

碩士學分班第 28 期(108 學年度第一學期)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
108/9/9~109/1/10 每週一 18:20~21:00	高分子物理性質	吳宗明老師	01. Introduction 02. Polymer chain conformation I 03. Polymer chain conformation II 04. Polymer chain conformation III 05. Molecular weights determination 06. Transition temperature 07. Polymer morphology I 08. Polymer morphology II 09. Polymer morphology III 10. Mid-term Exam. 11. Crystallization of polymer 12. Polymer analysis I 13. Polymer analysis II 14. Polymer rheology and viscoelasticity I 15. Polymer rheology and viscoelasticity II 16. Polymer mechanical properties I 17. Polymer mechanical properties II 18. Final Exam.	3 學分 (54 小時)
108/9/9~109/1/10 每週二 18:20~21:00	固態熱力學	林佳鋒老師	01. The First Law of Thermodynamics 02. The Second Law of Thermodynamics 03. Statistical Thermodynamics	3 學分 (54 小時)

			<p>04. Auxiliary Function</p> <p>05. The Third Law of Thermodynamics</p> <p>06. Heat Capacity, Enthalpy, Entropy</p> <p>07. Heat Capacity, Enthalpy, Entropy</p> <p>08. Some Relations Between Thermodynamic Quantities</p> <p>09. Some Relations Between Thermodynamic Quantities</p> <p>10. Midterm Exam</p> <p>11. Free Energy of Heterogeneous Reactions</p> <p>12. Free Energy of Heterogeneous Reactions</p> <p>13. Solutions</p> <p>14. The Quasichemical Approach to Solutions</p> <p>15. Equilibrium Between Phases of Variable Composition</p> <p>16. Equilibrium Between Phases of Variable Composition</p> <p>17. Free Energy of Binary Systems</p> <p>18. Final Exam</p>	
<p>108/9/9~109/1/10</p> <p>每週三</p> <p>18:20~21:00</p>	<p>繞射原理</p>	<p>蔡佳霖老師</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.</p>	<p>3 學分</p> <p>(54 小時)</p>

			<p>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>13. Phase identification: lab demonstration.</p> <p>14. Determination of crystal structure.</p> <p>15. Precise parameter measurements.</p> <p>16. Structure of polycrystalline aggregates.</p> <p>17. Stress measurement.</p> <p>18. Concluding remarks.</p>	
<p>108/9/9~109/1/10 每週四 18:20~21:00</p>	<p>薄膜製程</p>	<p>劉恒睿老師</p>	<p>01. Kinetic theory of gas</p> <p>02. Vacuum system</p> <p>03. Thin-film evaporation process</p> <p>04. Film thickness uniformity and purity / Operation#1</p> <p>05. Physics of sputtering</p> <p>06. Plasma and ion beam processing of thin-film / Operation#2</p> <p>07. Midterm exam</p> <p>08. DC, AC, and reactive sputtering processes / Operation#3</p>	<p>3 學分 (54 小時)</p>

			<ul style="list-style-type: none">09. Plasma etching10. Midterm exam / Operation#411. CVD introduction12. Thermodynamics of CVD / Operation#513. An atomic view of substrate surfaces14. Thermodynamic aspects of nucleation / Operation#615. Kinetic process in nucleation and growth16. Experimental studies of nucleation and growth17. Final presentation18. Final presentation	
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