

課程名稱 (course name)	(中) 電子顯微鏡原理(N94003)				
	(Eng.) Principles of Electron Microscopy				
開課系所班級 (dept. & year)	材料系碩專班	學分 (credits)	3	授課教師 (teacher)	林克偉
課程類別 (course type)	<input type="checkbox"/> 必修(Mandatory) <input checked="" type="checkbox"/> 選修(Elective)	授課語言 (language)	中文	開課學期 (semester)	下學期
課程簡述 (course description)	(中) 本書介紹電子顯微鏡原理，包括電子與試片之交互作用，試片準備，分析及實例介紹等。				
	(Eng.) To understand the electron microscopy in a simple way, to students who may never see an electron microscope but who need to know what these instruments are and how they perform.				
先修課程名稱 (prerequisites)					
課程目標與核心能力關聯配比(%) (relevance of course objectives and core learning outcomes)			課程目標之教學方法與評量方法 (teaching and assessment methods for course objectives)		
課程目標(中/ Eng.)	核心能力	配比(%)	教學方法	評量方法	
本課程目的在使學生瞭解電子顯微鏡原理，包括電子與試片之交互作用，試片準備，分析及實例介紹等。 To understand the electron microscopy in a simple way, to students who may never see an electron microscope but who need to know what these instruments are and how they perform.	<input checked="" type="checkbox"/> 1.特定材料之專業知識	50	講授 實作	作業 測驗	
	<input type="checkbox"/> 2.精進專題研究之能力				
	<input type="checkbox"/> 3.撰寫專業論文之能力				
	<input checked="" type="checkbox"/> 4.創新思考、解決問題與終身學習之能力	50			
	<input type="checkbox"/> 5.跨領域協調整合之能力				
	<input type="checkbox"/> 6.國際觀、產業發展及綠色材料知識				
	<input type="checkbox"/> 7.領導、管理及規劃之能力				
	<input type="checkbox"/> 8.學術專業倫理				
授課內容(單元名稱與內容、習作/考試進度、備註) (course content and homework/ tests schedule)					
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 I					

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

學習評量方式

(evaluation)

(1) Homework assignment: 10%

(2) Midterm: 30%

(3) Final oral presentation: 40%

(4) Quiz: 10%

(5) Operation exam: 10%

作業/小考 (Homework/Quiz) :

培養同學平日課後複習的習慣以及思考問題的能力。

期中/期末考 (Midterm/Final exam) :

目的在評估學生對課堂講授資料的了解程度。

操作考試 (Operation exam) :

由助教講解陪同下讓學生有上機之機會，目的為培養學生之實作經驗。

教科書&參考書目 (書名、作者、書局、代理商、說明)

(textbook& other references)

The principles and practice of electron microscopy, Ian M. Watt, Cambridge University, 1997. 中興大學圖書館

課程教材 (教師個人網址請列在本校內之網址。)

(teaching aids & teacher's website)

Power point files.

課程輔導時間(office hours)

星期五下午 2:00~4:00