

COURSE DESCRIPTION FORM	
Course Code and Title	KMP566-MAINTENANCE STRATEGIES IN PROCESSES
Course Semester	2
Catalog Content	Types of maintenance and repair. Reliability centered maintenance strategies. Decommissioning and commissioning operations. Management of Change in maintenance work. Wear mechanism and damage. Maintenance of process equipment, monitoring control systems and emergency systems. Work permits. Maintenance management.
Main Textbook	<ul style="list-style-type: none"> Duncan C. Richardson, PE, Plant Equipment and Maintenance Engineering Handbook, McGraw Hill, 2014.
Supplementary Textbooks	<ul style="list-style-type: none"> Guidelines for Safe Process Operations and Maintenance, The Center for Chemical Process Safety (CCPS), Wiley, 1995. Moubray, J., Reliability-centered Maintenance, 2nd ed., 1997. Townsend, A., Maintenance of Process Plant: A Guide to Safe Practice, 1992.
Course Credit (ECTS)	6
Pre-Requisites And Co-Requisites	-
Type of the Course	Compulsory
Language of Instruction	Turkish
Object and Target of the Course	<ul style="list-style-type: none"> To teach the knowledge and approach required to develop maintenance policy. To teach the information about maintenance methods, application and monitoring of maintenance.
Course Learning Outcomes	<ul style="list-style-type: none"> Develops a maintenance policy-based risk assessment. Carries out maintenance management.
Mode of Delivery	Lecture, Question & Answer, Demonstration
Weekly Schedule	<p>1st Week Maintenance-Repair (Asset management concept, ISO 55000 series) Concepts (Fault, Planned Maintenance, Advanced Maintenance) Reactive Maintenance Proactive Maintenance - Periodic maintenance (Regulations) - Preventive (Healing / Predictive) maintenance - Reliability centered maintenance</p> <p>2nd Week Maintenance-Repair Reactive Maintenance Proactive Maintenance - Periodic maintenance (Regulations) - Preventive (Healing / Predictive) maintenance - Reliability centered maintenance</p>

	3 rd Week	Maintenance-Repair Reactive Maintenance Proactive Maintenance <ul style="list-style-type: none"> - Periodic maintenance (Regulations) - Preventive (Healing / Predictive) maintenance - Reliability centered maintenance
	4 th Week	Decommissioning and Commissioning
	5 th Week	Management of Change in Maintenance Works
	6 th Week	Wear Mechanisms And Response <ul style="list-style-type: none"> - Corrosion, Erosion and Fatigue in Equipment
	7 th Week	Maintenance of Critical Elements and Control Cycles <ul style="list-style-type: none"> - Calibration - Verification Tests
	8 th Week	Maintenance of Monitoring and Control and Alarm Systems
	9 th Week	Maintenance of Emergency Stop Systems And Fire Response Equipment-Midterm
	10 th Week	Personnel In Maintenance <ul style="list-style-type: none"> - Training Needs of Maintenance Personnel - Competence of Maintenance Personnel - Duties and Responsibilities of Maintenance Personnel - Communication Between Maintenance Unit and Process Unit - Communication in Shift Changes
	11 th Week	Working Instructions and Work Permit Systems <ul style="list-style-type: none"> - Working Instructions - Closed Area Permit - Hot Work Permit - Labeling-Lockout Systems
	12 th Week	Working Instructions and Work Permit Systems <ul style="list-style-type: none"> - Working Instructions - Closed Area Work Permit - Hot Work Permit - Lockout-Tagout Labels
	13 th Week	Maintenance Management Information Systems
	14 th Week	Maintenance Management Application and Presentation
	15 th Week	Final Exam
	Educative Activities Theoretical Study Hours of Course Per Week : 3 Practical Study Hours of Course Per Week : - Reading : - Searching in Internet and Library : 6	

	Material Design and Application : - Preparing Reports : 3 Preparing Presentations : 3 Presentations : 3 Midterms and Studying for Midterms : 5 Final and Studying for Final : 3			
Assessment Criteria		Quantity	Total Contribution (%)	
	Midterms	1	40	
	Homework	-	-	
	Applications	-	-	
	Projects	1	20	
	Practices	-	-	
	Quizzes	-	-	
	Contribution of In-term Studies to Overall Grade		60	
	Contribution of Final Examination to Overall Grade	1	40	
	Attendance	-		
Workload of the Course	Activity	Total Number of Weeks	Duration (Weekly Hour)	Total Period Workload
	Weekly Theoretical Course Hours	14	3	42
	Weekly Practical Course Hours	-	-	-
	Reading Tasks	-	-	-
	Searching in Internet and Library	14	6	84
	Material Design and Application	-	-	-
	Preparing Reports	2	3	6
	Preparing Presentations	1	3	3

	Presentations	1	3	3				
	Midterms and Studying for Midterms	1	5	5				
	Final and Studying for Final	2	3	6				
	Other	-	-	-				
	Total Workload			149				
	Total Workload / 25			5,96				
	Course Credits (ECTS)			6				
Course's Contribution to Program	No	Program Learning Outcomes		1	2	3	4	5
	1	Developing undergraduate level competencies and deepening their knowledge to apply in the field of process safety		X				
	2	Understanding the undergraduate competencies and the interaction between the competencies gained in this program and the disciplines related to process safety			X			
	3	Using the expert level theoretical and applied knowledge acquired in the field of process safety		X				
	4	Developing the competencies gained at the undergraduate level and integrating the information gained in the field of process safety with the information from the relevant disciplines and creating new knowledge			X			
	5	Solving process safety problems using scientific research methods		X				
	6	Independently conducting studies that require expertise in the field of process safety		X				
	7	Developing new approaches to complex problems encountered in applications in the field of process safety		X				
	8	Taking responsibility and generating solutions for complex problems encountered in applications in the field		X				

		of process safety					
	9	Taking initiative in environments that require resolution of problems related to process safety	X				
	10	Critically evaluating the information acquired about process safety and directing learning		X			
	11	Ability to systematically transfer the developments and own studies in the field of process safety in written, oral and visual forms				X	
	12	Developing social relations and the set of values that direct these relationships with a critical approach and transforming them when necessary	X				
	13	Establishes oral and written communication using a foreign language (European Language Portfolio B2 level)	X				
	14	Uses computer software at the level required by the process safety field					X
	15	Uses advanced information and communication technologies at the level required by the field of process safety				X	
	16	Collecting, interpreting, finalizing the data on process safety, applying and sharing them with respect to ethical values	X				
	17	Developing different perspectives on process safety issues, setting policies, making plans and evaluating the results within the framework of quality					X
	18	Internalizing the knowledge gained in the field of process safety with the competencies gained at the undergraduate level, turning it into skills and using it in interdisciplinary studies			X		
Name of Lecturer(s) and Contact Information		Faculty Members of the Chemical Engineering Department					