HYDROGEN SKILLS ACADEMY

Hydrasun Hydrogen Safety Training Engineering Level Course

The Hydrasun Hydrogen Safety Training course is designed for engineers already working, or those considering the transition to working in the hydrogen sector. With more novel and innovative applications for hydrogen anticipated, we need to ensure that we firstly identify, and then manage the risks associated in working with hydrogen safely. A fundamental understanding of hydrogen's physical properties and key behaviours will be key to safely designing, developing and deploying it as a net zero energy vector.

This course will provide engineering level knowledge in the design of hydrogen systems and applications. On successful completion, the delegate will be awarded a Hydrasun certificate of attendance.

COURSE DURATION

- 1 day

PRE-REQUISITE

- None

CERTIFICATION

- Hydrasun certificate of attendance

TRAINER

- Our trainers and assessors have been certified by external accreditation bodies

COST

- Price on application – maximum 6 delegates per course

COURSE DETAILS

Hydrasun and hydrogen
- Hydrogen – A brief history
- Hydrogen properties and characteristics
- Current hydrogen technology and associated applications

Technical challenges for hydrogen systems and facilities

Hazard identification and hydrogen safety considerations
- Functional safety
- HAZID and HAZOP
- Failure Mode and Effect Analysis (FMEA)
- Safety Instrumented System (SIS)
- Safety Integrity Level (SIL)
- Layer of Protection Analysis (LOPA)
- Leak and flame detection including thermal imaging
- Hydrogen flame characteristics
- General hydrogen storage considerations incl. ventilation requirements
- Gas detection, purging and gas handling
- Principles of deflagration to detonation
- Fire safety / emergency response and emergency shutdown systems

Material selection and compatibility
- Material effects and system layout and design for hydrogen systems (HF in design)
- Hydrogen component specification and selection
- Hydrogen embrittlement

Understand the behaviour of hydrogen in different phases
- Liquid hydrogen
- Comparison with other fuels (comparison with natural gas)

Regulations that relate to the use of hydrogen and when they apply
- Pressure Equipment Directive (PED)
- Pressure Systems Safety Regulations (PSSR)
- Explosive Atmospheres (ATEX)
- Dangerous Substances Explosive Atmosphere Regulations (DSEAR)
- Low Voltage Directive (LVD)
- Electromagnetic Compatibility (EMC)
- Hazardous Area Classification (HAC)
- Control of Major Accident Hazards (COMAH)

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