

<b>COURSE DESCRIPTION FORM</b>	
<b>Course Code and Title</b>	<b>KMP561-PROCESS SAFETY</b>
<b>Course Semester</b>	1
<b>Catalog Content</b>	Process safety concepts. Process Safety Culture. Ethical approach to process safety. Risk-based process safety elements. Occupational safety. Occupational participation. Risk factors. Hazard analysis methods and general approaches to risk assessment.
<b>Main Textbook</b>	<ul style="list-style-type: none"> <li>• Crowl, D.A., Louvar, J.F., Chemical Process Safety Fundamentals with Applications, Prentice Hall International Series in the Physical and Chemical Engineering Sciences, 4th Ed., 2015.</li> </ul>
<b>Supplementary Textbooks</b>	<ul style="list-style-type: none"> <li>• Guidelines for Risk Based Process Safety, Guidelines for Risk Based Process Safety, Wiley, 2007.</li> <li>• Guidelines for Safe Process Operations and Maintenance, The Center for Chemical Process Safety (CCPS), 1995.</li> <li>• Guidelines for Integrating Process Safety Management, Environment, Safety, Health, and Quality, CCPS, 1996.</li> <li>• Speegle, M., Safety, Health, and Environmental Concepts for the Process Industry, 2012.</li> <li>• Sanders, R.E., Chemical Process Safety Learning from Case Histories, 4th Ed., 2015.</li> <li>• Guidelines for Investigating Chemical Process Incidents, 2nd ed., 2003</li> <li>• Atherton, J., Frederic G., Incidents that define Process Safety, CCPS, 2008.</li> <li>• Crowl, D.A, Louvar, J.F., Chemical Process Safety Fundamentals with Applications, 2nd ed., Prentice Hall, 2002.</li> </ul>
<b>Course Credits (ECTS)</b>	6
<b>Pre-Requisites And Co-Requisites</b>	-
<b>Type of the Course</b>	Compulsory
<b>Language of Instruction</b>	Turkish
<b>Object and Target of the Course</b>	<ul style="list-style-type: none"> <li>• To provide theoretical information about the concept of process safety in chemical processes.</li> <li>• To teach the basic methods applied in risk assessment.</li> <li>• To suggest preventive approaches to prevent the occurrence of occupational diseases and occupational accidents in enterprises.</li> </ul>
<b>Course Learning Outcomes</b>	<ul style="list-style-type: none"> <li>• Defines the concepts related to safety.</li> <li>• Evaluates preventive approaches to prevent the occurrence of occupational diseases and work accidents in enterprises.</li> <li>• Evaluates the safety problem in chemical processes.</li> </ul>
<b>Mode of Delivery</b>	Lecture, Question & Answer, Demonstration

Weekly Schedule	<p>1<sup>st</sup> Week    <b>Process Safety Concepts</b></p> <p>2<sup>nd</sup> Week    <b>Process Safety Culture</b></p> <p>3<sup>rd</sup> Week    <b>Ethical Approach in Process Safety</b></p> <p>4<sup>th</sup> Week    <b>OHS Professionals</b></p> <p>5<sup>th</sup> Week    <b>Risk-Based Process Safety Elements</b></p> <p>6<sup>th</sup> Week    <b>Occupational Safety and Occupational Participation</b></p> <p>7<sup>th</sup> Week    <b>Risk Factors-Midterm</b></p> <p>8<sup>th</sup> Week    <b>Risk Factors and Risk Control: Ensuring Production Safety</b></p> <p>9<sup>th</sup> Week    <b>General Risk Assessment Approach (Hazard Identification and Risk Control Approach)</b></p> <p>10<sup>th</sup> Week    <b>General Risk Assessment Methods (Process Hazard Analysis: Preliminary Hazard Analysis, HAZAD, HAZIN, Checklists)</b></p> <p>11<sup>th</sup> Week    <b>General Risk Assessment Methods (Risk Identification: What If Analysis, Cause and Result Analysis, Fault Tree Analysis, Event Tree Analysis, Bow Tie Analysis)</b></p> <p>12<sup>th</sup> Week    <b>Midterm</b></p> <p>13<sup>th</sup> Week    <b>Case Study (Risk Assessment)</b></p> <p>14<sup>th</sup> Week    <b>Case Study (Risk Assessment)</b></p> <p>15<sup>th</sup> Week    <b>Final Exam</b></p>
Educative Activities	<p>Theoretical Study Hours of Course Per Week : 3</p> <p>Practical Study Hours of Course Per Week : -</p> <p>Reading : -</p> <p>Searching in Internet and Library : 3</p> <p>Material Design and Application : 3</p> <p>Preparing Reports : 2</p> <p>Preparing Presentations : 2</p> <p>Presentations : 1</p> <p>Midterms and Studying for Midterms : 3</p>

	Final and Studying for Final : 2			
Assesment Criteria		Quantity	Total Contribution (%)	
	Midterms	2	40	
	Assignments	1	10	
	Applications	-	-	
	Projects	1	10	
	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	3	42
	Material Design and Application	3	3	9
	Preparing Reports	2	2	4
	Preparing Presentations	2	2	4
	Presentations	1	1	1
	Midterms and Studying for	12	3	36

	Midterms								
	Final and Studying for Final	2	2	4					
	Other	-	-	-					
	Total Workload			142					
	Total Workload / 25			5.68					
	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 of process safety				X			

	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			
<b>Name of Lecturer(s) and Contact Information</b>		Faculty Members of the Chemical Engineering Department					