

<b>Course Code</b>	CP312			
<b>Course Title</b>	Industrial Safety and Health			
<b>No. of Credits</b>	3			
<b>Pre-requisites</b>	None			
<b>Compulsory/Optional</b>	Compulsory			
<b>Aim(s):</b> To empower students with essential knowledge on industrial safety and health.				
<b>Intended Learning Outcomes:</b>				
On successful completion of the course, the students should be able to;				
ILO1: Describe different types of industrial hazards and their risks.				
ILO2: Apply different methodologies to perform a risk assessment on a given process.				
ILO3: Describe different types of strategies and procedures to mitigate risks in process industry.				
ILO4: Describe the Sri Lankan legislations pertaining to industrial safety.				
ILO5: Describe the components of safety management systems such as ISO 45001.				
ILO6: Analyze the causes of industrial accidents.				
<b>Topics</b>	<b>Time Allocation/Hours</b>			
	<b>L</b>	<b>T</b>	<b>P</b>	<b>A</b>
<ul style="list-style-type: none"> <li><b>Industrial hazards and risks</b> Chemical, physical, ergonomic, biological and radiation hazards, Fire and explosion, dust explosions, Chemical reactivity hazards, Anatomy of accidents.</li> </ul>	03			
<ul style="list-style-type: none"> <li><b>Risk analysis</b> Hazard and operability (HAZOP) Analysis, Fault tree diagrams, Event tree diagrams, Bow-tie analysis, Failure mode effect analysis, and risk matrix; Dow fire &amp; explosion index.</li> </ul>	10			04
<ul style="list-style-type: none"> <li><b>Risk management strategies</b> Near miss management; Inherent-Passive-Active-Procedural safety; Work permits, lockout-tagout; Emergency preparedness and response planning; Accident investigation; Job safety analysis; Design of relief valves and venting systems; Storage and transport of hazardous materials, confined space entry; safety culture.</li> </ul>	15			04
<ul style="list-style-type: none"> <li><b>Industrial health and safety related regulations</b></li> </ul>	03			02
<ul style="list-style-type: none"> <li><b>Occupational health and safety management systems</b> ISO 45001, safety culture.</li> </ul>	05			02
<ul style="list-style-type: none"> <li><b>Case studies on industrial accidents and analysis of their root causes</b></li> </ul>				06
<b>Total equivalent hours</b>	<b>36</b>			<b>09</b>
<b>Recommended Texts:</b>				
<ul style="list-style-type: none"> <li>Crowl, D. A., Louvar, J. F., Chemical Process Safety Fundamentals with Applications, (3 Ed), Prentice Hall, 2011.</li> <li>Sinnott, R. K., Coulson &amp; Richardson's Chemical Engineering, (4 Ed), Elsevier Butterworth-Heinemann, 2004.</li> <li>The Centre for Chemical Process Safety (CCPS), Guidelines for Investigating Chemical Process Incidents, (2 Ed), American Institute of Chemical Engineers, 2003.</li> <li>International Organization for Standardization, ISO 45001-Occupational health and safety management systems — Requirements with guidance for use, 2018.</li> </ul>				
<b>Assessment</b>	<b>Percentage Mark</b>			

<b>In-course</b>		50
Tutorials/Assignments/Quizzes	25	
Mid Semester Examination	25	
<b>End-semester</b>		50