碩士學分班第 25 期(106 學年度第二學期)課程大綱表

上課時間/地點	課程名稱	授課教師	課程大綱	學分數
107/2/26~107/6/29 每週一 **18:20~21:00**	繞射原理	吳宗明老師	01. Introduction: History of X-Ray. The continuous and characteristic spectrum. 02. Filters. Production of X-ray. Detection of X-ray. 03. Crystal lattices. Miller Indices and Reciprocal Lattices. 04. Crystal Systems. Symmetry Operation and Point Groups. 05. Bragg's Law. Diffraction Methods. 06. Scattering Theories. Structural Factor Calculations (1) 07. Structural Factor Calculations (2) 08. Other Factors that may contribute to diffraction. Intensity. 09. Diffraction from real samples: crystallite size,residual strains, amorphous samples. 10. Diffractometry (1) 11. Diffractometry (2) 12. Phase identification: methods and practices.	**3** 學分 **(54** 小時**)**

			13. Phase identification: lab demonstration. 14. Determination of crystal structure. 15. Precise parameter measurements. 16. Structure of polycrystalline aggregates. 17. Stress measurement. 18. Concluding remarks.	
107/2/26~107/6/29 每週二 **18:20~21:00**	光電材料與元件	薛顯宗老師	1. Introduction to electro-optic materials and application. 2. Optical properties. 3. Key optoelectronic Devices 4. Amorphous Si - optoelectronic applications. 5. Phosphors and Luminescence. 6. Xerographic Photoreceptors. 7. Principles of Nonliear Optical Response. 8. Nonlinear Waveguides. 9. Materials for Nonlinear Optical Signal processing. 10. Electro-optical effects in Liquid crystals.	**3** 學分 **(54** 小時**)**
107/2/26~107/6/29 每週三 **18:20~21:00**	生醫材料	顏秀崗老師	01 生醫材料簡介 02 材料的結構 03 材料之特性 04 金屬植入材料 05 生醫陶瓷 06 聚合體植入材料 07 Oral presentation and discussion including midterm report 08 Oral presentation and discussion including midterm report 09 Oral presentation and discussion including midterm report	**3** 學分 **(54** 小時**)**

			10 骨科植入材料 11 齒科材料 12 軟組織植入材料 13 植入材料之病理學反應 14 細胞培養 15 動物植入 16 Oral presentation and discussion including terminal report 17 Oral presentation and discussion including terminal report 18 Oral presentation and discussion including terminal report	
107/2/26~107/6/29 每週四 **18:20~21:00**	電子顯微鏡原理	武東星老師	01 Microscopy with light and electrons I 02 Microscopy with light and electrons II 03 Electron-specimen interactions: processes and detectors I 04 Electron-specimen interactions: processes and detectors II 05 The electron microscope family I 06 The electron microscope family II 07 Specimen preparation for electron microscopy I 08 Specimen preparation for electron microscopy II 09 Midterm exam 10 The interpretation and analysis of micrographs I 11 The interpretation and analysis of micrographs II 12 Analysis in the electron microscope I 13 Analysis in the electron microscope II 14 Specialised EM- and other microscopical and analytical techniques I 15 Specialised EM- and other microscopical and analytical	**3** 學分 **(54** 小時**)**

			techniques II 16 Examples of the use of electron microscopy I 17 Examples of the use of electron microscopy II 18 Final Oral Exam 17. Martensite Reactions 18. Final Examination	