11

$\texttt{Kphqt}\ o\ cvkqp"\texttt{Hqt}\ o\ "hqt"\texttt{ULVW}"\ I\ tc\ f\ w\ c\ v\ g"\texttt{Rt}\ q\ h\ g\ u\ u\ k\ q\ p"\ E\ q\ w\ t\ u\ g\ u"$

Dcuke"Kphqt o cvkqp"							
*	Chinese	;					
Course Name	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		ve * 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							
Budjeet	Name	ID	School		E-mail		
Person in charge					Lfg119@sjtu.edu.cn		
					xujijin_1979@sjtu.edu.cn		
	Gzvgpfgf"Kphqt o cvkqp"						
					200		
* () Course Description							
* English Course Description	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						

	weiding subject, the i	nechanics of welding struct	ure is also needed.	
			2	
			4	
			4	
			2	
			$\frac{4}{2}$	
*				
() Syllabus			2	
			2	
			2	
			2	
			2	
			4	
	[
		Design principle of		
	Chapter 1	Design principle of welding joint	2	Lecture
	Chapter 1 Chapter 2	welding joint Analysis of welding stress	2	Lecture Lecture
		welding joint Analysis of welding stress Fracture of welding structure		
	Chapter 2	welding joint Analysis of welding stress Fracture of welding structure Application of the finite element in welding structure	4	Lecture
*	Chapter 2 Chapter 3	welding joint Analysis of welding stress Fracture of welding structure Application of the finite element in welding structure mechanics Fatigue of welding	4	Lecture
* English Syllabus	Chapter 2 Chapter 3 Chapter 4	welding joint Analysis of welding stress Fracture of welding structure Application of the finite element in welding structure mechanics Fatigue of welding structure Welding stress	4 4 2	Lecture Lecture Lecture
English	Chapter 2 Chapter 3 Chapter 4 Chapter 5	welding joint Analysis of welding stress Fracture of welding structure Application of the finite element in welding structure mechanics Fatigue of welding structure Welding stress corrosion cracking Integrity assessment	4 4 2 4	Lecture Lecture Lecture Lecture
English	Chapter 2 Chapter 3 Chapter 4 Chapter 5 Chapter 6	welding joint Analysis of welding stress Fracture of welding structure Application of the finite element in welding structure mechanics Fatigue of welding structure Welding stress corrosion cracking Integrity assessment of welding structure Welding fracture test and analysis	4 4 2 4 2	Lecture Lecture Lecture Lecture Lecture
English	Chapter 2 Chapter 3 Chapter 4 Chapter 5 Chapter 6 Chapter 7	welding joint Analysis of welding stress Fracture of welding structure Application of the finite element in welding structure mechanics Fatigue of welding structure Welding stress corrosion cracking Integrity assessment of welding structure Welding fracture test	4 4 2 4 2 2	Lecture Lecture Lecture Lecture Lecture Lecture
English	Chapter 2 Chapter 3 Chapter 4 Chapter 5 Chapter 6 Chapter 7 Chapter 8	welding joint Analysis of welding stress Fracture of welding structure Application of the finite element in welding structure mechanics Fatigue of welding structure Welding stress corrosion cracking Integrity assessment of welding structure Welding fracture test and analysis Welding fatigue test	4 4 2 4 2 2 2	Lecture Lecture Lecture Lecture Lecture Lecture Lecture Experiment
English	Chapter 2 Chapter 3 Chapter 4 Chapter 5 Chapter 6 Chapter 7 Chapter 8 Chapter 9	welding joint Analysis of welding stress Fracture of welding structure Application of the finite element in welding structure mechanics Fatigue of welding structure Welding stress corrosion cracking Integrity assessment of welding structure Welding fracture test and analysis Welding fatigue test and analysis Welding residual	4 4 2 4 2 2 2 2 2	Lecture Lecture Lecture Lecture Lecture Lecture Lecture Experiment Experiment

	50
* Requirements	(10%)+ (20%)+ (70%) Homeworks (15%) +Class performance (15%) Project analysis report (70%) 1. 2. 3. 4.
* English Requirements	 Different welding joints design according to literatures (homework) Test and analysis of weld fracture performance (homework) Derivation of welding residual stress evolution process (homework) Analysis report and defense (exam)
* Resources	 2000 2 2007 8 2008 5 Fracture and fatigue of weld joints and structures. Kenneth A. Macdonald, Woodhead Publishing Limited, 2011
* English Resources	 Fracture behavior and evaluation of welded structure, Huo Lixing. China Machine Press, 2000. Welding mechanics and principle of structural integrity Zhang Yanhua, Beihang University Press, 2007. Welding structure Fang Hongyuan. China Machine Press, 2008. Fracture and fatigue of weld joints and structures. Kenneth A. Macdonald, Woodhead Publishing Limited, 2011.
Note	

3 / 3 2020.04