Information Form for SJTU Graduate Profession Courses

<table>
<tr><td colspan="6">Basic Information</td></tr>
<tr><td>* Course Name</td><td colspan="5">Chinese
English Fundamentals of Functional Materials</td></tr>
<tr><td>* Credits</td><td>3</td><td>* Teaching Hours</td><td colspan="3">48 1 =16</td></tr>
<tr><td>* Semester</td><td>Spring</td><td>* Cross-semester?</td><td>No</td><td colspan="2">Spanning over Semesters</td></tr>
<tr><td>* Course Type</td><td>Program Core Course</td><td>* Course Type</td><td colspan="3">Both full & part time students</td></tr>
<tr><td>* Course Category</td><td>Specialized Course</td><td>Targeting Students</td><td colspan="3">All graduates</td></tr>
<tr><td>* Instruction Language</td><td>English</td><td>Teaching Method</td><td colspan="3">In class teaching</td></tr>
<tr><td>* Grade</td><td>Letter grading</td><td>Exam Method</td><td colspan="3">Oral exam</td></tr>
<tr><td>* School</td><td colspan="5"></td></tr>
<tr><td>Subject</td><td colspan="5"></td></tr>
<tr><td rowspan="2">Person in charge</td><td>Name</td><td>ID</td><td>School</td><td colspan="2">E-mail</td></tr>
<tr><td></td><td></td><td></td><td colspan="2">dengtao@sjtu.edu.cn</td></tr>
<tr><td colspan="6">Extended Information</td></tr>
<tr><td>* ( ) Course Description</td><td colspan="5">200</td></tr>
<tr><td>* English Course Description</td><td colspan="5">This course covers the fundamental theories, characterizations and applications of various physical properties of functional materials including electrical, magnetic, optical and thermal properties. Topics in this course illustrate the essences of optical, electrical, magnetic and thermal properties by applying theory of quantum mechanics. This course will help student further understand the relationship between performance and structure of functional materials. Based on the understanding of the fundamentals of functional materials, the students will grasp not only the meaning, principle, evaluation and designing method of optical, electrical, magnetic and thermal properties of materials, but also the relationship</td></tr>
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	between the physical properties and structures of materials. Additionally, the course will train the graduate students to study the physical properties of functional materials scientifically. The course will also offer the opportunities for students to know state-of-the-art researches in the materials science and engineering field.
* ( ) Syllabus	

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* English Syllabus				
	Content	Hours	Format	Instructor
	Section 1: Introduction and surface property of materials	4	Lecture	Tao Deng
	Section 2: Optical property of materials	10	Lecture	Chengyi Song
	Section 3: Thermal property of materials	10	Lecture	Chengyi Song
	Section 4: Electrical property of materials	10	Lecture	Jianbo Wu
	Section 5: Magnetic property of materials	10	Lecture	Jianbo Wu
	Section 6: Final exam	4	Oral Presentation	Tao Deng Jianbo Wu Chengyi Song

*	
	50
Requirements	1. 30% 2. 30% 3. 40%

* English Requirements	1.Home assignments (30%); 2.Quizzes and activity (30%); 3.Final term presentation (40%).
* Resources	1) J. Simmons, K. S. Potter, *Optical Materials*, Academic Press, 1999 2) R. E. Hummel, *Electronic Properties of Materials*, Springer, 1985 R. C. O'Handley, *Modern Magnetic Materials: Principle and Applications*; John Wiley & Sons Inc, 2000.
* English Resources	1) J. Simmons, K. S. Potter, *Optical Materials*, Academic Press, 1999 2) R. E. Hummel, *Electronic Properties of Materials*, Springer, 1985 R. C. O'Handley, *Modern Magnetic Materials: Principle and Applications*; John Wiley & Sons Inc, 2000.
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