

國立中央大學

光電科學與工程學系博士班研究生、光電博士學位學程(台灣聯合大學系統)暨產學合作培育研發菁英計畫博士班研究生修業辦法 Ph.D. Degree Requirements for Students Enrolled in the DOP Ph.D. Program, the International Ph.D. Program in Photonics, UST, or the Industry-Academic Cooperation for Cultivating R&D Elite Program at National Central University

本辦法自 107 學年度開始實施

Implemented since the academic year of 2018

82.09.20 所務會議通過	98.06.17 教務會議核備
82.10.22 所務會議修訂	102.01.16 教務會議核備
83.11.10 所務會議修訂	103.06.27 系務會議修訂
83.12.01 所務會議修訂	103.10.15 教務會議核備
83.12.22 所務會議修訂	103.11.28 系務會議修訂
84.09.15 所務會議修訂	104.01.14 教務會議核備
86.05.20 所務會議修訂	106.04.28 系務會議修訂
89.06.26 所務會議修訂	106.06.14 教務會議核備
90.04.16 所務會議修訂	107.03.23 系務會議修訂
90.09.10 所務會議修訂	107.06.20 教務會議核備
93.10.15 所務會議修訂	108.09.27 系務會議修訂
95.07.25 所務會議修訂	109.01.08 教務會議核備
95.10.13 所務會議修訂	109.09.24 系務會議修訂
96.12.28 系務會議修訂	109.10.14 教務會議核備
97.03.26 教務會議通過	110.04.23 系務會議修訂
98.05.25 系務會議修訂	110.06.23 教務會議核備
97.01.17 系務會議修訂	
97.02.22 系務會議修訂	

第一條 本辦法依本校「博士班、碩士班研究生學位考試細則」及本校參與教育部產學合作培育研發菁英計畫規定訂定之。

The requirements and regulations stated below are established based on National Central University (NCU) Ph.D. and Master Degree Requirements and NCU's participation in the Industry-Academic Cooperation for Cultivating R&D Elite Program initiated by the Ministry of Education.

第二條 課程 Coursework

一、選課 Course Selection

由指導教授輔導選課；未選定指導教授者，由系主任輔導選課。

Students shall plan the coursework with the assistance from their advisors. Those who have not identified their advisors shall be assisted by the Chairman in this matter.

二、修課 Course Taking

(一) 光電科學與工程學系博士班研究生(以下稱博士生)適用

The following regulations apply to doctoral students enrolled in the Ph.D. program of the Department of Optics and Photonics (DOP):

1. 博士生在畢業前須選修由本系開設之以下六科目—晶體光學、傅氏光學、幾何光學、

輻射與檢測、雷射物理、干涉光學，且至少須有五科目成績及格。

Students must take the following six courses offered by the Department and complete at least five of them: Crystal Optics, Fourier Optics, Geometrical Optics, Radiometry and Detection, Laser Physics, and Interference Optics.

2. (二) 修習書報討論為畢業必要條件之一，規定如下：

Taking Seminar courses is required for graduation. Related regulations are described below:

- (1) 修業未滿三年(含申請論文口試當學期)欲申請論文口試者，須於在學期間每學期修習書報討論且及格。擬於學期中完成畢業口試，並可於校曆規定課程停修申請截止日前辦理離校，則可向課程委員會申請免修該學期書報討論課程。課程委員會依提出申請前之課程表現進行審核，審核通過後，學生自行申請停修。

Students matriculating into the Ph.D. program for less than three years shall complete the DOP seminar in each semester during their enrollment.

For those who plan to complete the dissertation defense and leave the NCU prior to the official deadline to withdraw with a W standing may apply for exemption from taking the DOP seminar for that semester; with the approval of the DOP Curriculum Committee, students can withdraw the DOP seminar.

- (2) 修業滿三年(含申請論文口試當學期)以上欲申請論文口試者，至少須修滿六學期書報討論且及格。

Students matriculating into the Ph.D. program for three years or above shall complete the DOP seminar for at least six semesters before requesting their dissertation defense.

- (3) 曾在本系修過書報討論，且成績 70 分以上者，得於入學第一學年第一學期之本系規定時間內向課程委員會提出抵免申請，惟曾計入之畢業條件之課程不得抵免。

Students who completed DOP seminar before are eligible to apply for exemption from taking this course in the first semester of their matriculation. The application must be submitted before the deadline announced by the DOP Graduate Office at the beginning of an academic year. Courses used for graduation from the previous degree program cannot be used towards the coursework requirements stated above.

- (4) 若有不及格者，經本系同意後始得選修他所書報討論課程。

Subject to the approval of the Department, students who failed the DOP seminar are permitted to take seminar courses offered by other graduate schools at NCU.

(二) 105 學年度起入學之產學合作培育研發菁英計畫博士班研究生(以下稱產博生)適用

The following regulations apply to doctoral students matriculating into the Industry-University Cooperation Cultivating R&D Elite Program in the academic year of 2016 - 2017 and beyond:

1. 產博生在畢業前須選修由本系開設之以下六科目—晶體光學、傅氏光學、幾何光學、輻射與檢測、雷射物理、干涉光學，且至少須有五科成績及格。

Students must complete at least five of the following six courses offered by the Department: Crystal Optics, Fourier Optics, Geometrical Optics, Radiometry and Detection, Laser Physics, and Interference Optics.

2. 修習書報討論為畢業必要條件之一，規定如下：

Taking Seminar courses is required for graduation. Related regulations are described below:

(1) 須修滿本系開設之書報討論課程四學期且及格。

Students must complete DOP seminar for four semesters.

(2) 曾在本系修過書報討論，且成績達 70 分(不含)以上者，得於入學第一學年第一學期之本系規定時間內向課程委員會提出抵免申請，惟曾計入畢業條件之課程不得抵免。

Students who completed DOP seminar before are eligible to apply for exemption from taking this course in the first semester of their matriculation. The application must be submitted before the deadline announced by the DOP Graduate Office at the beginning of the first semester in an academic year. Courses used for graduation from the previous degree program cannot be used towards the coursework requirements stated above.

三、免修：曾修習本系所開設之上述六科目，且成績~~超過 70 分~~者達 70 分(不含)以上者，得於入學第一學年第一學期之本系規定時間內提出免修申請，修習其他研究所課程者須繳交該科目成績單及原研究所認同之課程大綱以供審核。

Students who completed any of the above listed six courses **with a course grade of 71 or above** prior to their matriculation into the Ph.D. program are eligible to apply for exemption from taking the course(s). The application must be submitted before the deadline announced by the DOP Graduate Office at the beginning of the first semester in an academic year.

四、學分：博士生與產博生應於本系研究所課程中至少修滿 18 學分，且平均成績須達 75 分(含)以上。

Doctoral students shall complete at least 18 course credits offered by the Department and maintain a course average of 75 or above on a 100-point scale.

五、逕修讀博士學位學生至少須修滿 34 學分，其中內含至少博士班 18 學分，其選課、修課、免修與學分規定如上述所定。

A MS student directly transferred to the Ph.D. program must complete at least a total of 34 course credits, 18 of which must be completed after their matriculation into the Ph.D. program. The course selection, credit transfer, course exemption, and coursework requirements are regulated as stated above.

第三條 資格考：依本系「博士班研究生資格考試辦法」規定辦理。

Qualifying Exam: Students shall follow “Regulations on the Ph.D. Qualifying Exam” stated in a separate document.

第四條 指導教授：博士生與產博生應選請至少一位本系專任老師為其論文指導教授。

Advisor Selection: A doctoral student must identify at least one full-time DOP faculty as the academic advisor.

第五條 修業年限 The Maximum Number of Years of Enrollment

一、光電系博士生適用本校學則一般規定

Students who enrolled in the DOP Ph.D. program must follow the general academic guidelines set by NCU.

二、105 學年度起入學之產業博士生適用

The following regulations apply to students matriculating into the Industry-Academic Cooperation for Cultivating R&D Elite Program in the academic year of 2016 - 2017 and beyond:

- (一) 產博生於修業期間以第一年及第二年於校內修習課程，第三年及第四年於產業或法人單位實作研發並完成論文為原則。

Doctoral students enrolled in this program are expected to complete the coursework by the end of their second year and conduct R&D work in the industry or corporate organizations and complete the Ph.D. dissertation in their third and fourth year.

- (二) 學校、產業或法人可依計畫實際執行需要調整產博生於學校修課、赴產業或法人實作研發之時程安排；其中赴產業或法人實作研發之時間須至少二年(含)。

Depending on the progress of the research project, the timing of a student's coursework and R&D planning can be adjusted by consensus among the DOP, corporation, and/or the corporate organization. However, the period of conducting R&D work in the corporation/corporate organization must be at least two years.

第六條 畢業 Article 6 Research Requirements

一、光電系博士生適用

Students enrolled in the DOP Ph.D. program must comply with the following regulations:

博士生修畢其應修課程並通過資格考後，且其發表之相關著作累計積分超過 4 點，可由其指導教授推薦，填寫學位考試申請，經本系課程委員會與學術委員會審查通過後，方得舉行口試，口試通過並辦妥離校手續後即授予博士學位。畢業論文及其發表之論文必須與光電專業相關。

A student who has completed the coursework, passed the Ph.D. qualifying exam, had the research work published to accumulate at least four credits, and obtained signed approval of the academic advisor is eligible to request the Ph.D. dissertation defense. After obtaining approval from both the DOP Curriculum and Academic Committees, the student can proceed to schedule the dissertation defense. The Ph.D. degree diploma will be granted only after a student successfully defended the Ph.D. dissertation and completion of graduation requirements is verified.

The Ph.D. dissertation and the associated publications must be within the discipline of Optics and/or Photonics.

- (一) 博士生取得博士班學籍之前近兩年內以中央大學光電科學與工程學系具名發表之 SCI 期刊文章得列入博士班論文點數，點數計算依博士班修業辦法規定，但上述點數以折半計算，且不得超過 2 點(含)。惟該生若就讀博士班時，指導教授與前述文章之指導教授不同則點數不予計算。

The work published in any journal covered in the Science Citation Index (SCI) within two years prior to a student's matriculation into the Ph.D. program is valid to be applied to a

student's research credit accumulation if it is affiliated with the Department and the advisor listed on the paper(s) is also the student's Ph.D. dissertation advisor. Credit accumulation is regulated by the rules stated below. Credits such obtained can only count 50% of the normal values and can never exceed an accumulated total of two credits.

- (二) 文章點數算法為：文章刊載於 SCI 之期刊者為 4 點，其餘不在 SCI 之國內外有外審制度之期刊文章交由學術委員會討論，但所有畢業點數須有一半(含)以上為 SCI 期刊論文。國際會議論文為 1 點且最高以一篇為限，該論文須為博士生在國際會議以外文口頭報告為之。

Rules of Research Credit Accumulation:

- One SCI journal paper counts four credits, while publications in other peer-reviewed journals not covered in the SCI would need to be approved by the DOP Academic Committee.
- In any circumstances half of the total credits accumulated upon graduation must be contributed by the SCI journal publications.
- An international conference paper counts one credit if it is orally presented by a doctoral student in non-native language. Only one credit such obtained is allowed toward student's credit accumulation for graduation.

- (三) 各作者計分百分比如表一所列，但指導教授計為最後一位作者。

The contribution percentage distributed among authors in one journal publication is listed in Table I. The advisor is viewed as the last author in the calculation of a student's research credit accumulation.

- (四) 除本條第一項規定外，研究生在入學前發表之論文不計點。

Except for journal publications meeting the requirements listed in I-1 of Article 6, any paper published prior to a doctoral student's matriculation into the DOP Ph.D. program cannot be counted toward the degree requirements.

- (五) 博士生發表之論文必須以中央大學光電科學與工程學系名義與至少一位指導教授共同發表。若指導教授兩位(含)以上，每位指導教授須在博士生畢業所發表之論文中，擔任一篇(含)以上之共同作者。

The work published by a doctoral student must be affiliated with the DOP and co-authored by the student's advisor in the Department. If the student has a co-advisor, each individual faculty must co-author at least one journal publication with the student.

二、105 學年度起入學之產業博士生適用

Doctoral students enrolled in the Industry-Academia Collaboration for Cultivating R&D Elite Program must comply with the following regulations:

產博生修畢其應修課程並通過資格考後，且其發表之相關著作累計積分 4 點(含)以上(積分採計方式如本條第一項說明)，可由其指導教授推薦，填寫學位考試申請表，即經本系課程委員會與學術委員會審查通過後，方得舉行口試，口試通過後並辦妥離校手續後授予博士學位。畢業論文及其發表之論文必須與光電專業相關。

A student who has completed the coursework, passed the Ph.D. qualifying exam, had the research work published to accumulate at least four credits, and obtained signed approval of the academic advisor is eligible to request the Ph.D. dissertation defense. After obtaining approval from both the DOP Curriculum and Academic Committees, the student can proceed to schedule the dissertation defense. The Ph.D. degree diploma will be granted only after a student successfully defended the Ph.D. dissertation and completion of graduation requirements is verified.

The Ph.D. dissertation and the associated publications must be within the discipline of Optics and Photonics.

(一) 積分採計方式如以下三款所示，積分之計算須至少選定以下兩款作積分累計：

Research credits must be contributed by at least two of the three categories described as follows:

1. SCI 期刊論文：產博生取得博士班學籍之前近兩年內以中央大學光電科學與工程學系具名發表之 SCI 期刊文章，且該生為第一作者，則該文章得列入博士班累計積分點數 0.5 點，該累計總點數至多 1 點(含)。另於博士班在學期間該生以中央大學光電科學與工程學系具名發表之 SCI 期刊文章，且該生為該文章前三作者之一，則該文章得列入博士班累計積分點數，一篇計積分點數 1 點；其中所有畢業累計積分點數至少須含該生以第一作者發表之 SCI 期刊論文之積分點數 1 點。

SCI-covered journal papers:

- A SCI-covered journal paper published within two years prior to a student's matriculation into this program counts 0.5 credit, if it is affiliated with the Department and the student is listed as the first author; the DOP allows up to one credit such accumulated.
 - A SCI journal paper affiliated with the DOP and having a doctoral student listed as one of the first three authors counts one credit toward the student's research credit accumulation.
 - The student's total research credits must have at least one credit from the SCI journal paper(s) in which the student is listed as the first author.
2. 專利：產博生於在學期間以中央大學名義獲證之發明專利可列入博士班累計積分點數，一篇計積分點數 1 點。

Patents:

A Patent grant invented by an enrolled doctoral student in this program and assigned to National Central University is valid to be applied to the student's research credit accumulation; a patent meeting such requirements counts one credit.

3. 國際研討會論文發表：產博生於在學期間出席國際研討會，並以外文口頭發表研究成果可列入博士班累計積分點數(須檢附相關證明及報告)，一次計積分點數 1 點且以一次為限。

International Conference Papers:

An international conference paper counts one credit if it is presented orally by a doctoral student in non-native language. DOP allows only one credit such obtained to be applied toward the DOP Ph.D. degree requirements.

(二) 本條第一項之作者序採計，產博生之指導教授計為最後一位作者。

The advisor is viewed as the last author in the calculation of a student's research credit accumulation.

(三) 除本條第一項第一款之規定外，產博生在入學前發表之論文不計點數。

Except for journal publications satisfying the conditions described in II-1 of Article 6, any publications published prior to a doctoral student's matriculation into this program cannot be counted toward the Ph.D. degree.

(四) 產博生發表之 SCI 期刊文章、研討會論文及專利必須以中央大學光電科學與工程學系名義與至少一位指導教授共同發表。若指導教授兩位(含)以上，每位指導教授須在產博生畢業所發表之論文與專利中，擔任一篇(含)以上之共同作者。

The graduate work, including SCI journal papers, international conference papers, and patent grants, published by and/or credited to a doctoral student must be affiliated with the DOP and co-authored by the student's advisor in the Department. If a student has a co-advisor, each individual faculty must co-author at least one publication with the student.

第七條 本辦法如有未盡事宜，依教育部及本校有關規定辦理。

Article 7 DOP will follow the related regulations and guidelines set by the Ministry of Education and/or NCU for situations outside of the scope as listed in this document.

第八條 本辦法經系務會議通過，並報教務會議核備後實施，修正時亦同。

Article 8 The requirements/regulations have been approved by the DOP department meeting and verified by the NCU academic affairs meeting upon their implementation. Any amendments to them will be processed with the same procedure as stated.

表一：作者排序之計分百分比

1	五位(含)作者以上之文章，第一作者計該文章點數之 35%。 五位(含)作者以上之文章，第二作者計該文章點數之 30%。 五位(含)作者以上之文章，第三作者計該文章點數之 20%。 五位(含)作者以上之文章，第四作者計該文章點數之 10%。 五位(含)作者以上之文章，第五作者計該文章點數之 5%。 五位(含)作者以上之文章，第六作者及以後者不計點數。
2	四位作者之文章，第一作者計該文章點數之 40%。 四位作者之文章，第二作者計該文章點數之 30%。 四位作者之文章，第三作者計該文章點數之 20%。 四位作者之文章，第四作者計該文章點數之 10%。
3	三位作者之文章，第一作者計該文章點數之 45%。 三位作者之文章，第二作者計該文章點數之 35%。 三位作者之文章，第三作者計該文章點數之 20%。
4	二位作者之文章，第一作者計該文章點數之 60%。 二位作者之文章，第二作者計該文章點數之 40%。

Table I: Percentage of Research Credit Assigned to the Authors in One Publication

Total Number of Authors	Percentage of Research Credit Assigned
5 or above	First Author: 35%; Second Author: 30% Third Author: 20% Fourth Author: 10% Fifth Author: 5% The rest of the authors in the author list: 0%
4	First Author: 40%; Second Author: 30% Third Author: 20% Fourth Author: 10%
3	First Author: 45%; Second Author: 35% Third Author: 20%
2	First Author: 60%; Second Author: 40%