

MM 464 Welding Methods				DEPARTMENT of MECHANICAL ENGINEERING					
Semester	Methods of Education							Credits	
	Lecture	Recit.	Lab.	Project / Field Study	Homework	Other	Total	Credit	ECTS Credit
8	42	0	12		14	7	75	3	3.0
Language	Turkish								
Compulsory / Elective	Elective								
Prerequisites	None								
Course Contents	Introduction. Welding machines. Welding electrodes. Welding arc and formation theory. Melting and non-melting welding types. Factors effecting the welding capability of the materials. Welsing of stainless steel and materials other than iron. Design of welding plans and presentation of applications at various industries. Welding metallurgy, quality at welding manufacturing and parameters affecting quality. Welding symbols. Welding errors. Destructive and non-destructive welding inspection methods. Labour health and work safety during welding.								
Course Objectives	To present the welding methods, which is an important manufacturing technique, from its theory to inspection methods; including the modern welding methods, design of constructions with welded areas, and application areas.								
Learning Outcomes and Competences	Welding theory, instruments and tools, modern welding methods are learned. Analysis and discussing capability of welding tests are earned. Being able to apply the science and engineering knowledge is achieved.								
Textbook and /or Reference	• Kaynak Tekniği, S. Anık, M. Vural, Birsen Yayınevi, 2010 • Kaynak Teknolojisinin Esasları, L.M. Gourd, çev. B. Eryürek, O. Bodur, A. Dikicioğlu, Birsen Yayınevi • Kaynak Ve Kesme Teknolojisinde Parametre Değer Tabloları, G. Alchete, Çev. S. Anık, M. Vural, Birsen Yayınevi, 2001. • Ark Kaynağı, Burhan Oğuz, Oerlikon Yay., 1989. • Karbonlu Ve Alaşımlı Çeliklerin Kaynağı, B.Oğuz,1987. Metallurgy of Welding, J.F. Lancaster, 1999.								
Assessment Criteria						If any, mark as (x)		Percentage (%)	
	Midterm Exams					X		50	
	Quizzes								
	Homeworks					X		10	
	Projects								
	Term Paper								
	Laboratory Work								
	Other								
	Final Exam					X		40	
Instructors	Assoc.Prof. Ibrahim USLAN, Assist.Prof. Yusuf USTA								
Week	Subject								
1	Introduction: Definition of welding, its classification, its importance in industry.								
2	Welding machines. Welding electrodes.								
3	Welding arc and its formation theory. Factors affecting the welding capability of materials.								
4	Melting weldings; arc welding with coated electrode, under-gas MIG-MAG welding, under-gas TIG welding, under-powder welding.								
5	Melting weldings; arc welding with coated electrode, under-gas MIG-MAG welding, under-gas TIG welding, under-powder welding.								
6	Non-melting weldings; friction welding, friction-mixing welding, diffusion welding, ultrasound welding, bursting welding.								
7	MIDTERM I								
8	Welding of stainless steels.								
9	Welding of metals other than iron.								
10	Design of welding plans and presentation of applications at various industries.								
11	Welding metallurgy, quality at welding manufacturing and parameters affecting quality.								
12	Welding symbols. Welding errors. Destructive and non-destructive welding inspection methods.								
13	MIDTERM II								
14	Labour health and work safety during welding.								