

SAFTUV2 - Engineers Certification Agenda

Day 1

Module 1: Describing the scope of Functional Safety For Machinery Training
Module 2: Explaining the Functional Safety for Machinery Certification Process
Module 3: Explaining Directives, Laws, and Regulations
Module 4: Identifying Standards Organizations, Hierarchy, and Functional Safety Standards
Module 5: Defining the Functional Safety Management Process IEC 61508-1
Module 6: Explaining Risk Assessment Requirements and ISO 12100
Module 7: Defining Risk Scoring Systems for Risk Estimation
Module 8: Explaining Risk Evaluation and Risk Reduction ISO 12100
Module 9: Identifying Safety Functions
Module 10: Explaining Safety of Machinery Electrical Equipment IEC 60204-1
Module 11: Explaining Operator Interface and Controls IEC 60204-1
Module 12: Describing Technical Documentation IEC 60204-1
Module 13: Identifying Guards and Protective Devices for Safeguarding of Machinery
Module 14: Describing Safety Distance ISO 13857
Module 15: Describing Safety Distance ISO 13855
Module 16: Applying Fixed and Movable Guards ISO 14120
Module 17: Explaining Interlocking devices associated with guards ISO 14119

Day 2

Module 18: Identifying Interlocking Devices ISO 14119
Module 19: Identifying Guard Locking Devices ISO 14119
Module 20: Explaining Installation for Interlocking Devices ISO 14119
Module 21: Explaining Application of Protective Equipment IEC 62046
Module 22: Explaining Electro-Sensitive Protective Equipment (ESPE): Active Optoelectronic Protective Device (AOPD)
Module 23: Applying Safe Distance for Active Optoelectronic Protective Device (AOPD) using ISO 13855
Module 24: Explaining Active Optoelectronic Protective Device-Diffuse Reflection (AOPD-DR)
Module 25: Applying Safe Distance for Active Optoelectronic Protective Device-Diffuse Reflection (AOPD-DR) ISO 13855
Module 26: Applying Pressure Sensitive Devices (PSDD): Mats and Floors
Module 27: Applying Pressure Sensitive Devices (PSDD): Edges and Bars
Module 28: Applying Pressure Sensitive Devices (PSDD): Bumpers and other devices
Module 29: Explaining and Applying Two-Hand Control Devices
Module 30: Explaining and Applying Enabling Control Devices
Module 31: Explaining Muting of a Safety Function
Module 32: Explaining Muting Override Function
Module 33: Explaining Blanking Function of Active Optoelectronic Protective Device (AOPD)
Module 34: Explaining Cyclic Operation Function
Module 35: Explaining Emergency Stop and Emergency Switching Off Functions and Devices
Module 36: Explaining Start and Restart Interlock Function

Day 3

- Module 37: Explaining Prevention of Unexpected Startup ISO 14118
- Module 38: Describing the Design Process for Safety-Related Parts/Control System (SRP/CS)
- Module 39: Explaining Measures Against Systematic Failures ISO 13849-1
- Module 40: Identifying Software Requirements ISO 13849-1
- Module 41: Explaining the Design Process for MTTF_D ISO 13849-1
- Module 42: Explaining Fault Exclusions ISO 13849-1
- Module 43: Designing Diagnostics: Diagnostic Coverage (DC) ISO 13849
- Module 44: Estimating for Common Cause Failure (CCF) ISO 13849
- Module 45: Explaining the Design Process for Category (B, 1, 2, 3, 4) ISO 13849-1
- Module 46: Determining Achieved Performance Level (PL) ISO 13849-1
- Module 47: Determining the Performance Level (PL) of a Safety Function ISO 13849
- Module 48: Identifying Validation Principles per ISO 13849-2

Day 4

- Module 49: Describing the Design Process for Safety-related Control Systems (SCS) IEC 62061
- Module 50: Explaining Functional Safety Management of a Safety-related Control System (SCS) IEC 62061
- Module 51: Explaining Measures Against Systematic Failures IEC 62061
- Module 52: Identifying Software Requirements IEC 62061
- Module 53: Designing a Safety-related Control System (SCS) IEC 62061
- Module 54: Explaining the Quantification of PFH_D IEC 62061
- Module 56: Explaining Fault Exclusions IEC 62061
- Module 57: Estimating for Common Cause Failure Factor (β) IEC 62061
- Module 58: Explaining the Design Process for Designated Architecture IEC 62061
- Module 59: Determining Achieved Safety Integrity Level (SIL) IEC 62061
- Module 60: Determining the Safety Integrity Level (SIL) of a Safety Function IEC 62061
- Module 61: Identifying Validation Principles IEC 62061:2021
- Module 62: Identifying Information for Use IEC 62061
- Module 63 a, b, c, d: Applying ISO 13849 to Determine PL – Examples 1-4
- Module 64 a, b, c, d: Applying IEC 62061 to Determine SIL – Examples 1-4

Day 5

Certification Examination

Exam - 4 hours

Only allowed to have printed standards

- ISO 12100
- ISO 13849-1
- ISO 13849-2
- IEC 62061
- IEC 60204-1