國立彰化師範大學
光電所博士班畢業條件表暨課程架構表
(114學年度入學學生適用)

National Changhua University of Education

Graduation Requirements and Course Structure for PhD Program of Graduate Institute of Photonics

(Applicable for students in 114 academic year)

列印日期(Print Date:2025/01/10)

一.系必修課程

Ⅰ.Department Required Courses

課程名稱 Course Name	學分/學時 Credit(s)/ Hour(s)	年級 Grade	學期 Semester
半導體材料暨元件專題討論 Seminar in material and device of semiconductor	2/2	1	1
奈米光電專題討論 Seminar in Nano-optical electronics	2/2	1	1
光資訊專題討論 Seminar in optical information	2/2	1	1
顯示技術專題討論 Seminar in display technology	2/2	1	1
顯示技術專題討論 Seminar in display technology	2/2	1	2
奈米光電專題討論 Seminar in Nano-optical electronics	2/2	1	2
半導體材料暨元件專題討論 Seminar in material and device of semiconductor	2/2	1	2
光資訊專題討論 Seminar in optical information	2/2	1	2
論文指導(一) Thesis Supervision I	3/0	2	1
論文指導(二) Thesis Supervision II	3/0	2	2
論文 Thesis	0/0	2	2

二.系選修課程

Ⅱ.Department Elective Courses

課程名稱 Course Name	學分/學時 Credit(s)/ Hour(s)
量子力學(一) Quantum Mechanics I	3/3
物理光學 Physical Optics	3/3
幾何光學 Geometrical Optics	3/3
半導體物理與元件 Semiconductor Physics and Device	3/3
光電子學 Optoelectronics	3/3
傅氏光學 Fourier Optics	3/3

半導體製程 Semiconductor Process	3/3
半導體光學 Semiconductor Optics	3/3
半導體光學專題研究(一) Special Topics in Semiconductor Optics I	3/3
半導體表面與界面 Semiconductor Surfaces and Interfaces	3/3
半導體表面與界面專題(一) Semiconductor Surfaces and Interfaces Seminar I	3/3
光電實驗技術 Electro-optical experiments	3/3
薄膜電晶體設計與製程整合 The Design and Process Integration of Thin Film Transistors	3/3
奈米光子學 Nano-photonics	3/3
光電數值模擬 Numerical Simulations for Optoelectronics	3/3
光子晶體專題研究(一) Special Topics in Photonic Crystal I	3/3
液晶導論 Introduction to Liquid Crystals	3/3
顯示元件設計與製作 Design and Fabrication of Display Devices	3/3
顯示器數值模擬 Numerical Simulations for Display Devices	3/3
綠能光電專題研究(一) Special Topics in Green Photonics I	3/3
視光顯示專題研究(一) Special Topics in Vision Display I	3/3
成像與照明 Imaging and Illumination	3/3
半導體物理導論 Introduction to Semiconductor Physics	3/3
光學透鏡設計與製造實務 Practical Technology of Optical Lens Design and Fabrication	3/3
生命科學研究法 Research Methods for Biosciences	3/3
生物技術 Biotechnology	3/3
生醫光電專題研究(一) Special topics on biomedical photonics I	3/3
光電分子診斷與影像 Optoelectronics on Molecular Diagnosis and Imaging	3/3
應用生物學 Applied Biology	3/3
半導體雷射 Semiconductor Lasers	3/3
光電半導體元件特論 Special Topics in Optoelectronic Devices	3/3
半導體雷射特論 Special Topics in Semiconductor Lasers	3/3
半導體物理特論 Special Topics in Semiconductor Physics	3/3

雷射原理與應用 Principle and application of Lasers	3/3
半導體光學專題研究(二) Special Topics in Semiconductor Optics II	3/3
半導體表面與界面專題(二) Semiconductor Surfaces and Interfaces Seminar II	3/3
半導體元件及材料特性分析 Semiconductor Material and Device Characterization	3/3
半導體表面與界面特論 Advances Made in Semiconductor Surface and Interface Science	3/3
發光二極體特論 Special Topics in Light-Emitting Diodes	3/3
光子晶體專題研究(二) Special Topics in Photonic Crystal II	3/3
綠能光電專題研究(二) Special Topics in Green Photonics II	3/3
視光顯示專題研究(二) Special Topics in Vision Display II	3/3
顯示光學 Display optics	3/3
生醫光電專題研究(二) Special topics on biomedical photonics II	3/3
微創手術光電技術 Advanced Opto-Electronics Technology of Minimally Invasive Surgery	3/3
影像認知與應用 Imaging Cognition & Application	3/3
量子力學(二) Quantum Mechanics II	3/3
光學系統設計 Optical System Design	3/3
半導體磊晶技術 Semiconductor Epitaxy Technology	3/3
半導體奈米結構光學 Optics of Semiconductor Nanostructures	3/3
光學全像術及應用 Optical Holography and Applications	3/3
平面顯示器概論 Introduction to Flat Panel Displays	3/3
液晶光學專題研究(一) Special Topics in Liquid Crystal Displays I	3/3
有機薄膜電晶體專題研究(一) Monographic Study of Organic Thin Film Transistor I	3/3
光電半導體元件 Optoelectronic Devices	3/3
光電半導體元件專題研究(一) Optoelectronic Devices Seminar I	3/3
光電產業實務 Optical and electronic industrial practice	3/3
半導體產業實習(一) Practice in semiconductor industry I	3/3
光電產業實習(一) Internship of Optics and Photonics Industry I	3/3
科技論文寫作 An Introduction to Scientific Writing	3/3

薄膜電晶體特論 Special Topics of Thin Film Transistors	3/3
薄膜光學特論 Special Topics of Thin Film Optics	3/3
半導體磊晶特論 Special Topics in Semiconductor Epitaxy	3/3
太陽電池學特論 Solar Cell Seminar	3/3
光子晶體 Photonic Crystal	3/3
半導體通訊元件 Semiconductor Devices for Communication application	3/3
發光材料與應用 Luminescent Materials and Their Applications	3/3
液晶光學專題研究(二) Special Topics in Liquid Crystal Displays II	3/3
有機薄膜電晶體專題研究(二) Monographic Study of Organic Thin Film Transistor II	3/3
晶體光學 Optical Waves in Crystals	3/3
薄膜電晶體 Thin Film Transistor	3/3
光電半導體元件專題研究(二) Optoelectronic Devices Seminar II	3/3
半導體產業實習(二) Practice in semiconductor industry II	3/3
光電產業實習(二) Internship of Optics and Photonics Industry II	3/3

三.先修科目
Ⅲ.Prerequisite Courses

先修課程 Prerequisite Course	後修課程 Subsequent Course

四.畢業條件
Ⅳ.Graduation Requirements

1. 最低畢業學分數為22學分，必修課應修「顯示技術專題討論」或「光資訊專題討論」或「奈米光電專題討論」或「半導體材料暨元件專題討論」4學分、選修18學分，不含「論文指導(一)(二)」6學分及教育學分；凡註冊後應至少修習一門科目(含論文)，否則應辦理休學。已修畢最低畢業學分數而論文尚在撰寫中者，次學年起每學期必須選修「論文」。
2. 於碩士班時，已修習過博士班開設之專業領域選修課程相同且未納入碩士班畢業學分數內者，若成績審查通過得以依學校規定申請抵免。
3. 凡選修本所博士班及物理學系博士班所開設之課程(不限學期)，一律可採認為畢業學分數。
4. 修業年限：至少兩年，至多七年(不含休學期間)。
5. 入學後，三年內（不計休學期間）須通過資格考(含一般生及在職生)，未於期限內通過者，報請學校予以退學。資格考試規定依本所「博士班博士學位資格考試施行細則」辦理。
6. 博士班研究生於取得博士學位前，必須發表(或被接受)至少二篇以上(含)之SCI或EI期刊論文，其中至少一篇為第一作者(不計指導教授及共同指導教授)，並依本所訂定之「博士班修業規定」修業。
7. 研究生應於申請學位考試前修習通過於「臺灣學術倫理教育資源中心」(https://ethics.nctu.edu.tw/)網路教學平台之「學術研究倫理教育」課程等相關規定。
8. 本校學生修習遠距教學課程，其修習學分(含抵免學分)總數以不超過畢業總學分之二分之一為限。

1. The minimum number of credits required for graduation is 22, including 4 credits from the following compulsory courses: "Seminar in Display Technology," " Seminar in Optical Information," " Seminar in Nano-optical Electronics," or " Seminar in Materials and Devices

of Semiconductor," plus 18 elective credits. The 6 credits for "Thesis Supervision I and II" and credits for the Teacher Education Program are not counted as part of the minimum graduation requirements. After registration, students must enroll in at least one course (including “Thesis”) or otherwise apply for a temporary suspension. Those who have completed the minimum graduation credits but are still working on their thesis must enroll in the "Thesis" course each semester starting from the next academic year.
2. If PhD program courses identical to those taken during the Master's program were not counted towards the Master's degree graduation credits and have been completed with passing grades, they may be credited towards the doctoral degree upon application and in accordance with the school's regulations.
3. Courses offered by this Graduate Institute and the Master's program of the Department of Physics are universally recognized for graduation credits, regardless of the semester taken.
4. Duration of study: Limited to two to seven years (excluding periods of temporary suspension).
5. Within three years of admission (excluding periods of temporary suspension), students (both full-time and part-time) must pass a qualification exam. Those who fail to pass within this period will be recommended for dismissal from the university. The regulations for the qualification exam are in accordance with the Graduate Institute's "Implementation Rules for Doctoral Qualifying Exams."
6. Before obtaining their doctoral degree, PhD students must have at least two papers published or accepted in SCI or EI journals, with at least one paper as the first author (excluding the advisor and co-advisor). They must also comply with the "Doctoral Program Study Regulations" set by the Graduate Institute.
7. Graduate students must complete and pass the online courses for Academic Research Ethics Education on the online learning platform of the "Center for Taiwan Academic Research Ethics Education" (https://ethics.nctu.edu.tw/) and comply with the related regulations before applying for degree examinations.
8. NCUE students taking distance learning courses can count these credits (including transfer credits) towards their graduation, provided the total does not exceed half of the required graduation credits.