



Gas Dispersion Analysis & Consequence Modelling for Safety

تحليل تشتت الغاز ونمذجة العواقب للسلامة

19 – 23 May 2024

Al Khobar / KSA

Introduction

This course provides an overview of the principles and methods of gas dispersion analysis and consequence modelling for safety applications. The course covers the theoretical background, practical aspects, and software tools for modelling gas releases, dispersion, fires, and explosions in various scenarios. The course also discusses the interpretation and use of the results for risk assessment and management.

Objectives

The objectives of this course are to:

- Understand the fundamentals of gas dispersion and consequence modelling
- Learn how to apply different models and software tools for gas dispersion and consequence analysis
- Evaluate the strengths and limitations of different modelling approaches
- Interpret and communicate the results of gas dispersion and consequence modelling
- Apply the knowledge and skills to real-world case studies

Who Should Attend?

This course is designed for engineers, scientists, managers, regulators, and other professionals who are involved in or interested in gas dispersion and consequence modelling for safety purposes. The course assumes some basic knowledge of fluid mechanics, thermodynamics, and chemistry, but does not require any prior experience with gas dispersion or consequence modelling.

Course Outline

Day One

Introduction to Gas Dispersion and Consequence Modelling

- Overview of gas dispersion and consequence modelling
- Types and sources of gas releases
- Gas properties and behaviour
- Gas dispersion phenomena and mechanisms
- Gas dispersion models: empirical, analytical, numerical

Day Two

Gas Dispersion Modelling Software Tools

- Introduction to gas dispersion modelling software tools
- Software selection criteria and comparison
- Software demonstration and hands-on exercises
- Software validation and verification
- Software limitations and uncertainties

Day Three

Gas Fire Modelling

- Introduction to gas fire modelling
- Types and characteristics of gas fires
- Gas fire phenomena and mechanisms
- Gas fire models: empirical, analytical, numerical
- Gas fire modelling software tools

Day Four

Gas Explosion Modelling

- Introduction to gas explosion modelling
- Types and characteristics of gas explosions
- Gas explosion phenomena and mechanisms
- Gas explosion models: empirical, analytical, numerical
- Gas explosion modelling software tools

Day Five

Gas Dispersion and Consequence Modelling Applications

- Introduction to gas dispersion and consequence modelling applications
- Risk assessment and management framework
- Scenario definition and analysis
- Result interpretation and communication
- Case studies and examples

Training Method

- Pre-assessment
- Live group instruction
- Use of real-world examples, case studies and exercises
- Interactive participation and discussion
- Power point presentation, LCD and flip chart
- Group activities and tests
- Each participant receives a 7” Tablet containing a copy of the presentation, slides and handouts
- Post-assessment

Program Support

This program is supported by interactive discussions, role-play, case studies and highlight the techniques available to the participants.

Schedule

The course agenda will be as follows:

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|---------------------|------------------|
| • Technical Session | 08.30-10.00 am |
| • Coffee Break | 10.00-10.15 am |
| • Technical Session | 10.15-12.15 noon |
| • Coffee Break | 12.15-12.45 pm |
| • Technical Session | 12.45-02.30 pm |
| • Course Ends | 02.30 pm |

Course Fees*

- **2,120 USD**
**VAT is Excluded If Applicable*

المقدمة

يقدم هذا المقرر نظرة عامة على مبادئ وطرق تحليل تشتت الغاز ونمذجة النتائج لتطبيقات السلامة. يغطي المقرر الخلفية النظرية والجوانب العملية والأدوات البرمجية لنمذجة إطلاقات الغاز والتشتت والحرانق والانفجارات في سيناريوهات مختلفة. ويناقش المقرر أيضًا تفسير واستخدام النتائج لتقييم المخاطر وإدارتها.

الاهداف

أهداف هذه الدورة هي:

- فهم أساسيات تشتت الغاز ونمذجة العواقب
- تعلم كيفية تطبيق نماذج وأدوات برمجية مختلفة لتشتت الغاز وتحليل العواقب
- تقييم نقاط القوة والقيود في أساليب النمذجة المختلفة
- تفسير وإبلاغ نتائج تشتت الغاز ونمذجة العواقب
- تطبيق المعرفة والمهارات على دراسات الحالة في العالم الحقيقي

الحضور

تم تصميم هذه الدورة للمهندسين والعلماء والمديرين والمنظمين وغيرهم من المهنيين المشاركين أو المهتمين بتشتت الغاز ونمذجة العواقب لأغراض السلامة. تفترض الدورة بعض المعرفة الأساسية بميكانيكا الموائع والديناميكا الحرارية والكيمياء، ولكنها لا تتطلب أي خبرة سابقة في تشتت الغاز أو نمذجة النتائج.