

## What to Learn

- Evaluate & Optimize your Process Safety Management System (PSM)
- Apply Best practices for all essential elements
- Recognize Process Hazards and reduce the Risk to acceptable levels with techniques like HAZOP & LOPA
- Understand the Legislation on Hazardous Chemicals and assure Compliance
- Create the desired Safety Culture in your organization.



# Master Class Process Safety Competence

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### From Course Participants

- "This Course gives an outstanding overview of all relevant aspects of Process Safety; it is a 'must' for all engineers and managers in industries that work with hazardous chemicals" – sr. Process Engineer Shell
- "The many practical examples and discussions make this course very lively. It is always made clear how to apply Best Practices in my organization" – sr. Safety Technician DOW
- "This course helps with the implementation of all legislation on hazardous chemicals and how to create a compliant business" – EHS manager BP

### Course Facilitator



Tijs Koerts studied chemistry and obtained a PhD. At DuPont, GE Plastics en Lyondell-Basell he obtained process safety competence in many roles and hazardous chemical sites. Since 2011 he is an independent process safety consultant. Since 2016 he is operations director for the European Process Safety Centre (EPSC).

Tijs, is an appreciated speaker on conferences, webinars and process safety courses.

### Day 1

#### Process Safety Management (PSM) System

- Historic perspective: the incidents that shaped process safety and their learnings
- The Essential elements of the Process Safety Management system
- Organization guidance with roles & responsibilities
- Workshop "Anatomy of a disaster"
- Measure process safety with the API-754 & ICCA standard
- 'Leading & Lagging' indicators, defining useful performance indicators (SMART KPI's)

### Dag 2

#### Legislation, Compliance

- Seveso directive
- Safety Report, Scenario's & QRA
- ATEX Explosion Safety: practical implementation
- Pressure Equipment Directive (PED) for pressure vessels
- BEVB: underground pipelines
- Chemical storage in tanks (PGS 29) and Packed Chemicals (PGS-15)
- Industrial Hygiene: exposure validation. REACH, MSDS
- Transport (ADR & AND) & Waste regulations

## Course Date:

Spring 2022 date: 3, 10, 17, 24  
& 31 March

## Course Price:

The course price is 1990.- euro  
per person.

## Course Subscription:

By email: [Tijs.Koerts@upcmail.nl](mailto:Tijs.Koerts@upcmail.nl)

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### Day 3

#### Process Hazard Analysis

- Process Hazards: from run-away reactions to BLEVE
- Risk definition, Useful Risk Matrix, acceptance criteria, ALARP
- Barrier thinking & 'Swiss cheese' model; Quality of barriers
- Process Hazard Analysis techniques: HAZOP competence
- Layers of Protection Analysis: LOPA
- Instrumental systems and Safety Integrity Level (SIL)
- HAZOP Execution & Leadership including a hands-on workshop
- Specific Hazards from the Oil & Gas Industry

### Day 4

#### Mechanical Integrity

- Hazards of common unit operations like Distillation, Reactors, Heat Exchangers, Flares, Compressors
- Inherently Safer Design principles
- Management of Change: MOC & PSSR applied with Best Practices
- Reliability Centred Maintenance for Mechanical Integrity
- Risk Based inspection for pressure vessel inspection frequencies
- Corrosion Mechanisms
- Pressure vessel systems: Safeties, Thermal Reliefs, Breather valves
- Turn Around management and Contractor management

### Day 5

#### Emergency, Incident & Culture

- Inherently Safer Design Principle
- Facility Siting: safety of people in buildings
- Learning from Incidents: Root Cause Investigation techniques
- Auditing and closure of the Deming circle
- Process Safety Culture & Leadership: theory and how to create this in practice
- Process Safety Fundamentals: operational principles

#### Who should attend

Engineers, Technicians, HSE Managers, Operational Leaders and Inspectors

**Accreditation:** Hobeon SKO accreditation

**Certification:** Certificate to be provided

**Koerts Consultancy**

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