國立東華大學

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	材料基礎實驗（三）：微電子製程				
英文課程名稱 Course Name in English	Fundamental Experiments in Materials （III）：Processing in Microelectronics				
科目代碼 Course Code	MS__30800	班 別 Degree	學士班 Bachelor’ s		
修別 Type	學程 Program	學分數 Credit(s)	2.0	時 數 Hour(s)	4.0
先修課程 Prerequisite	無				

課程目標
Course Objectives

課程目標是訓練材料系同學對台灣蓬勃發展的半導體工業所需的微電子製程有基礎認識與實際操作經驗，做未來進入就業的準備。
The goal of the course is to train students to gain a basic understanding and practical experience in microelectronic processes required by Taiwan’s booming semiconductor industry in preparation for their future career.

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 cher
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
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實驗內容包括無塵室的種類與要求、矽晶圓的切割與清洗、熱氧化實驗、CVD設備介紹與操作、濺鍍設備介紹與操作、光罩曝光與蝕刻實驗、TEOS沈積SiO2薄膜實驗、薄膜性質分析實驗：膜厚與基礎電特性等。
The experiments include types and requirements of clean room, cutting and cleaning of silicon wafers, thermal oxidation experiment, introduction and operation of CVD equipment, introduction and operation of sputtering equipment, photomask exposure and etching experiment, TEOS deposited SiO2 thin film experiment, thin film property analysis experiment: film thickness and basic electrical properties, 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.)

本所師資
Teachers of MSE department.

課程要求和教學方式之建議
Course Requirements and Suggested Teaching Methods

課堂實習為主、原理講授為輔。
Experiments supplemented by lectures on principles

其他
Miscellaneous