

Course Name						
DESIGN PROJECTS						
Code	Semester	Local Credits	ECTS Credits	Course Implementation, Hours/Week		
				Theoretical	Tutorial	Laboratory
MET 4902E	8	4	-	1	6	-
Department/Program	Metallurgical and Materials Engineering					
Course Type	Required		Course Language	English		
Course Prerequisites	MET 4901 MIN BB or MET 4901E MIN BB					
Course Category by Content, %	Basic Sciences	Engineering Science	Engineering Design	General Education		
	-	-	100	-		
Course Description	It is primarily aimed by this course that students should be able to use all the knowledge they attained through their engineering education in a specific subject, by carrying out a literature survey and, if required, followed by either an applied or experimental investigation, and gathering all this information in a written report of proper form. Additionally, they must learn how to follow and adhere to a work–time plan as scheduled. To develop their individual research capabilities is also targeted.					
Course Objectives	<p>The aim of this course is to teach students, who are about to graduate,</p> <ol style="list-style-type: none"> 1. Learn how to conduct an individual research in their professional field and to gain a useful experience. 2. Learn students applied, experimental or solely a literature survey-based research 3. Learn how to prepare a project proposal 4. Learn how to perform an individual research and to present its results written and orally. 					
Course Learning Outcomes	<p>Students learn how to assemble all the information they are taught until that time in various courses, to focus all this knowledge on a specific subject/purpose, and to obtain the maximum benefit out of this effort.</p> <p>They also learn how to accomplish a detailed literature survey about which they would have no prior knowledge and to transform all this work into a formally written report. Moreover, they learn how to prepare a work–time plan, to study according to this plan, as recommended by his/her adviser, and to be disciplined in this sense.</p>					
Textbook	Literature suggested by the faculty member(s) by whom the thesis is assigned					
Other References	-					
Homework & Projects	Experimental studies are carried out on the study subjects determined within the scope of MET 4901/E course and presented as a project proposal. Design projects are prepared in the ITU LEE Graduate theses template. The thesis work and the poster summarizing the work are delivered to the department. The study is presented openly to everyone at the end of the semester.					
Laboratory Work	-					
Computer Use	Hands on experience on MS Word, Excel, Powerpoint and Visio softwares					
Other Activities	-					
Assessment Criteria	Activities	Quantity	Effects on Grading, %			
	Midterm Exams					
	Quizzes					
	Homework					
	Projects					
	Term Paper/Project	1	25			
	Laboratory Work					
	Other Activities	1	25 (POSTER)			
Final Exam	1	50				

COURSE PLAN

Weeks	Topics	Course Outcomes
1	Conducting the design project and the experimental works	I-IV
2	Conducting the design project and the experimental works	I-IV
3	Conducting the design project and the experimental works	I-IV
4	Conducting the design project and the experimental works	I-IV
5	Conducting the design project and the experimental works	I-IV
6	Conducting the design project and the experimental works	I-IV
7	Conducting the design project and the experimental works	I-IV
8	Conducting the design project and the experimental works	I-IV
9	Conducting the design project and the experimental works	I-IV
10	Conducting the design project and the experimental works	I-IV
11	Conducting the design project and the experimental works	I-IV
12	Conducting the design project and the experimental works	I-IV
13	Preparation of presentations and posters	I-IV
14	Submitting posters and reports to the department and presenting the projects	I-IV

Relationship between the Course and Metallurgical and Materials Engineering Curriculum

	Student Outcomes	Level of Contribution		
		1	2	3
1	an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering science and mathematics	X		
2	an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety and welfare as well as global, cultural, social, environmental and economic factors			X
3	an ability to communicate effectively with a range of audiences	X		
4	an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgements, which must consider the impact of engineering solutions in global, economic, environmental and societal contexts		X	
5	an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives			X
6	an ability to develop and conduct appropriate experimentation, analyse and interpret data, and use engineering judgement to draw conclusions			X
7	an ability to acquire and apply new knowledge as needed, using appropriate learning strategies			X

1: Little, 2: Partial, 3: Full

Course relationships with major elements of the field and material classes

		Level of Contribution		
		1	2	3
MAJOR ELEMENT OF THE FIELDS	STRUCTURE		X	
	PROPERTIES		X	
	DESIGN EXPERIMENT/ANALYSE DATA			X
	PROCESSING			X
	COST/PERFORMANCE		X	
	QUALITY/ENVIRONMENT		X	
	DESIGN PROCESS OR PRODUCT			X
MATERIAL CLASSES	METAL		X	
	CERAMICS AND GLASS		X	
	POLYMER		X	
	COMPOSITES		X	
	BIOMATERIALS			

1: Little, 2: Partial, 3: Full

<u>Prepared by</u>	<u>Date</u>	<u>Revision #</u>	<u>Signature</u>
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