

课程大纲

COURSE SYLLABUS

1.	课程代码/名称 Course Code/Title	电子薄膜与器件简介 Introduction to electronic thin films and devices
2.	课程性质 Compulsory/Elective	专业选修课 Major Elective Course
3.	开课单位 Offering Dept.	深港微电子学院 School of Microelectronics
4.	课程学分/学时 Course Credit/Hours	4 学分/64 学时 4 Credit/64 Hours
5.	授课语言 Teaching Language	中 Chinese
6.	授课教师 Instructor(s)	陈鹏 Peng Chen
7.	开课学期 Semester	秋季 Fall
8.	是否面向本科生开放 Open to undergraduates or not	否 No
9.	先修要求 Pre-requisites	(如面向本科生开放, 请注明区分内容。 If the course is open to undergraduates, please indicate the difference.) 半导体材料物理
10.	教学目标 Course Objectives	(如面向本科生开放, 请注明区分内容。 If the course is open to undergraduates, please indicate the difference.) 介绍电子薄膜相关的基本知识: 了解电子薄膜制备、表征技术; 了解电子薄膜材料在微电子器件等领域的应用。 To introduce the basic knowledge of electronic thin films: the fabrication and characterization of electronic thin films; the applications of thin films in microelectronic devices, etc.
11.	教学方法 Teaching Methods	(如面向本科生开放, 请注明区分内容。 If the course is open to undergraduates, please indicate the difference.) 理论教学 Theoretical teaching
12.	教学内容 Course Contents	(如面向本科生开放, 请注明区分内容。 If the course is open to undergraduates, please indicate the difference.)
	Section 1	电子薄膜简介 (6 学时) Introduction of electronic thin films (6 hours)
	Section 2	热/电子束蒸镀技术 (6 hours) Thermal/electron beam evaporation (6 hours)
	Section 3	磁控溅射技术 (3 hours) Magnetron sputtering (3 hours)

Section 4	CVD 化学气相沉积技术 (6 hours) Chemical vapor deposition (6 hours)
Section 5	PLD 脉冲激光沉积技术 (6 hours) Pulsed laser deposition (6 hours)
Section 6	ALD 原子层沉积技术 (6 hours) Atomic layer deposition (6 hours)
Section 7	MBE 分子束外延技术 (6 hours) Molecular Beam epitaxy (6 hours)
Section 8	电子薄膜表征技术 (6 hours) Electronic thin film characterization (6 hours)
Section 9	电子薄膜的基本电学性质 (6 hours) Basic electronic properties of electronic thin films (6 hours)
Section 10	电子薄膜在微电子器件中的应用 (13 hours) Applications of electronic thin films in the microelectronic devices (13 hours)
13. 课程考核 Course Assessment	
	(① 考核形式 Form of examination; ②. 分数构成 grading policy; ③ 如面向本科生开放, 请注明区分内容。 If the course is open to undergraduates, please indicate the difference.) 考核方式: 考查 Form of examination: examine 出勤(10%) + 课堂表现 (30%) + 期末报告 (40%) Attendance (10%) + Class Performance (30%) + Final Presentation (40%)
14. 教材及其它参考资料 Textbook and Supplementary Readings	
	教材 Textbooks: 1. The Material Science of Thin Films, Milton Ohring, Academic Press, 2002. 参考书籍 Reference books: 1. 电子薄膜科学, 杜经宁, 科学出版社, 1997. 2. Thin Film Device Applications, Chopra, K L; Kaur, I, Springer, 2012.