

# 上海交通大学研究生专业课程信息收集表

## Information Form for SJTU Graduate Profession Courses

课程基本信息 Basic Information				
*课程名称 Course Name	(中文 Chinese) 半导体材料与集成电路制造基础			
	(英文 English) Fundamentals of Semiconducting Materials and Integrated Circuits Fabrication			
*学分 Credits	2.0	*学时 Teaching Hours	32	
*开课学期 Semester	秋季学期 Fall	*是否跨学期 Cross-semester?	否 No	跨 Spanning over 一个学期 Semesters (含夏季学期)。
*课程类型 Course Type	专业选修课 Program Elective Course	*课程分类 Course Type	全日制课程 For full-time students	
*课程性质 Course Category	专业课 Specialized Course	课程层次 Targeting Students	硕博共用 All graduates	
*授课语言 Instruction Language	中文 Chinese	主要授课方式 Teaching Method	课堂教学 In class teaching	
*成绩类型 Grade	等第制 Letter grading	主要考核方式 Exam Method	考查 Tests	
*开课院系 School	材料科学与工程学院			
所属学科 Subject	材料科学与工程			
负责教师 Person in charge	姓名 Name	工号 ID	单位 School	联系方式 E-mail
	丁冬雁		材料科学与工程学院	dyding@sjtu.edu.cn
课程扩展信息 Extended Information				
*课程简介 (中文) Course Description	<p><b>课程定位:</b> 本课程是材料科学与工程专业的一门专业选修课。</p> <p><b>教学目标:</b> 半导体材料与微电子技术是现代信息产业的基础, 深入学习并掌握半导体材料原理、先进集成电路制造技术和方法具有重要的意义。通过本课程的学习和互动, 学生可熟悉重要半导体材料的电学特性和应用场合, 能够掌握集成电路的基本设计方法和先进制造技术, 了解微电子技术的全貌。培养相应的学习能力和创新研究能力, 为继续深造或直接在电子材料和信息技术行业工作奠定良好基础。</p> <p><b>主要教学内容:</b> 本课程系统介绍半导体材料的物理特性、半导体材料的器件应用、集成电路设计方法和制造技术、微电子产业的发展趋势。</p> <p><b>先修课程:</b> 材料科学与基础</p>			
*课程简介 (English) Course Description	<p><b>Course Positioning:</b> This course is a professional elective course of the major in materials science and engineering.</p> <p><b>Teaching objectives:</b> Semiconductor materials and microelectronics technology are the foundation of modern information industry, it is of great significance to study and master the principles of semiconductor materials, advanced integrated circuit manufacturing technology and methods. Through the learning and interaction of this course, students can become familiar with the electrical characteristics and applications of important semiconductor materials, master the basic design methods of integrated circuits and advanced manufacturing techniques, and understand the full picture of microelectronics technology. Develop ingesting learning and innovative research capabilities to lay a good foundation for continuing your studies or working directly in the electronic materials and information technology industry.</p> <p><b>Main content:</b> This course introduces the physical characteristics of</p>			

	semiconductor materials, device applications of semiconductor materials, integrated circuit design methods and manufacturing techniques, and the development trend of microelectronics industry. <b>Pre-Course:</b> Materials Science and Foundation																																				
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<b>*课程资源 (中文) Resources</b>	《半导体材料》第 2 版，杨树人、王宗昌、王兢，科学出版社，2004 年 《半导体物理与器件》第 3 版，Donald A. Neamen，电子工业出版社，2005 年 《微电子学概论》第 2 版，张兴、黄如、刘晓彦，北京大学出版社，2005 年																																				
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备注 Note	