



課 綱 Course Outline
物理學系物理組

中文課程名稱 Course Name in Chinese	實驗物理技術(一)				
英文課程名稱 Course Name in English	Experimental Techniques in Physics (I)				
科目代碼 Course Code	PHYS31100	班 別 Degree	學士班 Bachelor' s		
修別 Type	學程 Program	學分數 Credit(s)	3.0	時 數 Hour(s)	3.0
先修課程 Prerequisite					
課程目標 Course Objectives					
學習實驗物理技術之原理及實際操作，結合理論及實務，設計及完成物理專題實驗，培養以物理實驗技術解決實際問題之能力。					
系教育目標 Dept.'s Education Objectives					
1	物理科學人才培育，奠定物理及相關科學領域專業知識 To provide integrated education programs in view of fundamental knowledge of physical sciences and associated fields				
2	培養高科技人才 To train the talent for knowledge-intensive industries.				
3	培養繼續進修的理工人才 To train the talent for taking higher educational program in physical sciences.				
系專業能力 Basic Learning Outcomes				課程目標與系專業能力相關性 Correlation between Course Objectives and Dept.' s Education Objectives	
A	具備物理之基礎背景知識 Possessing fundamental knowledge in physical sciences.			●	
B	能運用基本物理知識與邏輯推理，分析解決物理問題 Being able to analyze and solve physics problems based on basic knowledge in physics as well as logical reasoning.			○	
C	對目前測量器材有基礎認識，且具有操作物理實驗儀器的能力 Being acquainted with modern equipment and being able to operate them for performing physics experiments.			●	

D	能使用基礎電腦程式語言解決物理問題 Being able to use basic computer programming for solving physics problems	●
E	善用各種資訊平台進行論文資料蒐集的能力 Being able to use various platforms for data collection benefiting a topical research.	
F	具備科技發展的國際視野以及外語溝通的能力 Having an international view of the technology developments and being able to use a foreign language for communications.	
G	能整合物理與其它領域知識 Being able to integrate the knowledge of physics with that of other fields.	●

圖示說明Illustration：● 高度相關 Highly correlated ○ 中度相關 Moderately correlated

課程大綱 Course Outline

1. 實驗儀控軟體 Labview 程式
2. 類比/數位轉換 (A/D, D/A)
3. 數據擷取 (DAQ) 與回饋控制 (Feedback Control)
4. 儀器控制 (GPIB, RS-232)
5. 實驗數據分析方法 (Data Analysis)
6. 3D物件設計與製作 (3D Printing)
7. 真空概論 (Vacuum, Basic Concepts)
8. 真空設備原理 (Vacuum Equipments)
9. 真空系統 (Vacuum System)
10. 專題報告

資源需求評估 (師資專長之聘任、儀器設備的配合 . . . 等)
Resources Required (e.g. qualifications and expertise, instrument and equipment, etc.)

具有各領域之專業師資、投影機、Labview軟體、實驗所需之儀器設備。

課程要求和教學方式之建議 Course Requirements and Suggested Teaching Methods

原理教學、實驗指導、實務觀摩、作業、考試、專題成果報告。

其他 Miscellaneous