

Course Name						
DESIGN PROJECTS						
Code	Semester	Local Credits	ECTS Credits	Course Implementation, Hours/Week		
				Theoretical	Tutorial	Laboratory
MET 4901E	7	4	-	1	6	-
<b>Department/Program</b>	Metallurgical and Materials Engineering					
<b>Course Type</b>	Required		<b>Course Language</b>	English		
<b>Course Prerequisites</b>	Min. 110 Credits (MET 339 MIN DD or MET 339E MIN DD) and (MET 364 MIN DD or MET 364E MIN DD) and all the courses in the first 4 semester of the related curriculum must have been successfully completed.)					
<b>Course Category by Content, %</b>	<b>Basic Sciences</b>	<b>Engineering Science</b>	<b>Engineering Design</b>	<b>General Education</b>		
	-	-	100	-		
<b>Course Description</b>	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.					
<b>Course Objectives</b>	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. 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.					
<b>Course Learning Outcomes</b>	The aim of this course is to teach students, who are about to graduate, 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.					
<b>Textbook</b>	Literature suggested by the Faculty member by whom the thesis is assigned					
<b>Other References</b>	-					
<b>Homework &amp; Projects</b>	In the beginning of the semester the topics of the graduation projects are determined together with the advisors and group members. Each group has to prepare their project proposal report and they present their proposal at the end of the first semester. To prepare project proposal "ITU Scientific Research Project Proposal Preparation Guide" is used. Each member of the group has to present. Presentations are open to faculty and students.					
<b>Laboratory Work</b>	-					
<b>Computer Use</b>	Hands on experience on MS Word, Excel, Powerpoint and Visio softwares					
<b>Other Activities</b>	-					
<b>Assessment Criteria</b>	<b>Activities</b>	<b>Quantity</b>		<b>Effects on Grading, %</b>		
	<b>Midterm Exams</b>					
	<b>Quizzes</b>					
	<b>Homework</b>					
	<b>Projects</b>					
	<b>Term Paper/Project</b>	1		50		
	<b>Laboratory Work</b>					
	<b>Other Activities</b>					
<b>Final Exam</b>	1		50			

**COURSE PLAN**

Weeks	Topics	Course Outcomes
1	Literature review and preparation of the project proposal	I-IV
2	Literature review and preparation of the project proposal	I-IV
3	Literature review and preparation of the project proposal	I-IV
4	Literature review and preparation of the project proposal	I-IV
5	Literature review and preparation of the project proposal	I-IV
6	Literature review and preparation of the project proposal	I-IV
7	Literature review and preparation of the project proposal	I-IV
8	Literature review and preparation of the project proposal	I-IV
9	Literature review and preparation of the project proposal	I-IV
10	Literature review and preparation of the project proposal	I-IV
11	Literature review and preparation of the project proposal	I-IV
12	Literature review and preparation of the project proposal	I-IV
13	Preparation of presentations	I-IV
14	Submission of the proposals to the department and presentation of the proposals	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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