# Skill-Builders for Engineering Leaders

## Risks in Project and Technology Development Module

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<table>
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<tr>
<th>Contact Hours</th>
<th>2 hours consisting of two 50-minute sessions</th>
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<tr>
<td>Target Audience</td>
<td>Graduate and undergraduate engineering students</td>
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<td><strong>Learning Objectives</strong></td>
<td>Students will be able to:</td>
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<td>1. Interpret and describe the concept of risks, risk analysis, risk assessment and risk management;</td>
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<td>2. Appraise methods to analyze, interpret and assess risks and approaches to manage risks;</td>
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<td>3. Identify and assess the roles and responsibilities of the engineer in evaluating and managing risks in technology development;</td>
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<td><strong>Session Overview</strong></td>
<td>The volatile, uncertain, complex and ambiguous business environment within which engineering-based companies must now effectively operate has significant implications on the risks that could impact their continuing viability. The ability for companies to identify and manage risks is more critical than ever before. The module consists of instructor-provided topical overviews, participant discussions, examples and exercises that will assist in understanding and applying the risk-related concepts.</td>
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## Session One

**Introduction and pre-assessment**

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<tr>
<th>Key Content</th>
<th>Approach</th>
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| Exploring the concepts of risk, risk analysis, risk assessment, and risk management | • The concept of risk (presentation)  
- risk defined  
- types of risks  
- risks in context  
• The concepts of risk analysis, risk assessment, and risk management (presentation)  
- terms and relationships defined  
• Overview of one famous example (video and discussion) |
### Key Content

| Evaluating risks – the risk management process |

### Approach

- Overview about the individual components of the process (presentation)
  - identifying hazards
  - risk calculations
  - risk assessment
  - risk rankings
  - cost and risk-benefit analyses
  - risk decisions

### Resources Provided:

- Module presentation materials

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### Session Two

| Key Content | Approach |

| The engineer’s roles and responsibilities in balancing risks with innovation and technology development |

### Approach

- Brief overview (presentation) about the concept of the standard of care
- Brief overview (presentation) and discussions about the responsibilities of engineers in technology and innovation
- Review brief video and discussions about innovations and ethics

### Example Problem Application – Group Exercise

- Risk evaluation problem application

### Close-out remarks and post-assessment

### Resources Provided

- Module presentation materials

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