課程概述 Course Description

課程代碼 Course Code	中文課程名稱 Course Name(Chinese)	英文課程名稱 Course Name(Chinese)	總學分數 Credits	總時數 Hours	冊別 Hours
03226	近代物理	Modern Physics	3	3	1
中文概述 Chinese Description	從黑體輻射之頻譜分析開始，引入量子化的概念；進而推出物質與波動之二象性。經由波爾之半古典的氫原子模型，結合量子化的概念以解釋原子結構，並引入薛丁格方程式所求得之波函數與電子之空間機率的關係。再由原子進而推廣至分子及固態物理之能帶理論，應用能帶理論於解釋固態晶體之光、電及熱學等特性，並介紹半導體之應用的基本原理。				
英文概述 English Description	From the analysis of the spectrum of black-body radiation, the concept of quantization is introduced and the duality of matter and wave is also introduced. Combining the idea of quantization and the semi-classical hydrogen model of Bohr, the structure of atom is described. Solving the Schrodinger equation, the deduced wave function is related to the probability of finding the electron in space. The concept of atom is expanded to the molecular and the energy band theory of solid state physics. The energy band theory of solid state physics is applied to account the optical, electrical and thermal properties of solid states, also the fundamental principles of semiconductors are introduced.				