

* Course Name	Chinese			
	English Mechanics of Welding Structure			
* Credits	2	* Teaching Hours	32 1 =16	
* Semester	Spring	* Cross-semester?	No	Spanning over Semesters
* Course Type	Program Elective Course	* Course Type	For full-time students	
* Course Category	Specialized Course	Targeting Students	All graduates	
* Instruction Language	Chinese	Teaching Method	In class teaching	
* Grade	Letter grading	Exam Method	Tests	
* School				
Subject				
Person in charge	Name	ID	School	E-mail
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				xujijin_1979@sjtu.edu.cn
* () Course Description	200			
* English Course Description	<p>The mechanics of welding structure plays an important role in modern welding structure design, manufacture and safety evaluation. As an interdisciplinary subject of welding science and mechanics, which opens to master & doctor students of Materials Science and Engineering School. Basing on the early courses such as materials science foundation and materials mechanics, inhomogeneous mechanics characterize of welded joint will be delivered in this course. The related theory and experimental method of fracture, fatigue of welded structure will be introduced, provides basic theoretical knowledge and experimental method in design, assessment and failure analysis for welding structure. The establishment of suitable assessment method for welding structure is the main objective of this course based on the better understanding of the design of welding structure coupling with mechanical behavior. Meanwhile, the course is offered to the postgraduate student, combining with the welding knowledge studied in undergraduate process, the ability to solve practical engineering problems for welding structure in service will be improved. For the cultivating advanced talents of</p>			

	welding subject, the mechanics of welding structure is also needed.			
* () Syllabus				
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	* English Syllabus			
Chapter 1		Design principle of welding joint	2	Lecture
Chapter 2		Analysis of welding stress	4	Lecture
Chapter 3		Fracture of welding structure	4	Lecture
Chapter 4		Application of the finite element in welding structure mechanics	2	Lecture
Chapter 5		Fatigue of welding structure	4	Lecture
Chapter 6		Welding stress corrosion cracking	2	Lecture
Chapter 7		Integrity assessment of welding structure	2	Lecture
Chapter 8		Welding fracture test and analysis	2	Experiment
Chapter 9		Welding fatigue test and analysis	2	Experiment
Chapter 10		Welding residual stress measurement	2	Experiment
Chapter 11		Modeling on welding process	2	Experiment
Chapter 12		Course discussion	4	Lecture

