## Information Form for SJTU Graduate Profession Courses

Basic Information							
			Extended In	ıformatio	n		
	The purpose of this course is to elaborate on the principles of physical metallurgy, chemical metallurgy and mechanical metallurgy of the metallic materials in the welding process, including the microstructure and phase transition, the formation of the welding defects, weldability, welding procedure, weld inspection, etc. The focus will be put on the low alloy high strength steel, stainless steel, nickel based alloy, aluminum alloy, etc. The aim of this course is to enable students to understand and master the weldability of materials in some key welding structures, the basic law of welding metallurgy, and the mechanism of the microstructure and phase transition in the welding process. After the teaching, the students will have the ability to design welding structure and develop welding process for the specified materials, to analyze the welding defects for particular material, and to find the way to solve the welding problems by utilizing the knowledge of the welding metallurgy.						ing ing on etc. of the the op lar

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Background	period	2 hours						
Welding material metallurgy	period	2 hours						
<ul> <li>Chemical reaction during welding process</li> </ul>	period	2 hours						
<ul> <li>Flow behavior during welding process</li> </ul>	period	1 hours						
Stress deformation during welding process	, period	1 hours						
Metallurgical behavior in weld zone	period	8 hours						
Metallurgical behavior in Partial melting zone	period	6 hours						
Metallurgical behavior in heat-affected zone	period	6 hours						
Summary & Assessment	period	4 hours						
Sulfillary & Assessment	periou	4 110013						
Examination includes writing literature review	and clas	sroom presentation.						
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Literature review: Searching and reading welding metallurgy literatures for finding								
problems existed and focusing on research ideas, experimental design, and research progress, etc. After then, writing a literature review.								
The class presentation Each student gives 15-25 minutes of presentation for the								
literature review.								

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