PRINCIPLES OF RISK ASSESSMENT

CSA LEARNING CENTRE presents

PRINCIPLES OF RISK ASSESSMENT
– BASED ON ISO 14121: SAFETY OF MACHINERY - PRINCIPLES OF RISK ASSESSMENT

Risk Assessment is a critical element in the application of CSA standards in the area of industrial machinery and robotics, and the ISO 14121 deals with risk assessment principles as they relate specifically to the safety of machinery. An understanding of these principles is key to the effective application of these important safety standards.

ISO 14121 establishes general principles for the procedure known as risk assessment, by which the knowledge and experience of the design, use, incidents, accidents and harm related to machinery is brought together in order to assess the risks during all phases of life of the machinery. This International Standard gives guidance on the information required to effectively conduct risk assessment as it relates to machinery installation and safe use. Procedures are described for identifying hazards and estimating and evaluating risk. This one day seminar addresses the content of ISO 14121 as it relates to the CSA standards commonly used in an industrial application.

WHO SHOULD ATTEND:
- Engineers
- Engineering Technicians
- Occupational Health and Safety Professionals
- Plant Managers
- Machinery Control System Designers
- Maintenance Managers
- Maintenance Electricians and Millwrights
- Technically Skilled Safety professionals
- Personnel responsible for creating PSR Exemptions
COURSE OUTLINE

Participants will gain an understanding of:

- important terms and definitions associated with risk assessment
- the machinery risk assessment process
- the relationship between 'hazard' and 'risk'
- the elements of “risk”
- the risk assessment process based on the content of ISO 14121
- hazard identification techniques
- risk reduction methodology and the risk mitigation hierarchy
- the relationship between ISO 14121 and CSA Z432, CSA Z434, CSA Z142, and CSA Z460

AGENDA

<table>
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<tr>
<th>Time</th>
<th>Session Title</th>
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<tbody>
<tr>
<td>8:00</td>
<td>Registration and Continental Breakfast</td>
<td>1:00</td>
<td>ISO 14121, CSA Z432, CSA Z434, CSA Z142, and CSA Z460</td>
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<td></td>
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<td>This segment addresses the relationships between these important machinery standards</td>
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<tr>
<td>8:30</td>
<td>Introductions and Course Overview</td>
<td>1:45</td>
<td>Schematics and examples</td>
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<td>8:45</td>
<td>Terms and Definitions</td>
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<td>- representations and explanations of circuits</td>
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<tr>
<td>9:00</td>
<td>Machinery risk assessment process</td>
<td>2:30</td>
<td>commonly used in safety related control functions</td>
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<td>- determination of the limits of the machinery</td>
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<td>- simple interlocks, dual channel interlocks, fluid power functions</td>
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<td>- control reliability</td>
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<td>Risk reduction methodology and the risk mitigation hierarchy</td>
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<td>- hazard identification</td>
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<td>Refreshment Break</td>
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<td>- assessment of risk</td>
<td>3:00</td>
<td>Residual Risk</td>
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<td>- classification of hazards</td>
<td>3:15</td>
<td>- exposure</td>
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<td>- personnel qualifications</td>
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<td>10:00</td>
<td>Refreshment Break</td>
<td>4:00</td>
<td>- PPE</td>
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<td>10:15</td>
<td>Machinery risk assessment process…continued</td>
<td>4:30</td>
<td>Quiz, Q&amp;A</td>
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<td></td>
<td>- risk estimation</td>
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<td>Course concludes</td>
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<td>- risk evaluation</td>
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<td>- documentation</td>
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<td>11:15</td>
<td>Safety Categories and Fault Tolerance</td>
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<td>- safety integrity measures</td>
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<td>- human intervention – defeating or circumventing safety measures</td>
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<td>12:00</td>
<td>Lunch</td>
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This interactive product developed by CSA and the IAPA (Industrial Accident Prevention Association) provides users with information on the requirements related to a Pre-Start Health and Safety Review (PSR). This interactive CD guides users through the PSR process and includes an electronic version of CSA Z432 - Safeguarding of Machinery.

CONTINUING EDUCATION CREDITS
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ABOUT YOUR SPEAKER:
Tom Doyle

Tom Doyle is the President of Industrial Safety Integration specializing in the area of industrial machinery risk assessment. He established this company after spending seven years as an electrical control system design and safety specialist for an international machinery manufacturer.

Tom has extensive experience in machine safety analysis, pre-start health and safety review, research and development, product standardization, engineering and technician training, and the development and implementation of new engineering systems. He has accumulated years of exposure to international machinery safety standards and regulations. Mr. Doyle also holds an Inter-provincial Certificate of Qualification as an Electrician and is a valued member of a number of CSA committees in the area of Occupational Health and safety.

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<tr>
<td>Mississauga</td>
<td>June 20, 2007</td>
<td>Halifax</td>
<td>April 20, 2007</td>
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