上海交通大学研究生课程开设申请表

New Graduate Course Application Form, SJTU

<table>
<tr><th colspan="7">课程基本信息 Basic Information</th></tr>
<tr><td rowspan="2">*课程名称
Course Name</td><td colspan="6">（中文 Chinese）高能束成形原理、工艺和装备</td></tr>
<tr><td colspan="6">（英文 English）High Energy Beam Processing: Mechanism, Technology, and Equipment</td></tr>
<tr><td>*学分
Credits</td><td>2</td><td>*学时
Teaching Hours</td><td colspan="3">32（1 学分≥16 课时）</td></tr>
<tr><td>*开课学期
Semester</td><td>秋季学期 Fall</td><td>*是否跨学期
Cross-semester?</td><td>否 No</td><td colspan="2">跨 Spanning over 个学期 Semesters（含夏季学期）。</td></tr>
<tr><td>*课程性质
Course Category</td><td>专业课 Specialized Course</td><td>*课程分类
Course Type</td><td colspan="3">全日制课程 For full-time students</td></tr>
<tr><td>*授课语言
Instruction Language</td><td>中文 Chinese</td><td>主要授课方式
Teaching Method</td><td colspan="3">课堂教学 In class teaching</td></tr>
<tr><td>*成绩类型
Grade</td><td>等第制 Letter grading</td><td>主要考核方式
Exam Method</td><td colspan="3">其它 Other</td></tr>
<tr><td>*开课院系
School</td><td colspan="5">材料科学与工程学院</td></tr>
<tr><td>所属学科
Subject</td><td colspan="5"></td></tr>
<tr><td rowspan="2">负责教师
Person in charge</td><td>姓名 Name</td><td>工号 ID</td><td>单位 School</td><td colspan="2">联系方式 E-mail</td></tr>
<tr><td>王洪泽</td><td></td><td>材料科学与工程学院</td><td colspan="2">hz.wang@sjtu.edu.cn</td></tr>
<tr><th colspan="7">课程扩展信息 Extended Information</th></tr>
<tr><td>*课程简介
(中文)
Course Description</td><td colspan="6">以高能束成形为代表的新型加工模式，正在改变传统的制造业，引领制造业发生变革。《高能束成形原理、工艺和装备》课程是一门非常重要的研究生专业选修课程，重点聚焦典型的高能束成形装备、高能束成形关键技术、及其工艺方法。高能束成形装备重点介绍电子束、等离子束和激光束等典型高能束发生器及其成形装备。高能束成形关键技术重点介绍的典型高能束增材、焊接、塑性加工、去除装备的特点。高能束成形工艺方法主要介绍典型的高能束成形结构工艺设计方法。</td></tr>
<tr><td>*课程简介
（English）
Course Description</td><td colspan="6">The emerging high-energy beam manufacturing technology is changing the conventional manufacturing mode and leading the latest evolution in manufacturing. This course is optional for the graduate student interested in high energy beam manufacturing. The main contents of this course include the key processing systems, mechanism of the typical processing technologies, and processing methods. The key processing systems include laser system, electron beam system and plasma system. The typical processing technologies include fusion technology, plastic processing technology, removing material technology, and so on. Besides, the detailed procedure to conduct high-energy beam manufacturing will also be introduced. This course will also discuss the monitoring and feedback control technology in high-energy beam manufacturing.</td></tr>
<tr><td>*教学大纲
(中文)
Syllabus</td><td colspan="6">
<table>
<tr><th>编号</th><th>教学内容</th><th>授课学时</th><th>教学方式</th><th>授课教师</th></tr>
<tr><td>1</td><td>高能束发生器简介</td><td>4</td><td>课堂讲授</td><td>王洪泽</td></tr>
<tr><td>2</td><td>高能束成形装备</td><td>4</td><td>课堂讲授</td><td>王洪泽</td></tr>
<tr><td>3</td><td>高能束熔化成形：增材、连接、去除</td><td>6</td><td>课堂讲授</td><td>吴一</td></tr>
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</td></tr>
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4	高能束塑性成形	2	课堂讲授	吴一	
5	高能束其它成形应用	2	课堂讲授	王洪泽	
6	高能束成形工艺设计方法	4	课堂讲授	王洪泽	
7	高能束成形过程检测	4	课堂讲授	王洪泽	
8	高能束成形及反馈控制	4	课堂讲授	王洪泽	
9	增材制造工艺设计+零件成形	2	实验	吴一	

*教学大纲（English）Syllabus

Number	Content	Hours	Format	Instructor
1	High energy beam generator	4	Lecture	Hongze Wang
2	High energy beam processing equipment	4	Lecture	Hongze Wang
3	High energy beam melting processing	6	Lecture	Yi Wu
4	High energy beam plastic forming	2	Lecture	Yi Wu
5	Nonclassical high energy beam processing	2	Lecture	Hongze Wang
6	Processing planning method in high energy beam manufacturing	4	Lecture	Hongze Wang
7	Monitoring of high energy beam processing	4	Lecture	Hongze Wang
8	Feedback control of high energy beam processing	4	Lecture	Hongze Wang
9	High energy beam additive manufacturing	2	Lab	Yi Wu

*课程要求（中文）Requirements	主要包括课堂考察、实验和节课报告等方式，平时考勤（20%）+课程实验（10%）+课程设计及报告（70%）
*课程要求（English）Requirements	Attendance（20%）+Experiments（10%）+Reports（70%）
课程资源（中文）Resources	1、C.W. White, Laser and Electron Beam Processing of Materials, Academic Press, 2012 2、R.J. Shul, et al., Handbook of Advanced Plasma Processing Techniques, Springer Science & Business Media, 2011 3、刘江龙等，高能束热处理，机械工业出版社，1997 年 4、刘顺洪，激光制造技术，华中科技大学出版社，2011 年
课程资源（English）Resources	1、C.W. White, Laser and Electron Beam Processing of Materials, Academic Press, 2012 2、R.J. Shul, et al., Handbook of Advanced Plasma Processing Techniques, Springer Science & Business Media, 2011 3、刘江龙等，高能束热处理，机械工业出版社，1997 年 4、刘顺洪，激光制造技术，华中科技大学出版社，2011 年

备注 Note	