

# 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				
<b>*课程名称</b> Course Name	(中文 Chinese) 科研与生产实践			
	(英文 English) Practice			
<b>*学分</b> Credits	1	<b>*学时</b> Teaching Hours	16 (1 学分=16 课时)	
<b>*开课学期</b> Semester	春季学期 Spring	<b>*是否跨学期</b> Cross-semester?	否 No	跨 Spanning over 一个学期 Semesters (含夏季学期)。
<b>*课程类型</b> Course Type	专业选修课 Program Elective Course	<b>*课程分类</b> Course Type	全日制课程 For full-time students	
<b>*课程性质</b> Course Category	专业课 Specialized Course	课程层次 Targeting Students	硕士课程 Master Level	
<b>*授课语言</b> Instruction Language	中文 Chinese	主要授课方式 Teaching Method	实习实践 Practice	
<b>*成绩类型</b> Grade	等第制 Letter grading	主要考核方式 Exam Method	考查 Tests	
<b>*开课院系</b> School	材料科学与工程学院 School of Materials Science and Engineering			
所属学科 Subject	材料科学与工程 Materials Science and Engineering			
负责教师 Person in charge	姓名 Name	工号 ID	单位 School	联系方式 E-mail
	吴国华 Guohua Wu		材料科学与工程学院 School of Materials Science and Engineering	ghwu@sjtu.edu.cn
课程扩展信息 Extended Information				
<b>*课程简介</b> (中文) Course Description	<p><b>课程定位:</b> 本课程系为材料工程专业学位硕士生开设。根据材料工程全日制学位硕士生培养方案, 学生要培养为具有专业应用、科研实践及工程管理能力, 满足企业科研开发和工程管理需要的高级工程技术和管理人员。本课程目的是让专业学位的硕士生对工厂、企业、科研院所有所接触, 了解企业对技术和管理方面的需要以及最新发展动向, 感受企业的各种氛围。</p> <p><b>教学目标:</b> 树立“面向工业界、面向未来、面向世界”的工程教育理念。以社会需求为导向, 以实际工程为背景, 以工程技术为主线, 着力提高学生的工程意识、工程素质和工程实践能力。 按照工程问题、工程案例和工程项目组织教学内容, 着力推行基于问题的探究式学习、基于案例的讨论式学习、基于项目的参与式学习等多种研究性学习方法。强调学生创新意识和创新精神的培养, 加强学生科研项目组织与管理创新思维的训练。</p> <p><b>主要教学内容:</b> 共安排四次到不同所有制、不同行业的企业参观调研, 包括国企、私有企业、航天单位、科研型企业等。除了深入车间进行技术层面参观之外, 还将请企业负责人作管理体制创新方面的报告, 重点是如何实现科技与现代管</p>			

	<p>理体系的有效结合。使学生从技术和管理等不同角度了解现代企业经营管理模式，尤其是如何结合技术创新实现企业有效管理，并感受不同类型企业的经营理念。以便学生毕业后能较快地适应各种不同类型企业环境，满足社会对工程应用性人才的需求。</p> <p><b>先修课程：</b> 机械制造工艺基础、材料科学基础、材料加工原理</p>
<p>*课程简介 (English) Course Description</p>	<p><b>Course orientation:</b> This course is offered for professional master's degree in material engineering specialty. According to the training program for full-time Master degree students of material engineering, students should be trained as advanced engineering technology and management talents with professional application, scientific research practice and engineering management ability, and meet the needs of enterprise scientific research and engineering management. The purpose of this course is to make the professional master's degree students contact the factories, enterprises and scientific research institutes, understand the needs of the enterprise on technology and management and the latest developments, and feel the various enterprise atmosphere.</p> <p><b>Teaching objectives:</b> Set up the concept of engineering education “facing the industry, facing the future, facing the world”. Taking the social demand as the guidance, taking the actual project as the background and taking the engineering technology as the main line, the students' engineering consciousness, engineering quality and engineering practice ability are improved. Organize the teaching content according to the engineering problem, engineering case, and engineering projects. This course will make great efforts to promote a variety of research oriented learning method, such as inquiry learning based on problems, discussion learning based on case, participatory learning based on projects. It emphasizes the cultivation of students' innovative consciousness and innovative spirit, and strengthens the training of innovative thinking of scientific research project organization and management.</p> <p><b>Main teaching contents:</b> A total of four visits to different ownership and different industries are conducted, including state-owned enterprises, private enterprises, aerospace units, and scientific research enterprises. In addition to a technical level visit to the workshop, the corporate leaders will be invited to report on the management system innovation, and the emphasis is on how to achieve an effective combination of technology and modern management system. The aim is to let students understand modern enterprise management mode from different angles of technology and management, especially how to realize effective management of enterprises by combining technological innovation, and feel the management idea of different types of enterprises. So that students can quickly adapt to different types of enterprise environment after graduation, and meet the needs of the society for engineering applied talents.</p> <p><b>Prerequisite courses:</b> Fundamentals of mechanical manufacturing process; Fundamentals of Materials Science; Principle of material processing</p>

*教学大纲 (中文) Syllabus	周次	教学内容	课时数	教学方式
	第一周	绪论课:对课程做整体介绍。包括:课程简介(课程定位、教学目标、主要教学内容、先修课程等)、课程大纲(主要内容、课时数、教学方式等)、课程要求(课程考核方式、考核标准等)。	2	课堂
	第二周	参观上海航天院某所,使学生对航天研究所的科研过程有所了解,感受该所的严谨管理氛围。请相关负责人作报告,座谈研究所的管理体制,以及航天科研领域对人才的需求等。	3	参观
	第三周	参观上海航天院某厂,使学生了解航天产品的生产制造过程与管理体制,感受大型高科技企业的氛围,请相关负责人作报告,着重介绍国企的生产与质量管理体系,以及航天企业对人才的需求情况。	3	参观
	第四周	参观宝钢,使学生对黑色金属的整个生产过程(包括冶炼、连铸、轧钢、压力加工等)有所了解,感受现代化企业的管理氛围。请宝钢相关负责人作报告,座谈现代国营大型企业的管理体制,国际上钢材、矿石市场的基本介绍以及对人才的需求等。	3	参观
	第五周	参观有色金属制造企业(民营企业),使学生了解有色金属(如铜合金)加工过程,感受民营企业的氛围,请相关负责人作报告,着重介绍民营企业的管理体制。	3	参观
	第六周	课程讨论、交流、总结	2	课堂

*教学大纲 (English) Syllabus	Teaching week	Teaching content	Teaching Hours	Teaching methods
	The first week	Course overview. Including: Course Introduction (course positioning, teaching objectives, main teaching contents, prerequisite courses, etc.), course outline (main contents, teaching hours, teaching methods, etc.), course requirements (course assessment methods, assessment standards, etc.).	2	classroom teaching
	the second week	Visiting an Institute of Shanghai Academy of Astronautics enables students to understand the scientific research process of the Institute and feel the rigorous management atmosphere of the Institute. Invite the head of the Institute to make a report, discuss the management system of the Institute and the demand for talents in the field of aerospace research.	3	Factory visit
	The third	Visit a factory of Shanghai Academy of	3	Factory visit

	week	Astronautics to make students understand the manufacturing process and management system of aerospace products, and feel the atmosphere of large-scale high-tech enterprises. Ask the relevant person in charge to make a report, focusing on the production and quality management system of state-owned enterprises, as well as the demand for talents of Aerospace Enterprises.		
	The fourth week	Visit Baoshan Iron and Steel Co., Ltd to make students understand the whole production process of ferrous metals (including smelting, continuous casting, steel rolling, pressure processing, etc.) and feel the management atmosphere of modern enterprises. The relevant persons in charge of Baosteel are invited to make a report and discuss the management system of modern large state-owned enterprises, the basic introduction of international steel and ore markets and the demand for talents.	3	Factory visit
	The fifth week	Visit the non-ferrous metal manufacturing enterprises (private enterprises) so that students can understand the processing process of non-ferrous metals (such as copper alloy) and feel the atmosphere of private enterprises. Invite the relevant person in charge of the enterprise to make a report, focusing on the management system of private enterprises.	3	Factory visit
	The sixth week	Course discussion, exchange and summary	2	Classroom teaching
*课程要求 (中文) Requirements	<p>每个学生提交一份调研报告，作为考核的主要依据。同时还参考平时课堂讨论学生发言情况，作为补充。</p> <p>调研报告提纲可包括下列内容：(1) 企业背景与发展历史，(2) 企业管理体制与模式，(3) 企业产品的特点与生产方式的关系，(4) 不同体制企业的管理制度的优缺点，(5) 技术创新与企业发展之间的关系，(6) 企业对人才的要求。</p>			
*课程要求 (English) Requirements	<p>Each student submits a research report as the main basis for assessment. At the same time, it also refers to the students' speech in the ordinary classroom discussion as a supplement.</p> <p>The outline of the research report can include the following contents: (1) enterprise background and development history, (2) enterprise management system and mode, (3) the relationship between the characteristics of enterprise products and production mode, (4) the advantages and disadvantages of the management system of enterprises with different systems, (5) the relationship between technological innovation and enterprise development, (6) the requirements of enterprises for talents.</p>			
*课程资源 (中文) Resources	<ol style="list-style-type: none"> <li>1、材料加工工艺与设备</li> <li>2、工程材料性能和选用</li> <li>3、材料加工过程质量控制和管理</li> <li>4、工程项目管理</li> </ol>			

<p>*课程资源 (English) Resources</p>	<ol style="list-style-type: none"> <li>1. Material processing technology and equipment</li> <li>2. Performance and selection of engineering materials</li> <li>3. Quality control and management of material processing</li> <li>4. Project management</li> </ol>
<p>备注 Note</p>	<p>说明：课程开始前，将与计划参观的企业或研究所进行协商沟通。最终参观的企业名称与参观时间可能会有些变化。</p> <p>Note: Prior to the start of the course, consultation and communication will be conducted with the enterprises or research institutes that plan to visit. There may be some changes in the name of the final visiting enterprises or research institutes and visiting time.</p>