C 表 113 學年度 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

110 年 12 月 2 日校級課程委員會議通過
110 年 12 月 16 日教務會議核備通過
113 年 5 月 20 日校級課程委員會議通過
115 年 5 月 14 日校級課程委員會議通過

類別 Category	科目名稱 Course Name	學分 Credit	開課系所 Department	備註 Remark
三一學程跨域模組（28 學分） Cross-disciplinary modules in Three-in-one program （28 credits） 修畢於畢業證書加註「跨域專長：三一學程(電子物理/光電/材料)」 It could be remarked as "Cross-Disciplinary Specialty: Three-in-one (Electrophysics/Photonics/Material)" on the diploma after the module curriculum is completed.	**模組一：理論與計算物理** **Module 1: Theoretical and Computational Physics** 近代物理(一) Modern Physics (I) 量子力學導論 Int. to Quantum Mechanics 計算物理 Computational Physics	3 3 3	電物 Electrophysics 電物 Electrophysics 電物 Electrophysics	
	模組二：半導體及量子科技 **Module 2: Semiconductor and Quantum technology** 近代物理(一) Modern Physics (I) 半導體物理及元件 [1] Semiconductor Physics and Devices[1] 固態物理(一) Solid State Physics (I) 電子實驗 Electronics Labs.	3 3 3 2	電物 Electrophysics 電物 Electrophysics 電物 Electrophysics 電物 Electrophysics	[1] 電物系[半導體物理及元件]和光電系[半導體元件及物理]請擇一修習 To avoid repetition, please only choose one of the following two courses: [Semiconductor Physics and Devices] (Electrophysics) and [Semiconductor Devices and Physics] (Photonics)
	模組三：雷射與光電科技 Module 3:Laser and Optoelectronics technology 電磁學(一) Electromagnetics (I) 基礎光學 Introduction to Optics 雷射導論 Introduction to Laser 實驗物理 Experimental Physics	3 3 3 2	電物 Electrophysics 電物 Electrophysics 電物 Electrophysics 電物 Electrophysics	
	模組四：智慧光源 **Module 4: Intelligent Light Source** 光子學(一) Elements of Photonics (I) 近代物理 [2] Modern Physics 材料光學 Optical Properties of Materials	3 3 3	光電 Photonics 光電 Photonics 光電	[2] 修電物系[近代物理(一)]等同於光電系[近代物理] [Modern Physics] (Photonics) is the same as [Modern Physics (I)] (Electrophysics)

	智慧光源科技與半導體實作 Introduction to semiconductor experiments on smart photon sources	3	Photonics 光電 Photonics	
	模組五：光設計與光調變 **Module 5 : Light Design and Modulation** 光子學(一) Elements of Photonics (I) 光學設計與像差理論 Optical design and aberration 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	 3 3 3 3	 光電 Photonics 光電 Photonics 光電 Photonics 光電 Photonics	
	模組六：感測與顯示 **Module 6: Sensing and Display** 半導體元件及物理 [1] Semiconductor Devices & Physics[1] 顯示電子電路 Electronic Circuits for Display 新穎半導體電晶體與感測器 New Semiconductor Transistors and Sensors	 3 3 3	 光電 Photonics 光電 Photonics 光電 Photonics	[1] 電物系[半導體物理及元件]和光電系[半導體元件及物理]請擇一修習 To avoid repetition, please only choose one of the following two courses: [Semiconductor Physics and Devices] (Electrophysics) and [Semiconductor Devices and Physics] (Photonics)
	模組七：材料結構與鑑定 **Module 7: Structure Characterization of Materials** 材料科學與工程導論 (一) Introduction to Materials Science and Engineering (I) 晶體結構與繞射導論 Introduction to Crystallography and Diffraction 材料微觀結構分析 Microstructural Characterization of Materials	 3 3 3	 材料 Material 材料 Material 材料 Material	
	模組八：材料製造 **Module 8: Fabrication of Materials** 材料工程實驗(一) Advanced Materials Labs. (I) 材料基礎實驗(一) Elementary Materials Labs. (I) 材料基礎實驗(二) Elementary Materials Labs. (II) 半導體製程 Semiconductor Processing	 2 2 2 3	 材料 Material 材料 Material 材料 Material 材料 Material	
	模組九：材料特性 **Module 9: Properties of Materials** 材料機械性質 Mechanical Behavior of Metal	 3	 材料 Material	

	材料物理性質 Physical Properties of Materials	3	材料 Material	
	電子材料 Electronic Materials	3	材料 Material	
	模組十：生醫工程 **Module 10: Biomedical Engineering**			
	智慧生醫概論 Introduction of Smart Biomedicine	3	電物 Electrophysics	
	生醫光子學導論 Introduction to Biophotonics	3	光電 Photonics	
	奈米生醫材料簡介 Introduction to Nano-Biomaterials	3	材料 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.