SPECIALIZED COURSE

PROCESS SAFETY ENGINEERING

15 - 18 March 2027

LEUVEN | FACULTY CLUB

essenscia PROCESS ACADEMY

15 - 18.03.2027
FACULTY CLUB
LEUVEN

DEAR MEMBER,

essenscia herewith presents the details of the Specialized Course on Process Safety Engineering organized as part of the essenscia Process Academy.
For additional information concerning these topics, please contact **Mr. Geert Boogaerts** (+32 476 906 663 | gboogaerts@essenscia.be). To register, please click here.

The level and quality of process safety management determines the success of an organization.
This course offers the essentials of process safety engineering.

Attendees

Professional engineers with industry experience for whom understanding and applying process safety thinking is an integral part of their jobs and who would benefit from an engineering view on process safety for deepening the expertise in their roles and for their career development (e.g. operations, engineering, maintenance, inspection, safety professionals...).

This course is included in the Master of Safety Engineering at KULeuven and has a year-on-year evaluation of 4,8/5.

Aim

Process safety is a specific discipline within the organization of a company. The level and quality of process safety management determines the success of the organization.

Process Safety Engineering plays an important part during the lifecycle of a process plant. Not only are important preventive and mitigating measures defined during the project phase, changes are also introduced during operations ; near misses and incidents will occur. This all requires a fundamental knowledge of process safety concepts.

With this 4-day Specialized Course on Process Safety Engineering, essenscia's Process Academy aims to provide professionals with the essentials of process safety in unit operations. The lectures are taught by specialists in their discipline. For each day, a syllabus is provided by the organization. A certificate will be granted at completion of the course. Additionally, a text book "Guidelines for Engineering Design for Process Safety" is provided to participants.

Program

The lectures are built around some generic important process units within the chemical industry: batch and continuous reactors, distillation columns and storage tanks. Both will be presented in a generic way to indicate specific process safety engineering features.

In-depth incident analysis with an engineering root cause or as solution are presented during the first day together with the concept and the proofed added value of intrinsic safe design.

During the second day, a theoretical course on calculating relief valves is taught, followed by a practical workshop.

The third day is built up around the set-up and interpretation of the instrumentational protection devices (IEC 65111). The instrumentational protection guidelines are discussed and interpreted from a theoretical, practical and organiion level supported by evidence based examples, interpretation and applications.

The fourth day is focussing around a key operation for every chemical company, namely storage of chemicals from an engineering point of view. A plant visit to a life installation brings the theory into practice.

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DAY TO DAY OVERVIEW OF THE PROGRAM:
08:30 – 17:00

DAY 01

1

MONDAY 15 MARCH 2027

Chemical Reactors

Welcome speech
Geert Boogaerts, Director Safety and Sustainability, essenscia
Why to start with engineering ?

Introduction to process safety design
Geert Vercruysse, Head of Global Process Safety, BASF, Professor Process Safety, KULeuven
Lessons learned from incidents – The build-up of a process safety concept

Inherent safe design & case studies
Nicolas Hertoghe, Process Safety Engineer, ExxonMobil Research & Engineering
Incorporation of intrinsic safe elements in design engineering

DAY 02

2

TUESDAY 16 MARCH 2027

Mechanical safeguarding

Scenario selection and boundary conditions – A distillation column as an example
Geert Vercruysse, Head of Global Process Safety, BASF, Professor Process Safety, KULeuven
A common and broad unit operation – safety engineering

Detailed design of a relief valve (API 521)
Denis Mignon, Senior Engineer Process Control, Modelling & Simulation, TotalEnergies, Professor, UCLouvain
Towards a correct calculation. Every scenario included ?

Case studies: workshop calculation of relief valves
Shirin Sadat Homayouni & **Gaëlla Delcour**, Experts, Sweco
Can we calculate everything?

DAY 03

3

WEDNESDAY 17 MARCH 2027

E & I in Process Safety Engineering

From alarm towards controller and/or interlock
Geert Vercruysse, Head of Global Process Safety, BASF, Professor Process Safety, KULeuven
Including learning from incidents

Detailed design of an instrumentational interlock (IEC65111)
Erik Dom, Process Safety Consultant, Nero
Inspired by the process risks ?

DAY 04

4

THURSDAY 18 MARCH 2027

Storage tank

Process safety aspects around storage
Geert Vercruysse, Head of Global Process Safety, BASF, Professor Process Safety, KULeuven
A simple operation ?

Site visit at ITC Antwerp
Filip Masquillier, CEO, ITC Antwerp
A real life visualization