



課 綱 Course Outline  
物理學系物理組

|                                        |                                                                                                                                                  |                  |                    |                                                                                          |     |
|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------------|------------------------------------------------------------------------------------------|-----|
| 中文課程名稱<br>Course Name in Chinese       | 量子物理(二)                                                                                                                                          |                  |                    |                                                                                          |     |
| 英文課程名稱<br>Course Name in English       | Introduction to Quantum Physics (II)                                                                                                             |                  |                    |                                                                                          |     |
| 科目代碼<br>Course Code                    | PHYS30800                                                                                                                                        | 班 別<br>Degree    | 學士班<br>Bachelor' s |                                                                                          |     |
| 修別<br>Type                             | 學程<br>Program                                                                                                                                    | 學分數<br>Credit(s) | 3.0                | 時 數<br>Hour(s)                                                                           | 3.0 |
| 先修課程<br>Prerequisite                   | 電磁學、力學、應用數學                                                                                                                                      |                  |                    |                                                                                          |     |
| 課程目標<br>Course Objectives              |                                                                                                                                                  |                  |                    |                                                                                          |     |
| 介紹量子物理學的基本觀念與其應用。                      |                                                                                                                                                  |                  |                    |                                                                                          |     |
| 系教育目標<br>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<br>To provide integrated education programs in view of fundamental knowledge of physical sciences and associated fields |                  |                    |                                                                                          |     |
| 2                                      | 培養高科技人才<br>To train the talent for knowledge-intensive industries.                                                                               |                  |                    |                                                                                          |     |
| 3                                      | 培養繼續進修的理工人才<br>To train the talent for taking higher educational program in physical sciences.                                                   |                  |                    |                                                                                          |     |
| 系專業能力<br>Basic Learning Outcomes       |                                                                                                                                                  |                  |                    | 課程目標與系專業能力相關性<br>Correlation between Course Objectives and Dept.' s Education Objectives |     |
| A                                      | 具備物理之基礎背景知識<br>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<br>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<br>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<br>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<br>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<br>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<br>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<br>Course Outline                                                                                                                           |                                                                                                                                                  |  |
| 1. Angular momentum<br>2. The hydrogen atom<br>3. Spin and spin-orbital interaction<br>4. The Zeeman effect<br>5. Identical particles<br>6. Atom |                                                                                                                                                  |  |
| 資源需求評估（師資專長之聘任、儀器設備的配合．．．等）<br>Resources Required (e.g. qualifications and expertise, instrument and equipment, etc.)                            |                                                                                                                                                  |  |
| 具有各領域之專業師資、相關期刊及圖書、影印機、投影機、幻燈機。                                                                                                                  |                                                                                                                                                  |  |
| 課程要求和教學方式之建議<br>Course Requirements and Suggested Teaching Methods                                                                               |                                                                                                                                                  |  |
| 講授、討論、作業、小考、期中及期末考。                                                                                                                              |                                                                                                                                                  |  |
| 其他<br>Miscellaneous                                                                                                                              |                                                                                                                                                  |  |
|                                                                                                                                                  |                                                                                                                                                  |  |