

材料科學與工程學系碩士學分班第 18 期(103 學年度第 1 學期)課程大綱

上課日期/時間	課程名稱	授課教師	課程大綱	學分數
9/15~1/16 每週一 18:20~21:00	固態熱力學	薛顯宗老師	01 The First Law of Thermodynamics (第 1 週) 02 The Second Law of Thermodynamics (第 2 週) 03 Statistical Thermodynamics (第 3 週) 04 Auxiliary Function (第 4 週) 05 The Third Law of Thermodynamics (第 5 週) 06 Heat Capacity, Enthalpy, Entropy (第 6.7 週) 07 Some Relations Between 8 Thermodynamic Quantities (第 8.9 週) 08 Midterm Exam Midterm Exam(第 10 週) 09 Free Energy of Heterogeneous Reactions (第 11.12 週) 10 Solutions(第 13 週) 11 The Quasichemical Approach to Solutions(第 14 週) 12 Equilibrium Between Phases of Variable Composition (第 15.16 週) 13 Free Energy of Binary Systems(第 17 週) 14 Final Exam(第 18 週)	3 學分 (54 小時)
9/15~1/16 每週一 18:20~21:00	高分子物理 性質	吳宗明老師	01 Introduction(第 1 週) 02 Polymer chain conformation (第 2.3.4 週) 03 Molecular weights determination(第 5 週) 04 Transition temperature(第 6 週) 05 Polymer morphology (第 7.8.9 週) 06 Mid-term Exam.(第 10 週) 07 Crystallization of polymer(第 11 週)	3 學分 (54 小時)

			<p>08 Polymer analysis (第 12.13 週)</p> <p>09 Polymer rheology and viscoelasticity (第 14.15 週)</p> <p>10 Polymer mechanical properties (第 16.17 週)</p> <p>11 Final Exam.(第 18 週)</p>	
<p>9/15~1/16</p> <p>每週二</p> <p>18:20~21:00</p>	<p>高等物理冶</p> <p>金</p>	<p>宋振銘老師</p>	<p>01 Crystal Structures</p> <p>02 Introduction to Dislocations</p> <p>03 Dislocations and Plastic Deformation</p> <p>04 Grain Boundaries</p> <p>05 Vacancies</p> <p>06 Annealing</p> <p>07 Solid Solutions</p> <p>08 Phases</p> <p>09 Midterm Examination</p> <p>10 Binary Phase Diagrams</p> <p>11 Substitutional Diffusion</p> <p>12 Interstitial Diffusion</p> <p>13 Solidification of Metals</p> <p>14 Nucleation and Growth Kinetics</p> <p>15 Precipitation Hardening</p> <p>16 Deformation Twinning</p> <p>17 Martensite Reactions</p> <p>18 Final Examination</p>	<p>3 學分</p> <p>(54 小時)</p>

<p>9/15~1/16 每週四 18:20~21:00</p>	<p>磁性材料</p>	<p>蔡佳霖老師</p>	<p>01 簡介 a.定義及單位 b.實驗方法 02 磁性的種類 03 磁性的現象 04 商業磁性材料</p>	<p>3 學分 (54 小時)</p>
<p>9/15~1/16 每週五 18:20~21:00</p>	<p>薄膜製程</p>	<p>林克偉老師</p>	<p>01 Preparation and overview 02 Introduction 03 Nanofabrication by Photons (第 3.4.5 週) 04 Nanofabrication by Charged Beams (第 6.7.8 週) 05 Nanofabrication by Scanning Probes (第 9.10.11 週) 06 Midterm Presentation(第 12.13 週) 07 Nanofabrication by Replication (第 14.15.16 週) 08 One-dimensional nanostructures 09 Final Examination</p>	<p>3 學分 (54 小時)</p>