



課 綱 Course Outline
材料科學與工程學系學士班

中文課程名稱 Course Name in Chinese	相變態導論				
英文課程名稱 Course Name in English	Introduction to Phase Transformation				
科目代碼 Course Code	MS_40500	班 別 Degree	學士班 Bachelor's		
修別 Type	學程 Program	學分數 Credit(s)	3.0	時 數 Hour(s)	3.0
先修課程 Prerequisite	無				
課程目標 Course Objectives					
簡介相變態之基礎理論及原理 This course will enable students to gain a thorough knowledge of the theory, mechanism and causes of phase changes in materials for research purposes.					
系教育目標 Dept.'s Education Objectives					
1	奠定理論基礎 Set the theoretical foundation				
2	訓練實用技能 Train the practical skill				
3	培養優質人格 Form the positive character				
4	啟發創新思 Promote creative thinking				
5	開展國際視野 Develop global vision				
系專業能力 Basic Learning Outcomes				課程目標與系專業能力相關性 Correlation between Course Objectives and Dept.'s Education Objectives	
A	具備材料科學所需的物理、化學及數學的知識。 Acquire required basic physical, chemical, and mathematic knowledge for materials science and engineering.			●	
B	具備材料科學的專業知識，並能應用於解決工程上之問題。 Acquire required professional knowledge for materials science and engineering, applicable in solving engineering problems.			●	

C	具備邏輯思考、實驗執行、報告撰寫與數據解釋之能力。 Equipped with capabilities of logic thinking, execution of experiment, and data interpretation.	
D	具備專業道德及責任感，與良好的溝通及團隊合作的能力。 Acquire professional morality and responsibility, and capability of quality communication and team cooperation	○
E	具備適當的英文能力，應用於學習與交流。 Acquire English capability used for learning and interaction	○
圖示說明Illustration：● 高度相關 Highly correlated ○ 中度相關 Moderately correlated		
課程大綱 Course Outline		
說明各種相圖、擴散、晶體介面與微結構、固化、擴散型相變態、非擴散型相變態，簡介各種鋼鐵材料中相變態之分類及成因、析出物之成長動力學及案例研討。使修習者能夠瞭解於冶金中各種相變態之基礎理論。 This course covers: introduction to phase transition types, homogeneous nucleation, heterogeneous nucleation, microstructure, interfacial properties, solidification and precipitation, etc.		
資源需求評估（師資專長之聘任、儀器設備的配合．．．等） Resources Required (e.g. qualifications and expertise, instrument and equipment, etc.)		
具冶金專長之師資 Teachers with expertise in the courses offered; computers for data organization, copy machines, projectors.		
課程要求和教學方式之建議 Course Requirements and Suggested Teaching Methods		
課堂講授為主。 Classroom lectures.		
其他 Miscellaneous		