

碩士學分班第 33 期(110 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
<p>111/2/14~111/6/17</p> <p style="color: red;">每週一</p> <p>18:20~21:00</p>	<p>繞射原理</p>	<p>吳宗明老師</p>	<p>01. Introduction: History of X-Ray. The continuous and characteristic spectrum.</p> <p>02. Filters. Production of X-ray. Detection of X-ray.</p> <p>03. Crystal lattices. Miller Indices and Reciprocal Lattices.</p> <p>04. Crystal Systems. Symmetry Operation and Point Groups.</p> <p>05. Bragg's Law. Diffraction Methods.</p> <p>06. Scattering Theories. Structural Factor Calculations (1)</p> <p>07. Structural Factor Calculations (2)</p> <p>08. Other Factors that may contribute to diffraction. Intensity.</p> <p>09. Diffraction from real samples: crystallite size, residual strains, amorphous samples.</p> <p>10. Diffractometry (1)</p> <p>11. Diffractometry (2)</p> <p>12. Phase identification: methods and practices.</p>	<p>3 學分</p> <p>(54 小時)</p>

			<ul style="list-style-type: none"> 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. 	
111/2/14~111/6/17 每週二 18:20~21:00	奈米材料性能檢測	林克偉老師	<ul style="list-style-type: none"> 01. Introduction 02. Optical methods 03. Interferometry 04. Ellipsometry 05. Mechanical techniques 06. Scanning electron microscopy 07. Transmission electron microscopy 08. X-ray Diffraction 09. Scanning probe microscopy 10. Midterm exam 11. Auger electron spectroscopy 12. X-ray photoelectron spectroscopy I 13. X-ray photoelectron spectroscopy II 14. Rutherford backscattering 15. Secondary-ion mass spectroscopy 16. X-ray energy dispersive analysis 17. Final presentation I 18. Final presentation II 	3 學分 (54 小時)
111/2/14~111/6/17	奈米製程	薛涵宇老師	1.製程原理簡介	3 學分

<p style="text-align: center;">每週三 18:20~21:00</p>			<p>2.製程 (1)零維結構 (2)一維結構 (3)二維結構 (4)複合結構</p> <p>3.實作 (1)文獻分析 (2)實驗設計與進行 (3)報告討論</p>	<p style="text-align: right;">(54 小時)</p>
<p style="text-align: center;">111/2/14~111/6/17 每週四 18:20~21:00</p>	<p style="text-align: center;">電子顯微鏡原理</p>	<p style="text-align: center;">劉恒睿老師</p>	<p>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 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</p>	<p style="text-align: right;">3 學分 (54 小時)</p>

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