國立陽明交通大學光電工程學系跨域學程實施要點

National Yang Ming Chiao Tung University Department of Photonics Implementation Guidelines for Cross-Disciplinary Program

110年10月19日系課程會議通過 110年10月28日院課程委員會議通過過 110年12月2日校級課程委員會儲議通過過 110年12月16日教務課程會會議議通通 111年3月10日系課程會會備議議通通 111年3月24日院課程委員會儲議通通通 111年5月13日校級課程委員會儲議通通通通 111年6月16日教務課程會會議議通通通過 112年3月14日系課程會會議議通通通 112年4月13日院課程委員會儲議通通通過 112年5月30日教務課程委員會儲議通通過過 113年4月11日院課程委員會議通通過過 113年4月11日院課程委員會議通通過過過過

- 一、依據國立陽明交通大學跨域學程實施辦法,國立陽明交通大學光電工程學系(以下簡稱本系)為鼓勵學生進行跨領域學習,建立跨域學習深度,協助學生拓展第二專長, 提供學生可以在畢業學分不增加(或僅少量增加)情況下,修畢跨域學程,特訂定本要點。
- Article One These Implementation Guidelines are prescribed by Yang Ming National Chiao Tung University Department of Photonics (hereinafter referred to as Our Department) based on NYCU Cross-Disciplinary Program Implementation Regulations to provide the opportunity for students to proceed cross-disciplinary learning without increasing graduate credits (or only a few extra credits) in order to encourage students to conduct cross-disciplinary study, build the depth of cross-disciplinary study, and assist students expanding second specialty.
 - 二、跨域學程係指由陽明交通大學的學系、研究所、或學院提出模組課程,模組課程應包含該領域基礎核心知識,且總學分數以30學分為原則(最低可為28學分,最高不可超過32學分),學生修習跨域學程,其課程將包含所屬學系的跨域學程模組課程以及第二專長系所或學院的跨域學程模組課程,並可於畢業證書上加註第二專長模組課程為跨域專長。
- Article Two The cross-disciplinary program here means the cross-disciplinary module curriculum proposed by the departments, institutes, or colleges in National Yang Ming Chiao Tung University. Module curriculum should include the core knowledge curriculum of the field and the total credits will be based on 30 credits (the minimum 28 credits and no more than 32 credits). The cross-disciplinary program that students take will include the cross-disciplinary program module curriculum of the department they belong to as well as the cross-disciplinary program module curriculum from the second specialty department or college. The module curriculum of the second specialty could be remarked as "Cross-Disciplinary Specialty" on the diploma.

- 三、本系設置「光電工程」跨域學程,同時,本系與電子物理學系以及材料工程學系共同 設置「三一學程」跨域學程,此兩個跨域學程的修業規定分別規範於第四點。
- Article Three Our Department launches two cross-disciplinary programs. One is "Photonics" cross-disciplinary program, and the other is "Three-in-one" cross-disciplinary program formed by Our Department, Department of Electrophysics, and Department of Material Engineering. The guidelines of the two cross-disciplinary programs are given in Article Four.

四、 本要點修業規定

Article Four Implementation objects of these Guidelines

(一)本系學生欲修習跨域學程者

For the student of our department who would like to take cross-disciplinary program

得於每學年度公告申請期限內向本系提出申請,申請時註明欲申請的第二專長系所或學院,申請期限將由本系課程委員會提前一個月進行公告,公告中說明需準備的審查資料以及當年度本系開放給本系學生修讀跨域學程的名額,申請案經本系課程委員會審查通過後,需送到第二專長系所或學院審查,通過雙邊審查後,方可進入跨域學程。

The application can be submitted to our department by the deadline announced by faculty every year. The department or college of the second specialty that the student would like to apply for must be remarked on the application form, and the application deadline would be announced one month in advance by the Curricular Committee at our department. The evaluation documents need preparing as well as the quota opened to the students in our department to study for this program in the given year will be released on the announcement. The application should be sent to the department or college of the second specialty for evaluation after it is approved by the Curricular Committee at our department. Students could take the cross-disciplinary program after evaluation by both sides.

2. 本系學生修習跨域學程的課程,列示於「光電工程學系跨域學程本系學生必修科目表」,其課程包含:校必修(含共同必修24學分)、本系基礎必修課程、本系跨域模組課程、以及第二專長系所或學院的跨域模組課程(以下簡稱他系跨域模組課程),畢業學分以128學分為原則。他系跨域模組課程認定為跨域專長,於畢業證書本系名稱後加註此跨域專長。

The courses of cross-disciplinary program taken by students in our department should be listed on "The Required Course List for the students at our department study cross-disciplinary program in department of Photonics." The courses include required courses of the university (including 24 credits of general education subjects), core curriculum at our department, cross-disciplinary module curriculum at our department, and the cross-disciplinary module curriculum of the second specialty department or college (hereinafter referred to as cross-disciplinary module curriculum at other department) with at least 128 graduate credits. The cross-disciplinary module curriculum at other department would be recognized as cross-disciplinary module curriculum at other department would be recognized as cross-

disciplinary specialty, and it will be remarked after the title of our department on the diploma.

 本系學生修習跨域學程,若無法修畢跨域學程課程,得選擇放棄跨域學程, 改修習原光電工程學系的學士學位課程。

For students at our department who study for cross-disciplinary program but are not able to complete the program, they shall give up the cross-disciplinary program and take credits of bachelor degree program at their original department, Department of Photonics.

(二)外系學生欲選擇「光電工程」跨域學程做為其跨域專長者

For students of other departments who would like to take "Photonics" cross-disciplinary program as their cross-disciplinary specialty.

- 1. 得於每學年度公告申請期限內向其所屬學系(以下簡稱原系)提出申請,通 過原系以及本系的雙邊審查後,方可進入跨域學程。
 - They could submit the application to the department that they belong to by the deadline announced announcements by faculty every year, they could take the cross-disciplinary program after approved by both their original department and our department.
- 2. 外系學生修讀跨域學程且選擇本系做為其跨域專長者,其課程包含:校必修 (含共同必修24學分)、原系基礎必修課程、原系跨域模組課程、以及列示於 「光電工程學系跨域模組課程必修科目表」的模組課程,畢業學分以128學 分為原則,並於畢業證書原系名稱後加註光電工程為其跨域專長。

The courses for the students from other departments who would like to study for cross-disciplinary program and choose our department as their cross-disciplinary specialty include required courses of the university (including 24 credits of general education subjects), core curriculum at their original department, cross-disciplinary module curriculum at their original department, and the module curriculum listed on "The Required Course List for the students study cross-disciplinary module curriculum in department of Photonics" with at least 128 graduate credits. The Photonics will be remarked as their cross-disciplinary specialty after the title of their original department on the diploma.

(三)本系或外系學生欲選擇三一學程做為其跨域專長者

For student who would like to take "Three-in-one" cross-disciplinary program as their cross-disciplinary specialty.

1. 得於每學年度公告申請期限內向其所屬學系(以下簡稱原系)提出申請,通 過原系以及三一學程系群的雙邊審查後,方可進入跨域學程。

They could submit the application to the department that they belong to by the deadline announced by faculty every year, they could take the cross-disciplinary program after approved by both their original department and the committee of "Three-in-one" program .

2. 學生修讀跨域學程且選擇本學程做為其跨域專長者,其課程包含:校必修(含 共同必修24學分)、原系基礎必修課程、原系跨域模組課程、以及列示於「三 一學程(電子物理系,光電工程學系,材料工程學系) 跨域模組課程必修科目 表」的模組課程,畢業學分以128學分為原則,並於畢業證書原系名稱後加註 「三一學程(電子物理/光電/材料)」為其跨域專長。

The courses for the students who would like to study for cross-disciplinary program and choose "Three-in-one" program as their cross-disciplinary specialty include required courses of the university (including 28 credits of general education subjects), core curriculum at their original department, cross-disciplinary module curriculum at their original department, and the module curriculum listed on "The Required Course List for the students study cross-disciplinary module curriculum in "Three-in-one" program-with at least 128 graduate credits. The "Three-in-one (Electrophysics/Photonics/Material)" will be remarked as their cross-disciplinary specialty after the title of their original department on the diploma.

- 五、本系指定至少一名專任教師擔任跨域學程導師,與外系所或學院的跨域學程導師組成 導師群,專責輔導跨域學程的學生。
- Article Five Our department assigned at least one full-time teacher to be the mentor of the cross-disciplinary program and formed mentor group with teachers of cross-disciplinary program at other department or college to give guidance to cross-disciplinary program students.
 - 六、為鼓勵不同系所或學院合作提出跨域共授課程,兩位以上教師開授跨領域之創新整合 式課程,得依本校教師授課時數核計原則規定辦理。
- Article Six In order to encourage different departments or colleges working together for the proposal of cross-disciplinary curriculum, the number of teaching hours for the innovating integrated curriculum offered by more than two teachers could be calculated according to National Yang Ming Chiao Tung University Principles for Verifying and Calculating Teachers' Teaching Hours.
 - 七、 本要點如有未盡事宜,悉依本校學則及其他相關規定辦理。
 - Article Seven These guidelines were approved by Curricular Committee at university level and then submitted to the Council of Academic Affairs for approval-for-reference before putting it into practice; the same shall be done upon any amendment thereto.
 - 八、 本要點經校級課程委員會通過後實施,修訂時亦同。
 - Article Eight These guidelines were approved by Curricular Committee at university level before putting it into practice; the same shall be done upon any amendment thereto.

A表 光電工程學系跨域學程 必修科目表 (光電系學生適用)

The Required Course List for the students in Department of Photonics who study cross-disciplinary program

類別	科目名稱	學分	開課系所	說明
Category	Course Name	Credit	Department	Remark
本系基礎必修	微積分(一)		微積分小組	
(40 學分)	Calculus (I)	4	Calculus Teaching Group	
Core curriculum	微積分(二)	_	微積分小組	
at our department	Calculus (II)	4	Calculus Teaching Group	
(40 credits)	物理(一)		普物小組	
(1 - 1 - 1 - 1 - 1)	Physics (I)	4	Physics Teaching Group	
	物理(二)		普物小組	
	Physics (II)	4	Physics Teaching Group	
	物理實驗(一)		光電系	
	Physics Labs. (I)	1	Photonics	
	物理實驗(二)		光電系	
	Physics Labs. (II)	1	Photonics	
	計算機概論		Thotomes	
	Introduction to Computer & Computer	3	光電系	
	Science Science]	Photonics	
	線性代數		光電系	
	Linear Algebra	3	Photonics	
	微分方程		光電系	
		3	_ :	
	Differential Equations		Photonics 光電系	
	電子學(一)	3	'	
	Electronic (I) 電子與華瓜(二)		Photonics 火蚕之	
	電子學實驗(一)	2	光電系	
	Electronic Lab. (I)		Photonics	
	電磁學(一)	3	光電系	
	Electromagnetics (I)		Photonics	
	電磁學(二)	3	光電系	
	Electromagnetics (II)		Photonics	
	服務學習(一)	光電系		
	Service Learning I		Photonics	
	服務學習(二)	1	光電系	
	Service Learning II		Photonics	
	光電生涯與生活及導師時間(上、		光電系	
	下學期)	0	Photonics	
	Career Planning and Mentor's Hours			
本系跨域模組	必修:12 學分 Compulsory courses	: 12 cred	lits	
(30 學分)	光子學(一)	3	光電系	
Cross-disciplinary	Elements of Photonics (I)	3	Photonics	
modules at our	光子學(二)	3	光電系	·
department	Elements of Photonics (II)	_ 3	Photonics	
(30 credits)	光子學實驗(一)	2	光電系	
	Photonics Lab. (I)	2	Photonics	
	光子學實驗(二)	2	光電系	
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Photonics Lab. (II)		Photonics	
光電跨域專題(一) X-Photonics Project (I)	1	光電系 Photonics	大三修 For the third year of college
光電跨域專題(二) X-Photonics Project (II)	1	光電系 Photonics	大三修 For the third year of college

選修(分基礎課程以及專業課程)至少 18 學分,18 學分需至少包含兩門專業課程 (Optional Courses (including Basic Courses and Advanced Courses) at least 18 credits. The 18 credits must include the credits from at least two Advanced Courses)

基礎課程(Basic Courses):						
複變函數	3	光電系				
Complex Variables	3	Photonics				
訊號與系統	3	光電系				
Signals and Systems	3	Photonics				
電路學	3	光電系				
Circuit Theory	3	Photonics				
電子學(二)		電機學院大學部				
Electronic (II)	3	College of Electrical				
Electronic (II)		Engineering				
電子學實驗(二)		電機學院大學部				
Electronic Lab. (II)	2	College of Electrical				
Electronic Lab. (II)		Engineering				
化學(一)	3	光電系				
Chemistry (I)	3	Photonics				
化學(二)	3	光電系				
Chemistry (II)	3	Photonics				
半導體元件及物理	3	光電系				
Semiconductor Devices & Physics	3	Photonics				
專業課程((Advance	ed Courses):				
近代物理	2	光電系				
Modern Physics	3	Photonics				
材料光學	2	光電系				
Optical Properties of Materials	3	Photonics				
富氏光學	2	光電系				
Fourier Optics	3	Photonics				
矽基液晶光學系統設計與實作		少 牵 2				
Optical Laboratory Based on Liquid	3	光電系				
Crystal on Silicon		Photonics				
光纖通訊	2	光電系				
Optical Fiber Communication	3	Photonics				
感測器基礎實作與嵌入式系統應用		火炬之				
Solid-State Sensor and Embedded	3	光電系				
System		Photonics				
顯示電子電路	3	光電系				
Electronic Circuits for Display	3	Photonics				

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	Laser principles and ultrafast optics	<i>J</i>	Photonics

	1 22 2 1 12 1		1 7 4	
	光學系統導論	3	光電系	
	Introduction to Optical Systems		Photonics	
	臨床光學影像技術		光電系	
	Advanced Clinical Optical Imaging	3	Photonics	
	Technology		Filotonics	
	光學微影與解析度增益技術			
	Optical Micro-lithography (OML)	3	光電系	
	and Resolution Enhancement	3	Photonics	
	Techniques			
	新穎半導體電晶體與感測器		业 虚 2	
	New Semiconductor Transistors and	3	光電系	
	Sensors		Photonics	
	現代光譜技術		1. E. 2.	
	Modern Methods of Optical	3	光電系	
	Spectroscopy		Photonics	
	最佳化理論與反向設計		业而 么	
	Optimization Theory and Inverse	3	光電系	
	Design		Photonics	
電控液晶光電元件		4.54		
	Electrically tunable liquid crystal	3	光電系	
	photonic devices		Photonics	
半導體雷射二極體		光電系		
	Semiconductor Laser Diodes	3	Photonics	
他系跨域模組			本校各系所或學院所提供之跨域模	
(依他系學分數規定,28-32學分)			組學程,擇一修畢	
Cross-disciplinary modules at other department			The cross-disciplinary modules offer	
(28-32 credits)			by departments or colleges at our	
(20-32 cicdits)			university; choose one to complete.	
	最低畢業學分		, chaosa she sa samplese.	
Mii	nimum Graduate Credits	128		
Minimum Graduate Credits				

註:本校共同必修科目表規定,外語課程必修至少6學分。如大學部學生修習共同必修學分數超過24學分以上,本校至多可採至40學分於最低畢業學分內,但各學系另有規定者,從其規定。

Note: According to the rules prescribed by Table of General Education Subject of our university, at least 6 credits of foreign language courses must be taken. For the students in the bachelor degree program who study general education subjects more than 24 credits, 40 credits most can be included in the minimum graduate credits of our university; please follow the regulations from each department if it is specially defined.

B表 光電工程學系 跨域模組課程 必修科目表 (非光電系學生適用)
The Required Course List for the students in other departments who study cross-disciplinary program and choose "Photonics" as their cross-disciplinary specialty

we est	01 2 8 66	C 553		24 XX
類別	科目名稱	學分	開課系所	備註
Category	Course Name	Credit	Department	Remark
光電系跨域模組	必修:12 學分 Compulsory courses:12	credits	1. 5. 4	1
(30 學分)	光子學(一)	3	光電系	
Cross-disciplinary	Elements of Photonics (I)		DEO1010	
modules in	光子學(二)	3	光電系	
department of	Elements of Photonics (II)		DEO1014	
Photonics (30	光子學實驗(一)	2	光電系	
credits)	Photonics Lab. (I)		DEO1023	
	光子學實驗(二)	2	光電系	
	Photonics Lab. (II)		DEO1025	
发 里	光電跨域專題(一)		光電系	大三修
修畢於畢業證書加	X-Photonics Project (I)	1	DEO1612	For the third
註「跨域專長:光	X-1 hotomes 1 toject (1)		DEOTOTZ	year of college
電工程」	光電跨域專題(二)		光電系	大三修
It could be remarked	X-Photonics Project (II)	1	DEO2207	For the third
as "Cross-	X-Filotonics Floject (II)		DEO2207	year of college
Disciplinary	選修:至少 18 學分 Optional Courses:18	credits		
Specialty: Photonics"	感測器基礎實作與嵌入式系統應用	3		
on the diploma after the module	Solid-State Sensor and Embedded System	3		
curriculum is	電路學	3		
completed.	Circuit Theory	3		
completed.	線性代數	3		
	Linear Algebra	3		
	微分方程	2	電機、資訊、	
	Differential Equations	3	理、工學院	
	複變函數	2		
	Complex Variables	3	All	外系抵免學分
	訊號與系統	2	departments in	以12學分為
	Signals and Systems	3	the College of	上限
	近代物理	2	Electrical and	工化
	Modern Physics	3	Computer	The waived
	材料光學		Engineering,	credits should
	Optical Properties of Materials	3	the College of	be lower than
	半導體元件及物理	_	Computer	(including) 12
	Semiconductor Devices & Physics	3	Science, the	credits
	計算機概論		College of Science, and	
	Introduction to Computer & Computer	3	the College of	
	Science		Engineering	
	電子學(一)	_	2.15.11001.1115	
	Electronic (I)	3		
	電子學(二)			
	Electronic (II)	3		
	電子學實驗(一)		1	
	Electronic Lab. (I)	2		
	Electronic Lau. (1)			L

電子學實驗(二) Electronic Lab. (II) 電磁學(一) Electromagnetics (I) 電磁學(二) Electromagnetics (II) 化學(一) Chemistry (I) 化學(二) Chemistry (II) 富氏光學 Fourier Optics 矽基液晶光學系統設計與實作 Optical Laboratory Based on Liquid Crystal on Silicon 光纖通訊 Optical Fiber Communication 顯示電子電路 Electronic Circuits for Display 有機電子元件與光電元件 Organic Electronics and Optoelectronics 電子薄膜物理與製程技術 Electrical Thin Film Physics and Process Technology 液晶導論 Intro. to Liquid Crystals 生醫光子學導論 Introduction to Biophotonics 視覺與生理光學 Visual perception and physiological optics 神經光子學 Neurophotonics 光學設計與像差理論 Optical design and aberration theory 矽光子學 Silicon photonics 光電生化感測元件 Bio-chemical sensors based on electric and optical devices 物理光學 3
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Neurophotonics 光學設計與像差理論 Optical design and aberration theory 矽光子學 Silicon photonics 光電生化感測元件 Bio-chemical sensors based on electric and optical devices 物理光學 3
Neurophotonics 光學設計與像差理論 Optical design and aberration theory 矽光子學 Silicon photonics 光電生化感測元件 Bio-chemical sensors based on electric and optical devices 物理光學 3
Optical design and aberration theory 矽光子學 Silicon photonics 光電生化感測元件 Bio-chemical sensors based on electric and optical devices 物理光學 3
Optical design and aberration theory 矽光子學 Silicon photonics 光電生化感測元件 Bio-chemical sensors based on electric and optical devices 物理光學 3
Silicon photonics 光電生化感測元件 Bio-chemical sensors based on electric and optical devices 物理光學 3
Silicon photonics 光電生化感測元件 Bio-chemical sensors based on electric and optical devices 物理光學
Bio-chemical sensors based on electric and optical devices 物理光學 3
optical devices 物理光學
物理光學 3
· 1 3
Physical Optics
光電子學 3
Opticalelectronics
主動矩陣式顯示器及感測器 3
Active matrix displays and sensors
D OIL 1. 60
晶體光學 3
品體光學 Optical waves in crystals3奈米光電元件技術3

Nano-Photonics Technology		
光電物理中的數值方法導論		_
Introduction to Numerical Methods in	3	
Optical Physics	3	
•		-
色彩工程學	3	
Color Engineering		
幾何光學	3	
Geometrical Optics		
固態物理	3	
Solid State Physics		
超穎介面	3	
Metasurfaces		
繞射光學	3	
Diffractive Optics	3	
量子光學導論	3	
Intro.to Quantum Optics	3	
雷射原理與超快光學	3	
Laser principles and ultrafast optics	3	
光學系統導論	3	
Introduction to Optical Systems	3	
臨床光學影像技術		
Advanced Clinical Optical Imaging	3	
Technology		
光學微影與解析度增益技術		
Optical Micro-lithography (OML) and	3	
Resolution Enhancement Techniques		
新穎半導體電晶體與感測器		
New Semiconductor Transistors and	3	
Sensors		
現代光譜技術	2	
Modern Methods of Optical Spectroscopy	3	
最佳化理論與反向設計	2	
Optimization Theory and Inverse Design	3	
電控液晶光電元件		\neg
Electrically tunable liquid crystal photonic	3	
devices		
半導體雷射二極體	2	
Semiconductor Laser Diodes	3	
總學分 Total	30	

C表 三一學程(電子物理學系、光電工程學系、材料工程學系) 跨域模組課程 必修科目表

The Required Course List for students who study cross-disciplinary program and choose "Three-in-one (Electrophysics/Photonics/Material)" as their cross-disciplinary specialty

類別	科目名稱	學分	開課系所	備註
Category	Course Name	Credit	Department	Remark
三一學程跨域模組	模組一:理論與計算物理	Ciedit	Department	Keiliaik
(28學分)	例 ・ 互端 央 司 弁 初 互 Module 1: Theoretical and			
* ' ' '	Computational Physics			
Cross-disciplinary	近代物理(一)	3	電物	
modules in Three-	Modern Physics (I)		Electrophysics	
in-one program (28 credits)	量子力學導論	3	電物	
(28 credits)	里 7 刀 字 守 禰 Int. to Quantum Mechanics		Electrophysics	
佐田以田业业	計算物理	3	電物	
修畢於畢業證書加	Computational Physics		Electrophysics	
註「跨域專長:	模組二:半導體及量子科技			1電物系[半導體物理
三一學程(電子物	候組一・十字題及里丁村校 Module 2: Semiconductor and			
理/光電/材料)」				及元件]和光電系[半
It could be remarked	Quantum technology 近代物理(一)	3	電物	導體元件及物理]請
as "Cross-	` '	3	Electrophysics	擇一修習
Disciplinary	Modern Physics (I) 半導體物理及元件 ¹	3	電物	¹ To avoid repetition, please
Specialty: Three-	ト 守 題 初 珪 及 九 什 Semiconductor Physics and Devices ¹		Electrophysics	only choose one of the following two courses:
in-one	固態物理(一)	3	電物	[Semiconductor Physics
(Electrophysics/Ph	国際初発(*) Solid State Physics (I)		Electrophysics	and Devices]
otonics/Material)"	電子實驗	2	電物	(Electrophysics) and
on the diploma	Electronics Labs.		Electrophysics	[Semiconductor Devices and Physics] (Photonics)
after the module	模組三:雷射與光電科技 Module			and Thysics] (Thotomes)
curriculum is				
completed.	3:Laser and Optoelectronics technology	3	電物	
	電磁學(一)	3	Electrophysics	
	Electromagnetics (I) 光學概論(一)	3	電物	
	工字 依細(一) Introduction to Optics (I)	J	Electrophysics	
	and a second to optics (1) a second to optic	3	電物	
	田かず岬 Introduction to Laser		Electrophysics	
	實驗物理			
	Experimental Physics	2	電物	
			Electrophysics	-
	模組四:智慧光源			2修電物系[近代物理
	Module 4: Intelligent Light Source			(一)]等同於光電系
	光子學(一)			[近代物理]
	Elements of Photonics (I)	3	光電	[Modern Physics]
	近代物理2	_	Photonics	(Photonics) is the same as
	Modern Physics	3	光電	[Modern Physics (I)]
	材料光學	2	Photonics	(Electrophysics)
	Optical Properties of Materials	3	光電	
	智慧光源科技與半導體實作3	2	Photonics	
	Introduction to semiconductor experiments on	3	光電	
	smart photon sources		Photonics	
	模組五:光設計與光調變			
	Module 5 : Light Design and			
		•	•	

Modulation			
光子學(一)	3	光電	
Elements of Photonics (I)		Photonics	
光學設計與像差理論	3	光電	
	3	户的 电 Photonics	
Optical design and aberration	3		
富氏光學	3	光電	
Fourier Optics	3	Photonics	
矽基液晶光學系統設計與實作	3	光電	
Optical Laboratory Based on Liquid Crystal		Photonics	
on Silicon			1 表 1 / 5 4 2 2 2 2 2 2
模組六:感測與顯示			1電物系[半導體物理
Module 6: Sensing and Display	2	1. E	及元件]和光電系[半
半導體元件及物理1	3	光電	導體元件及物理]請
Semiconductor Devices & Physics ¹	_	Photonics	擇一修習
顯示電子電路	3	光電	To avoid repetition, please
Electronic Circuits for Display		Photonics	only choose one of the
新穎半導體電晶體與感測器		光電	following two courses:
New Semiconductor Transistors and Sensors	3	Photonics	[Semiconductor Physics
			and Devices]
			(Electrophysics) and [Semiconductor Devices
			and Physics] (Photonics)
模組七:材料結構與鑑定			ma i njereoj (i novemeo)
Module 7: Structure Characterization			
of Materials			
材料科學與工程導論 (一)	3	材料	
Introduction to Materials Science and		Material	
Engineering (I)		1/10/01/01	
晶體結構與繞射導論	3	材料	
Introduction to Crystallography and		Material	
Diffraction		Material	
	3	材料	
材料微觀結構分析			
Microstructural Characterization of Materials		Material	
模組八:材料製造			
Module 8: Fabrication of Materials			
材料工程實驗(一)	2	材料	
Advanced Materials Labs. (I)		Material	
材料基礎實驗(一)	2	材料	
Elementary Materials Labs. (I)		Material	
材料基礎實驗(二)	2	材料	
Elementary Materials Labs. (II)		Material	
半導體製程	3	材料	
Semiconductor Processing		Material	
模組九:材料特性			
Module 9: Properties of Materials			
_	3	材料	
材料機械性質		Material	
Mechanical Behavior of Metal	3		
材料物理性質		材料 Matarial	
Physical Properties of Materials	3	Material	
電子材料	3	材料	
Electronic Materials		Material	
模組十:生醫工程			

Module 10: Biomedical Engineering		
智慧生醫概論	3	電物
Introduction of Smart Biomedicine		Electrophysics
生醫光子學導論	3	光電
Introduction to Biophotonics		Photonics
奈米生醫材料簡介	3	材料
Introduction to Nano-Biomaterials		Material
總學分 Total	28	

※ 修課條件:Requirements:

1. 必選學分(16-18 學分): 自選三個模組,此三個模組的每個模組需至少修畢兩門課程,共六門必選課程。

Required courses (16-18 credits): Choose 3 modules from the 10 to serve as the required modules. Take 2 courses in every required module.

2. 其餘學分可從十個模組的課程中自由選擇。

Optional courses: for the remaining credits, freely choose among the 10 modules.

3. 滿足上述條件並修滿 28 學分則完成此跨域學程。

The cross-disciplinary program is completed after acquiring total 28 credits and satisfying the two conditions above.