

Information Form for SJTU Graduate Profession Courses

Basic Information				
* Course Name	Chinese			
	English Methodology of material research			
* Credits	2	* Teaching Hours	32 1 =16	
* Semester	Fall	* Cross-semester?	No	Spanning over Semesters
* Course Type	Program Elective Course	* Course Type	Both full & part time students	
* Course Category	Specialized Course	Targeting Students	All graduates	
* Instruction Language	Chinese	Teaching Method	In class teaching	
* Grade	Letter grading	Exam Method	Essay	
* School				
Subject				
Person in charge	Name	ID	School	E-mail
				junwang@sjtu.edu.cn
Extended Information				
* () Course Description	200			
	TRIZ	MSA		
* English Course Description	<p>The graduate students of the major of materials science and engineering have been studying at the undergraduate level, although it has already acquired basic knowledge, but it is still generally lacking in how to carry out academic research, including how to make the literature search, how to choose the research topic, how to use the scientific test methods, and how to write the academic papers. Conceptual and methodical knowledge will easily lead to a subsequent curve, affecting the progress of the research and the quality of the paper. For this purpose, this course will systematically analyze the basic processes and methods of scientific research, including the basic common problems of material research, namely, the performance theory, structure theory, process theory and energy theory of</p>			

	<p>material research. The characteristics of materials scientific research and the important research methods extracted by the predecessors and the new methods and new ideas adopted by the latest achievements in the development of the field of material science and engineering, such as the innovation of ecological materials, material genome, TRIZ and the application of MSA and data analysis in the research of material and so on, are comprehensive for graduate students. Through this course, It is necessary to understand and master scientific research methods, enhance thinking ability, and establish scientific research method system</p>
<p>* () Syllabus</p>	<p style="text-align: right;">2</p> <p style="text-align: center;">2</p> <p style="text-align: center;">2</p> <p style="text-align: center;">3</p> <p style="text-align: center;">3</p> <p style="text-align: center;">3</p> <p style="text-align: center;">3</p> <p style="text-align: center;">2 /</p> <p style="text-align: center;">2 /</p> <p>MSA</p> <p style="text-align: center;">2 /</p> <p style="text-align: center;">2 /</p> <p style="text-align: center;">2 /</p> <p>TRIZ</p> <p style="text-align: center;">2 /</p> <p style="text-align: center;">2</p>
<p>* English Syllabus</p>	<p>General process of scientific research: information retrieval and literature reading: 2 class hours</p> <p>General process of scientific research: topic selection, 2 class hours</p> <p>General process of scientific research: observation and analysis, 2 class hours</p> <p>Performance theory of material research, 3 class hours</p> <p>Structure theory of material research, 3 class hours</p> <p>Process theory of material research, 3 class hours</p> <p>Energy theory of material research, 3 class hours</p> <p>Basic ideas of ecological materials: 2 class hours / discussion</p> <p>Experiment design method, 2 class hours teaching / discussion</p> <p>MSA and experimental data analysis, 2 class hours teaching / discussion</p> <p>Discussion of process control and evaluation, 2 class hours teaching /</p> <p>Genome development and material research, 2 class hours teaching / discussion</p> <p>TRIZ, reverse engineering and innovation, 2 class hours teaching / discussion</p> <p>Course examination</p>

* Requirements	50
* English Requirements	
* Resources	-
* English Resources	Methodology of materialogy An introduction to scientific method -the art of scientific research Theory & method of creating and inventing on material
Note	