

INTRODUCTION TO SAFETY

Introduction		Training Objectives	
<p>Duration: 1.5 days</p> <p>The Introduction to Safety course will provide delegates with a general appreciation of safety engineering issues in the context of a typical systems development life-cycle.</p>		<p>At the end of this introductory course, the participants will have a clearer understanding of how to plan for safety in a safety-related development programme, identify safety issues up-front, and know where to find help when an issue is beyond their expertise.</p>	
<p>A Training Objective (TO) is a precise statement of the skills and knowledge required of a trainee at the end of a training Session. The table below details the TOs for the Introduction to Software Safety course.</p>			
<p>Session 1 – Introduction to Safety (15 min)</p>		<p>Session 3 –Basic Concepts (60 min)</p>	
<p>Session 2 – The Need for Safety (60 min)</p>			
TO 2.1	<ul style="list-style-type: none"> Complex, software intensive systems difficult to develop 	TO 3.1	<ul style="list-style-type: none"> Safety Definitions (from IEC 61508) Risk Definition As Low As Reasonably Practicable (ALARP)
TO 2.2	<ul style="list-style-type: none"> Examples of system failure leading to fatal accidents Examples of software failures leading to accidents 	TO 3.2	<ul style="list-style-type: none"> Risk Matrix Typical Accident Sequence
TO 2.3	<ul style="list-style-type: none"> Safety Management Systems 	TO 3.3	<ul style="list-style-type: none"> Error Definition Fault Definition Failure Definition
TO 2.4	<ul style="list-style-type: none"> H&S focus is <i>physical</i> hazards 	TO 3.4	<ul style="list-style-type: none"> Random and Systematic Failures Hazard Definition
TO 2.5	<ul style="list-style-type: none"> Functional safety focus is system functional failures 		
TO 2.6	<ul style="list-style-type: none"> Using People, Procedures and Equipment (HW, FW & SW) 		

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Session 4 – System Safety Assurance (90 min)		Session 6 – Risk Assessment Overview (120 min)	
TO 4.1	<ul style="list-style-type: none"> System Safety: <ul style="list-style-type: none"> Hardware Software Human Factors 	TO 6.1	Accident Target Setting
TO 4.2	<ul style="list-style-type: none"> Safety Requirements: <ul style="list-style-type: none"> Functional Safety Requirements Safety Integrity Levels 	TO 6.2	Residual Hazard Risks Calculation
TO 4.3	<ul style="list-style-type: none"> Safety Life-Cycle Safety Cases Safety Argument Safety Evidence 	TO 6.3	<ul style="list-style-type: none"> Target Setting: <ul style="list-style-type: none"> Tolerable Hazard Occurrence Rates (THOR) Safety Target On Function (STOF) Safety integrity Levels
TO 4.4	Describe the typical contents of a Safety Management Manual and explain the safety processes and responsibilities detailed therein.	TO 6.4	Causal Factors identification (Fault Tree Analysis)
Session 5 – Hazard Analysis Overview (120 min)		TO 6.5	Safety Target Achievement
TO 5.1	<ul style="list-style-type: none"> Functional System Description 	Session 7 – Safety Management (60 min)	
TO 5.2	<ul style="list-style-type: none"> Identifying Credible Accidents <ul style="list-style-type: none"> Examples 	TO 7.1	<ul style="list-style-type: none"> Standards and Markets: <ul style="list-style-type: none"> System Safety Standards Software Safety Standards Firmware Safety Standards
TO 5.3	<ul style="list-style-type: none"> Preliminary Hazard Identification <ul style="list-style-type: none"> Example HAZOPS 	TO 7.2	<ul style="list-style-type: none"> Integrating Safety Management
TO 5.4	<ul style="list-style-type: none"> Accident Sequences <ul style="list-style-type: none"> Example Event Tree Analysis 	TO 7.3	<ul style="list-style-type: none"> Safety Assurance Processes Safety Achievement Processes Safety Promotion Processes
		<ul style="list-style-type: none"> Course Critique 	