## IICA Gas Detector Functional Safety Training Course Course Outline

Rev 1 23/04/2018

Start	Dur'n	Item	Name	Contents
	(min)			
8:30	15	1	<u>Introduction</u>	Introductions; course logistics; what is Functional
				Safety?
8:45	30	2	Standards and Legislation	Relevant standards; regulation vs standards; when and
				how to comply
9:15	30	3	AS IEC 61511 Overview	Overview of AS IEC 61511 and its Functional Safety
				Lifecycle, which subsequent modules explain in more
				detail
9:45	15		Break	
10:00	30	4	Hazard & Risk Assessment	Basics of identifying risks that gas detectors mitigate
				and how this impacts SIL determination
				·
10:30	40	5	SIL Determination	Use of Risk Graph for SIL determination; brief overview
				of other techniques
11:10	10	6	Safety Requirements Specification	Purpose, structure and contents of the Safety
				Requirements Specification
11:20	30	7	SIF Design - Hardware Fault Tolerance	Criteria for the architecture (required redundancy or
11.20	30	<b>'</b>	<u> </u>	hardware fault tolerance) for each subsystem.
11:50	60	8	SIF Design - SIL Verification	Calculating the failure probability of a SIF
12:50	30		Lunch	
13:20	60	9	SIF Design - Component Selection	Criteria for selecting components based on Certification
				and Prior Use
14:20	30	10	SIF Design - Exercise	Practice designing a SIF to meet all three criteria for a
				specific SIL
14:50	15		Break	·
15:05	25	11	Avoiding Human Error	Functional Safety Management and the QA tools
	_			verificaiton, validation and funcitonal safety assessment
				,
15:30	20	12	Operation & Maintenance	Requirements for operation and maintenance of a SIS
	-			to ensure target SILs are met
15:50	30	13	Summary - case study end-to-end	The lab case study revisted to summarise the overall
		]		process
16:20			End of Course	P. 55555
10.20			2114 01 004100	