

碩士學分班第 31 期(109 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
110/2/22~110/6/25 每週一 18:20~21:00	薄膜製程	林佳鋒老師	01. Kinetic theory of gas 02. Vacuum system 03. Thin-film evaporation process 04. Film thickness uniformity and purity / Operation#1 05. Physics of sputtering 06. Plasma and ion beam processing of thin-film / Operation#2 07. Midterm exam 08. DC,AC, and reactive sputtering processes / Operation#3 09. Plasma etching 10. Midterm exam / Operation#4 11. CVD introduction 12. Thermodynamics of CVD / Operation#5 13. An atomic view of substrate surfaces 14. Thermodynamic aspects of nucleation / Operation#6 15. Kinetic process in nucleation and growth 16. Experimental studies of nucleation and growth 17. Final presentation 18. Final presentation	3 學分 (54 小時)
110/2/22~110/6/25 每週二 18:20~21:00	高等元件物理	賴盈至老師	01. Review of Basic Semiconductor Device Physics 02. Memory devices 03. Thin film transistor devices for LCD	3 學分 (54 小時)

			<p>04. High speed devices</p> <p>05. Mid-Term Examination</p> <p>06. Advanced light-emitting devices</p> <p>07. Advanced photovoltaic devices</p> <p>08. Advanced optoelectronic devices</p> <p>09. End-Term Examination</p>	
<p>110/2/22~110/6/25</p> <p>每週三</p> <p>18:20~21:00</p>	<p>繞射原理</p>	<p>顏秀崗老師</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>3 學分</p> <p>(54 小時)</p>

			<ul style="list-style-type: none"> 11. Diffractometry (2) 12. Phase identification: methods and practices. 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. 	
<p>110/2/22~110/6/25 每週六 18:20~21:00</p>	<p>電子顯微鏡原理</p>	<p>許薰丰老師</p>	<ul style="list-style-type: none"> 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 techniques II 	<p>3 學分 (54 小時)</p>

			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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