

SELF STUDY REPORT APPENDIX A COURSE SYLLABUS

<b>Course Name</b>						
<b>Total Quality Management</b>						
Code	Semester	Local Credits	ECTS Credits	Course Implementation, Hours/Week		
				Theoretical	Tutorial	Laboratory
MET 312	6	3	6	3	-	-
<b>Department/Program</b>		Metallurgical and Materials Engineering				
<b>Course Type</b>		Required		<b>Course Language</b>		Turkish
<b>Course Prerequisites</b>		None				
Course Category by Content, %	Basic Sciences		Engineering Science	Engineering Design	General Education	
	-		30	50	20	
<b>Course Description</b>	<p>This course will offer an introduction to quality concept in human history as well as in engineering and manufacturing. In the course, quality as a concept and a philosophy will be taught and following Quality Assurance Systems (Quality Standards, ISO 9000, QS9000, etc.) Quality Planning, Essential Factor for Creating Quality, Quality and Value Creation, Quality Costs, Quality and Economy will be given. In the course, the perception of Total Quality Management and the importance of team work in quality deployment will be emphasized and Quality Tools and Techniques will be taught in order for students to set full understanding in problems and analyze the problems to provide effective solutions by means of tools and techniques. Therefore this course will cover the definition of quality, historical perception in quality, quality philosophy, quality Assurance Systems (Quality Standards, ISO 9000, QS9000, etc.) Quality Planning, Essential Factor for Creating Quality, Quality and Value Creation, Quality Costs, Quality and Economy, the concept of team work, Quality and Management Tools, 7 Management Tools and 7 Quality Tools, Computer Aided Applications, Quality Function Deployment, Failure Mode and Effect Analysis, Failure Tree Analysis, quality costs, The relation between quality and environment, quality and ethics</p>					
<b>Course Objectives</b>	<p>The main objectives of this course are;</p> <ul style="list-style-type: none"> <li>to offer a wide range of tools and techniques which help provide and produce quality from the beginning of design, production and final process in order to have final product with high quality.</li> <li>to provide information on Quality Concept Philosophy and System, Quality Assurance and Quality Control, Quality System Structure, Quality system Strategies and Tactics, Quality System Integration and Implementation, ISO 9000 series standards, Economics of Quality, Product, Process and Human Performance for Creating of Quality, Fundamental Strategic and Tactical Quality Tools.</li> <li>to introduce the seven basic and management tools, process and quality techniques (Quality Function Deployment, Failure Modes and Effect Analysis, Fault Tree Analysis, Design of Experiments, Statistical Process Control, Control Charts Process Sampling, Process stability and SPC Chart Interpretation.</li> </ul>					
<b>Course Learning Outcomes</b>	<p>Students who pass the course will have a knowledge on</p> <ol style="list-style-type: none"> <li>Total Quality Management Philosophy</li> <li>International Quality Standards</li> <li>Problem description and solving and ability to use</li> <li>quality tools and techniques to reach high quality standards in every step of the production of product.</li> <li>Statistics</li> <li>Sampling and process control</li> <li>Quality, economy, ethics</li> <li>Computer aided process quality control applications.</li> </ol>					
<b>Textbook</b>	<p>Yılmaz Taptık, Özgül Keleş, Kalite Savaşı, Kalder Yayınları No 22 , İstanbul, 1998 Yılmaz Taptık, Özgül Keleş, Kalite Savaş Araçları, Kalder Yayınları No 23, İstanbul, 1998</p>					
<b>Other References</b>	<p>William J. Kolarik, Creating Quality, Concepts, Systems, Strategies and Tools, McGraw-Hills Series in Industrial Engineering and Management Science, 1995 Tilo Pfeifer, Qualitätsmanagement, 2. Auflage, Hanser Verlag, 1996 H. G. Menon, TQM in New Product Manufacturing, McGraw-Hill, Inc., 1992</p>					
<b>Homework &amp; Projects</b>	<p>Maximum two homework will be assigned throughout the semester. One team work project will be prepared as a report and they will present their projects. Final team work project will be done as a report.</p>					
<b>Laboratory Work</b>						
<b>Computer Use</b>	-SPC FOR EXCEL, MINITAB					
<b>Other Activities</b>						
<b>Assessment Criteria</b>	<b>Activities</b>		<b>Quantity</b>	<b>Effects on Grading, %</b>		
	<b>Midterm Exams</b>		1	20		
	<b>Quizzes</b>					
	<b>Homework</b>					
	<b>Projects</b>		1	40		
	<b>Term Paper/Project</b>		1	40		
	<b>Laboratory Work</b>		-	-		
	<b>Other Activities</b>		-	-		
<b>Final Exam</b>		-	-			

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**COURSE PLAN**

Weeks	Topics	Course Outcomes
1	Introduction, The Concept of Quality, The Philosophy of Quality, Quality Systems, Quality Planning, Essential Factor for Creating Quality, Quality and Value Creation, Quality Costs, Quality and Economy, Quality and ethics	I-VII
2	Introduction, The Concept of Quality, The Philosophy of Quality, Quality Systems, Quality Planning, Essential Factor for Creating Quality, Quality and Value Creation, Quality Costs, Quality and Economy. Quality and ethics	I-VII
3	Problem Definition and Solution Techniques, The concept of team work, Quality and Management Tools, 7 Management Tools and 7 Quality Tools, Computer Aided Applications.	III
4	Problem Definition and Solution Techniques, The concept of team work, Quality and Management Tools, 7 Management Tools and 7 Quality Tools, Computer Aided Applications.	III
5	Continuous Deveopment and Creativity Concepts in Design and Product Development, Design Techniques, Quality Tehniques,	III-IV
6	Continous Deveopment and Creativity Concepts in Design and Product Development, Design Techniques, Quality Tehniques, Quality Fionction Deployment, Failure Mode and Effect Analysis, Failure Tree Analysis.	III-IV
7	Statistical Process Control.	III-IV-V-VI
8	Statistical Process Control.	III-IV-V-VI
9	Design of experiment	III-IV-V-VI
10	Quality Assurance Systems, Quality Standards, ISO 9000, QS9000, Total Quality Management	II
11	Midterm	III-IV-V-VI
12	Presentations	I- II-III-IV-V-VI-VII-VIII
13	Presentations	I- II-III-IV-V-VI-VII-VIII
14	Presentations and evaluation	I- II-III-IV-V-VI-VII-VIII

**Relationship between the Course and Metallurgical and Materials Engineering Curriculum**

	Program Outcomes	Level of Contribution		
		1	2	3
1	Ability to apply the knowledge of mathematics, science and engineering principles to solve problems in metallurgical and materials engineering (ABET:a)	x		
2	Ability to characterize materials using standard and/or self designed experimental methods and to evaluate the results (ABET:b)		x	
3	Ability to design a system or a process, taking into consideration of the desired specifications, quality, ethics and environment. (ABET:c)			x
4	Ability to communicate both orally and in the written form and to take part in, and provide leadership of the teams in the elucidation of engineering problems; (ABET:d, g)			x
5	Ability to define, formulate and solve engineering problems in the development, production, processing, protection and usage of engineering materials. (ABET:e)		x	
6	An understanding of professional and ethical responsibilities(ABET:f)			x
7	An understanding of current/contemporary issues and impact of engineering solutions in broad cultural, national and global levels;. (ABET:h, j)			x
8	A comprehension of the nature of engineering progress closely linked with the development of new materials and production processes. An ability to engage in life-long learning and a recognition of its necessity (ABET:i)		x	
9	Ability to use essential tools and techniques of modern engineering in the development, production, processing, protecting and surface treatment of the existing and new engineering materials. (ABET:k)		x	

1: Little, 2. Partial, 3. Full

**Course relationships with major elements of the field and material classes**

		Level of Contribution		
		1	2	3
<b>MAJOR ELEMENT OF THE FIELDS</b>	STRUCTURE		x	
	PROPERTIES		x	
	DESIGN EXPERIMENT/ANALYSE DATA			x
	PROCESSING		x	
	COST/PERFORMANCE		x	
	QUALITY/ENVIRONMENT			x
	DESIGN PROCESS OR PRODUCT			x
<b>MATERIAL CLASSES</b>	METAL			x
	CERAMICS		x	
	POLYMERS		x	
	COMPOSITES		x	

1: Little, 2. Partial, 3. Full

<b>Prepared by</b> Prof. Dr. Yılmaz Taptık Assist. Prof. Dr. Özgül Keleş	Date 12.5.2009	Signature
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