國立東華大學

教學計劃表 Syllabus

課程名稱(中文) Course Name in Chinese	材料分析			學年/學期 Academic Year/Semester	114/2
課程名稱(英文) Course Name in English	Materials Characterization				
科目代碼 Course Code	MS__40000	系級 Department & Year	學三	開課單位 Course-Offering Department	材料科學與工程學系
修別 Type	學程 Program	學分數/時間 Credit(s)/Hour(s)	3.0/3.0		
授課教師 Instructor	/田禮嘉				
先修課程 Prerequisite					

課程描述 Course Description

This course introduces students to the basics of materials characterization. It will cover latest advanced technologies with fundamental mathematics, chemistry and physics concepts. The lectures also provide a more realistic picture of materials characterization.

課程目標 Course Objectives

簡介各種材料分析之原理及方式。
Introduction to the principles and methods of various material analysis.

圖示說明Illustration ：● 高度相關 Highly correlated ○中度相關 Moderately correlated

授 課 進 度 表 Teaching Schedule & Content

週次Week	內容 Subject/Topics	備註Remarks
1	Concepts of Materials Characterization	
2	Concepts of Materials Characterization	
3	Principles of optical microscopy	
4	Principles of optical microscopy	
5	Introduction to Spectroscopy	
6	Photoluminescence (PL)	
7	UV-Vis Absorption Spectroscopy (UV/Vis)	
8	Cathodoluminescence (CL) Raman Spectroscopy (Raman)	
9	期中考試週 Midterm Exam (4/22)	
10	SEM	
11	SEM	
12	EDS/WDS	
13	TEM	
14	XRD	
15	XRD	

16	XRD	
17	期末考試週 Final Exam (6/17)	
18	補充教學	

教 學 策 略 Teaching Strategies

☑ 課堂講授 Lecture ☐ 分組討論Group Discussion ☐ 參觀實習 Field Trip

☐ 其他Miscellaneous:

教 學 創 新 自 評 Teaching Self-Evaluation

創新教學(Innovative Teaching)

☐ 問題導向學習(PBL) ☑ 團體合作學習(TBL) ☐ 解決導向學習(SBL)

☐ 翻轉教室 Flipped Classroom ☐ 磨課師 Moocs

社會責任(Social Responsibility)

☐ 在地實踐Community Practice ☐ 產學合作 Industy-Academia Cooperation

跨域合作(Transdisciplinary Projects)

☐ 跨界教學Transdisciplinary Teaching ☐ 跨院系教學Inter-collegiate Teaching

☐ 業師合授 Courses Co-taught with Industry Practitioners

其它 other:

學期成績計算及多元評量方式 Grading & Assessments									
配分項目 Items	配分比例 Percentage	多元評量方式 Assessments							
		測驗 會考	實作 觀察	口頭 發表	專題 研究	創作 展演	卷宗 評量	證照 檢定	其他
平時成績(含出缺席) General Performance (Attendance Record)									
期中考成績 Midterm Exam	35%	✓							
期末考成績 Final Exam	35%	✓							
作業成績 Homework and/or Assignments									
其他 Miscellaneous (Team-Based Oral Presentation)	30%			✓					

評量方式補充說明
Grading & Assessments Supplemental instructions

教科書與參考書目（書名、作者、書局、代理商、說明）
Textbook & Other References (Title, Author, Publisher, Agents, Remarks, etc.)

Required Textbook:
Materials Characterization: Introduction to Microscopic and Spectroscopic Methods, Yang Leng, John Wiley & Sons 2008. ISBN: 978-0-470-82298-2
Suggested References:
Scanning Electron Microscopy and X-Ray Microanalysis J. Goldstein, Kluwer Academic/ Plenum Publishers, 2003
Physical Methods for Materials Characterization, P. E. Flewitt and R. K. Wild, IOP, 1994
Encyclopedia of Materials Characterization, C. R. Brundle, C. A. Evans and S. Wilson, Manning, 1992

課程教材網址(含線上教學資訊,教師個人網址請列位於本校內之網址)
Teaching Aids & Teacher's Website(Including online teaching information. Personal website can be listed here.)

課程雲端資料夾：MS Teams，依照課程代碼加入。

其他補充說明 (Supplemental instructions)