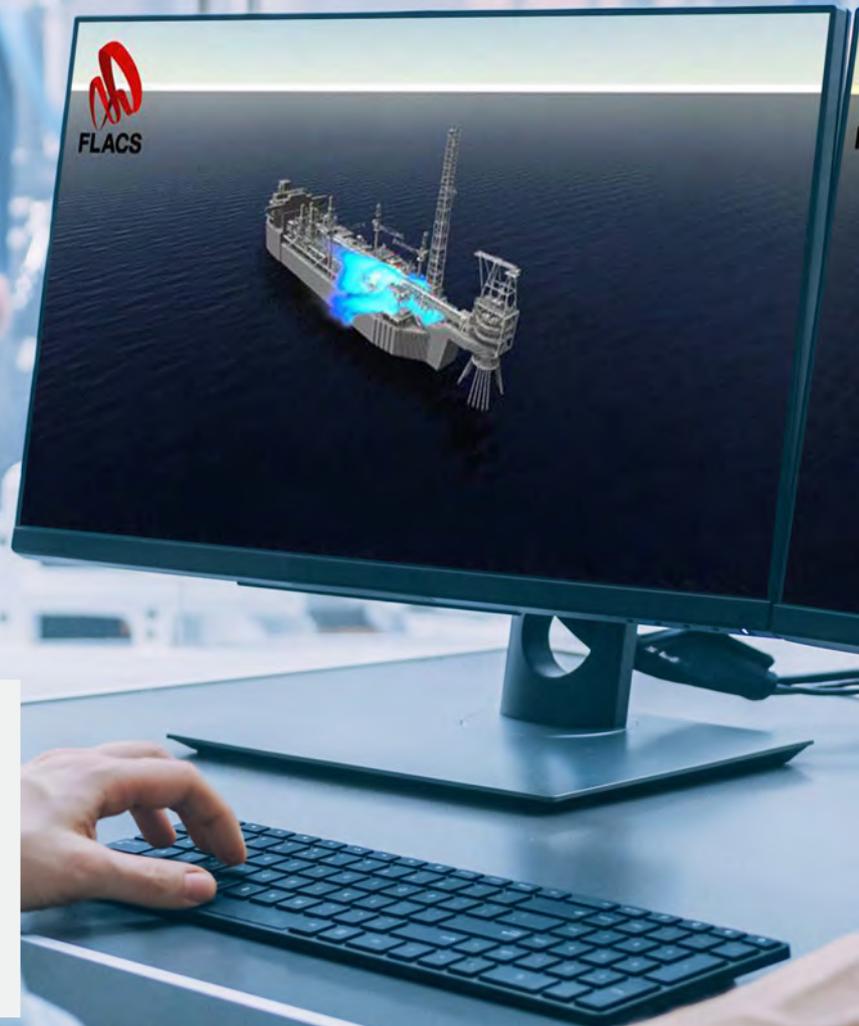


FLACS I Course

Dispersion, Fire and Explosion Modelling Tool



FLACS 3D CFD modeling capabilities take into account the effects of 3D geometries which can have a significant impact on the consequences of dispersion, explosion and fire

FLACS I Course

FLACS (FLame ACceleration Software) is the industry standard for CFD (Computational Fluid Dynamics) explosion modelling and a comprehensive tool for technical safety issues related to flammable and toxic releases.

Level
Beginner

Duration
4 Days

Price
USD 2,500

Attendance of this course is **mandatory** for FLACS users.

Introduction

This course covers the standard modules in FLACS, such as geometry import and generation, gas dispersion, explosion and fire, as well as liquid pool spread. It also comprises presentations on validations, explosion mitigation, QA and probabilistic risk analysis (Including a FLACS-Risk demonstration). This course combines theory, demonstrations and practical exercises with FLACS software. Therefore, participants will be required to practice and apply their new knowledge through hands-on exercises. About half the time will consist of presentations

and the rest will include hands-on work with FLACS.

Course Objectives

The attendees will gain an understanding on the following topics:

- Physical models, applications areas and functionality of FLACS
- FLACS workflow: Preprocessing, processing and postprocessing
- Guidelines for setting up FLACS simulations
- Quality assurance of FLACS scenarios and results
- Proficiency in using FLACS for standard applications in their projects

Target Group

The course is aimed for people who plan to carry out consequence modelling with FLACS or interact closely together with FLACS users, for example:

- Process and safety engineers working in industries such as oil and gas (upstream, midstream and downstream), chemical, renewables, mining, nuclear, food manufacturing, homeland security, automotive, etc.
- Consultants in risk engineering consultancy companies
- Engineering managers overseeing safety and risk analysis
- Regulatory body professionals
- Structural engineers
- Academics, researchers and students
- CAD operators developing FLACS geometries

Prerequisites

This course is suitable for completely new users of FLACS as well as users who would like to refresh their knowledge. In general, no special prerequisites are required, but any prior knowledge in consequence modelling, CFD models or 3D modelling will in general be helpful.

Attendees Professional Benefits

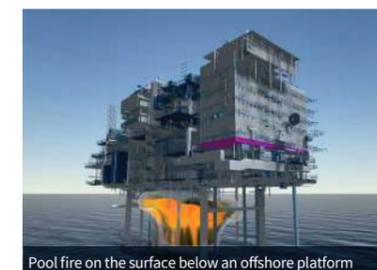
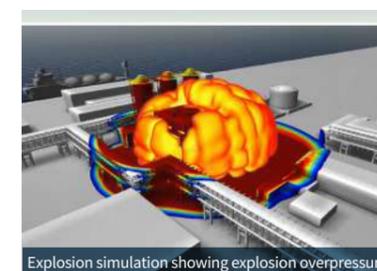
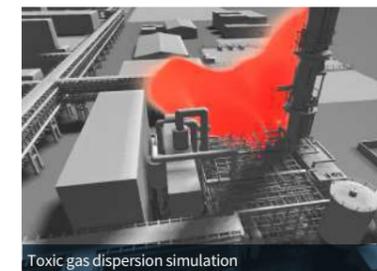
Participants will be able to use FLACS for process safety related projects and will acquire the following skills:

- Proficiency in performing FLACS simulations for various process safety related studies
- Ability to provide safety recommendations for design and operations
- Make informed decisions about risk planning and mitigation

Organizational Benefits

In addition to the professional skills development of the company staff and the enhanced competency of performing 3D consequence modeling studies (this includes dispersion, explosion and fire modelling), the organization will have the capability to utilize the industry standard tool FLACS to complement related safety studies, including:

- Process hazard analysis (HAZID, HAZOP, etc.)
- Risk management (QRA, hazardous area classification, etc.)
- Regulatory compliance (ATEX/ DSEAR, LPG Compliance Audits, etc.)
- Accident & incident investigation



Agenda

Day 1

- 08:30 Registration and coffee
- 08:55 Welcome
- 09:00 Introduction: Gexcon, explosion and FLACS
- 10:00 FLACS Runmanager
- 10:30 Coffee break
- 10:45 FLACS preprocessor CASD: Scenario definition
- 11:45 Exercise I: Explosion in test rig
- 12:30 Lunch
- 13:30 Exercise I: Explosion in test rig (cont.)
- 14:30 FLACS postprocessor FLOWVIS: Visualizing results
- 15:00 Exercise T1 - r1file tool: Exporting Exercise I results into an Excel spreadsheet
- 15:15 Coffee break
- 15:30 Mitigation of explosions
- 16:15 Exercise II: Explosion mitigation
- 17:00 End of Day 1

Day 2

- 08:30 Coffee
- 09:00 FLACS preprocessor CASD: Geometry building/ grid/ porosities
- 10:00 Exercise III (Part 1): Build geometry, calculate blast waves from explosion
- 10:45 Coffee break
- 11:00 Exercise III (Part 1): Build geometry, calculate blast waves from explosion (cont.)
- 12:30 Lunch
- 13:30 Exercise III (Part 1): Build geometry, calculate blast waves from explosion (cont.)
- 14:30 CAD import
- 15:00 Demo: Importing a .dgn file with geo2flacs tool
- 15:15 Coffee break
- 15:30 Exercise III (Part 2): DGN geometry import and explosion simulations
- 17:00 End of Day 2



A simulation of LNG release towards the road when filling the tanker in a terrain area

Agenda

Day 3

08:30 Coffee
 09:00 Validation testing and procedures for CFD
 10:00 Ventilation and dispersion
 10:45 Coffee break
 11:00 Exercise IV: Dispersion/explosion calculation in offshore geometry
 12:30 Lunch
 13:30 Exercise IV: Dispersion/explosion calculation in offshore geometry (cont.)
 15:15 Coffee
 15:30 Exercise IV: Dispersion/explosion calculation in offshore geometry (cont.)
 16:15 Efficient use of FLACS and QA
 17:00 End of Day 3

Day 4

08:30 Coffee
 09:00 Pool spread
 09:45 Exercise V: Pool spread simulation
 10:30 Coffee break
 10:45 Exercise V: Pool spread simulation (cont.)
 11:45 Explosion risk analysis
 12:30 Lunch
 13:30 FLACS-Fire introduction
 14:15 Exercise VI: Jet and pool fire simulations
 15:15 Coffee break
 15:30 Exercise VI: Jet and pool fire simulations (cont.)
 16:45 Final communications: FLACS customer and technical support (flacs@gexcon.com), survey, FLUG (FLACS User Group Meeting)
 17:00 End of Day 4

About FLACS

FLACS is a comprehensive, yet easy to use, software tool for modelling (dispersion, fire and explosion) consequences in full 3D for all typical flammable & toxic release scenarios. It is used extensively in the oil and gas and process industries and also in the nuclear, transportation, mining and power generation industries, as well as in facilities with dust explosion potential. By modelling with CFD in full 3D, it is possible to predict consequences with a higher level of detail and to include the impact of all contributing and mitigating effects (such as confinement and congestion due to the real geometry, ventilation and mitigation strategies).



A preview of the FLACS I Course

About Gexcon

Gexcon is a world-leading company in the field of safety and risk management and advanced dispersion, explosion and fire modelling. Our experience arises from detailed knowledge of explosion phenomena built up throughout years of conducting extensive research projects, carrying out safety assessments, performing accident investigations, and performing physical testing at the company's facilities.

For more FLACS information and product enquiries.

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