
Academic Guidelines for Master Thesis Preparation and Progress Evaluation

Ratified at Departmental Conference, Jan. 8, 1992

Revised at Departmental Conference, Nov. 5, 1997

Revised at Departmental Conference, April 19, 2000

- 第一條 於修課第一學期十一月十五日以後，第二學期結束前（在職生可延長至入學後兩年內）提出論文指導教授申請書。
- Article 1. Students are required to submit a thesis advisor application between November 15 of first semester and the end of second semester (Part-time students have the choice of submitting their application within two years after they are admitted).
- 第二條 於入學四個月後可隨時參加碩士論文計劃書之鑑定考試（以下簡稱鑑定考試）。
- Article 2. Students will be able to sign up for master thesis proposal review exam after four months they are admitted (hereinafter will be referred to as the review exam).
- 第三條 通過計劃書鑑定考試後至少滿三個月才可提出申請碩士畢業論文口試。
- Article 3. Students will only be allowed to apply for master oral exam after their proposal has been approved for at least three months.
- 第四條 更換研究題目經指導教授認定研究題目已做重大改變者，須重新參加鑑定考試。
- Article 4. If students decide to change their thesis topic after approved by their advisor, another review exam will need to be completed.
- 第五條 須於預定考試日期前十五天提出書面申請，並檢附下列資料：
- Article 5. Students need to submit their written application 15 days before the exam day and include the following documents:
- 一、指導教授推薦函（含審核委員名冊）。
 1. Letter of recommendation from the thesis advisor (including the name list of auditing members)
 - 二、依照本項要點第八條之規定，提出經指導教授審核簽字之碩士論文計劃書及其摘要各一式三份。
 2. Three copies of a written proposal (including an abstract) signed by the advisor that follow the format stated in guideline eight
 - 三、口試日期。
 3. Date of review exam
- 第六條 在預定參加鑑定考試前，因重病、車禍住院等重大或不可抗拒事故發生，經指導教授及系主任同意得延期。
- Article 6. Students will only be allowed to postpone their exam due to unavoidable incidents such as major diseases or car accidents.
- 第七條 鑑定考試辦法：
- Article 7. Exam Methods:
- 一、審核委員之產生：
 1. Selection of auditing examiners
 - (一)、指導教授為當然之委員並擔任主任委員。
thesis advisor will be the principal auditing examiner
 - (二)、由指導教授推薦二位以上（含）相關領域之教授、副教授或專家。
two or above professors, associate professors, or experts in related research field recommended by the thesis advisor
 - (三)、本系老師名額不得少於審核委員人數之一半。
the number of auditing professors from the department should be greater

than half of the total number of auditing professors

二、考試方法：

2. Exam procedure:

(一)、審核委員就研究生之修課背景及其論文計劃書進行審核。

examining professors will evaluate based on the background and proposal of the student

(二)、以公開方式進行口試。

examine orally and openly

(三)、審核委員以投票方式表決，須得過半數（含）始為通過。

examining professors will vote to decide whether to pass the student or not; students need to obtain more than half of all votes in order to pass the exam

第八條 碩士論文計劃書之內容須明確闡述下列各項：

Article 8. Thesis proposal should include following items clearly:

一、研究問題之界定。

1. Definition of limitation and range of research questions

二、研究動機。

2. Research motivation

三、相關研究之文獻回顧。

3. Literature review in relative research field

四、研究方法及步驟（須明確說明演算方法或研究方法）。

4. Research method and procedures (clearly stating algorithms or research methods)

五、預期之結果。

5. Predicted results

六、時間安排詳細之流程圖以及具體的進度檢查點。

6. Detail time schedule and specific progress checkpoint

七、論文所須之參考資料清單。

7. List of reference materials