國立中興大學教學大綱

課程名稱 (course name)	(中) 奈米製造技術					
	(Eng.) Nano Fabrication Technology					
開課系所班級 (dept. & year)		學分 (credits)	3		授課教師 (teacher)	
課程類別 (course type)	□必修 ■選修	授課語言 (language)	中		開課學期 (semester)	
課程目標 (course objectives)	(中)使學生瞭解奈米製造的方法與原理					
	(Eng.) To improve students' understanding of methods and principles of nano fabrication					
課程簡述 (course description)	(中) 講授奈米結構與元件的製造技術，包括由大作小(Top-down)及由小做大(bottom-up)的製造概念。首先由半導體製造技術為出發點，介紹微影，蝕刻，壓印等新穎製造技術。並介紹以掃瞄探針術，奈米自組裝等可實行大面積的由小做大製造技術。					
	(Eng.)The lecture introduces nano fabrication technologies, starting from top-down semiconductor manufacturing techniques such as lithography, etch, thin film depositions, and nano-imprinting. Then the bottom-up methods including scanning probe microscopy and self-assembly will be introduced.					

先修課程(prerequisites)

課程名稱 (course name)	與課程銜接的重要概念、原理與技能 (relation to the current course)
奈米材料科學	瞭解奈米尺度材料的物性與化性，以及基本分析方法。

教學模式 (teaching methodology) 【請勾選】	講授 (teaching)	討論/報告 (discussion & report)	實驗/參訪 (exp./fab visit)	遠距/網路教學 (remote/web teaching)
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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)

Lecture:
1. Basics of silicon electronics
2. Lithography
3. Etching
4. Thin films
5. Focus Ion beams
6. Nano imprinting
7. Scanning Probe Microscopy
8. Self-assembly of nanomaterials

學習評量方式
(evaluation)

期末考試，期末書面或口頭報告

教科書&參考書目（書名、作者、書局、代理商、說明）
(textbook & other references)

Textbooks:

Saburo Nonogaki, Takumi Ueno, Toshio Ito, *Microlithography fundamentals in semiconductor devices and fabrication technology*, New York :Marcel Dekker,1998

References:

Mikhail E. Levinshtein, Michael S. Shur, *Semiconductor technology :processing and novel fabrication techniques,* New York :Wiley, 1997.

Michael Quirk and Julian Serda, Semiconductor Manufacturing Technology

課程教材（教師個人網址請列在本校內之網址）
(teaching aids & teacher's website)

課程輔導時間
(office hours)