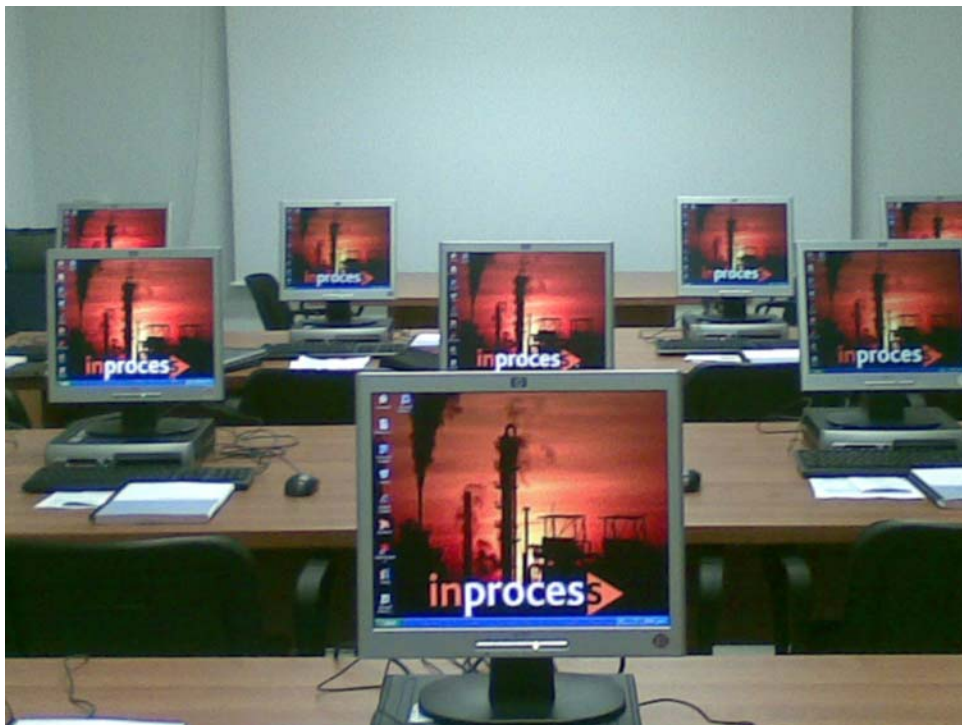


17<sup>TH</sup> TO 19<sup>TH</sup> APRIL 2012

HOTEL ATENEA, BARCELONA

**inproceso**



## STEADY STATE PROCESS SIMULATION

Basic Process Simulation course for engineers who begin to get exposed to the technology

## INTRODUCTION

The course content covers the basic needs of process simulation users. The basic unit operations are introduced in a stepwise manner with the objective of being able to build flowsheets by the end of the course. The use of several software functionalities will show users how to explore operating alternatives for the processing plant units that are being studied.

A hardcopy of the extensive training material used during the course will be provided to the students to be used as a basis for further study

## COURSE OBJECTIVES

The course has been designed to include many hands-on exercises to facilitate a more efficient and interesting learning experience. Theory is used to introduce the objectives of every module in the course as well as to help attendees to understand how the underlying calculations are performed.

The concepts acquired during the course will allow engineers to build their own process simulation cases to solve problems in the daily operation of the plant units – as well as supporting design studies. Basing decisions on rigorous simulation results will lead to better and quicker decision making and furthermore improve confidence in the decisions taken.

## COURSE AUDIENCE

This course is intended for engineers beginning to use process simulation as well as for those who already use it but who need a refresher to experiment with new software features or extend the applications they use process simulation for. The workshops examples are taken from common industry processes and have been designed with an increasing complexity, in order to help in developing the attendees' learning curve.

The course content is aimed at process engineers, control engineers, safety and environmental engineers, planning engineers and engineers from other departments where process simulation is or could be in use

## INSTRUCTORS

The training course will be lectured in English language by experienced **inprocess** instructors - who accumulate several years of experience in the use of process simulation both at industry and research/university level.

## MODULES CONTENT

MODULE NUMBER	MODULE TITLE AND SHORT DESCRIPTION	TIME	DAY
1	INTRODUCTION TO THE PROCESS SIMULATOR Working with an existing case. Getting used to GUI elements. Setting-up a user preferences file. How to work with fluid streams. How to install stream utilities. How to install and connect unit operations. The Degrees Of Freedom concept	3 hours	Day 1
2	BASIC THERMODYNAMICS Creating a new case. How to select components for a simulation: Traditional - hypothetical. The need of thermodynamic correlations and methods.	1 hour	
3	HEAT TRANSFER UNIT OPERATIONS Heaters, Coolers, Shell & Tube Heat Exchangers. Air coolers. Design calculations. Rating simulations	2 hours	
4	EXTENSIONS Expanding the capabilities of the simulator by using externally developed unit operations in the form of extensions	1 hour	
5	LOGICAL OPERATORS, SPREADSHEET & CASE STUDY Additional mathematical tools sometimes needed to drive the simulation results to the desired optimal or conditional solution. <b>Set. Adjust. Balance. Recycles.</b> Use of the internal <b>Spreadsheet</b> to enhance the level of possible flowsheet calculations. Sensitivity Analysis ( <b>Case Study Tool</b> )	4 hours	Day 2
6	DISTILLATION COLUMNS Distillation columns: How to install, define and solve distillation columns. Absorbers. Condensers and Reboilers. Column Design. Column Sizing	3 hours	
7	REACTIONS AND REACTORS How to define several types of reactions. How to use them inside reactors in the flowsheet. Basic reactors (conversion, equilibrium, Gibbs). CSTRs. PFRs.	3 hours	Day 3
8	COMPRESSORS, PUMPS AND PIPELINES Simulation of compressors and pumps, with and without curves. Calculation of outlet conditions. Modeling of pipelines for pressure drop and heat transfer calculations.	3 hours	
9	REPORTING Exploring how to extract the results obtained in the simulation calculations by the generation of internal reports or by exporting them to a third software	1 hour	
10	ECONOMIC EVALUATION In order to develop the most economical design of a process or a unit, not only must the production and the purity be considered, but the operating costs as well. The use of internal spreadsheet will enhance the level of possible flowsheet and economical calculations. Case Studies for Sensitivity Analysis	2 hours	Option

## HOW TO REGISTER

To book your place at the course please, send us an email to: [training@inprocessgroup.com](mailto:training@inprocessgroup.com) detailing:

- Course name and dates
- Attendee name
- Company/Department/Position
- Phone number
- email
- Short (less than 50 words) background description
- Need for proforma invoice?

After receipt of the registration request, places will be reserved for 10 days. After payment of the course fee, the registration is firmly confirmed.

*For an optimal learning experience, the number of available places is limited to 10 attendees. Please, register as soon as possible in order to ensure your participation.*

## COURSE VENUE



The course will be held at Hotel Atenea Barcelona, (C/Joan Güell, 201-211, E-08028 Barcelona). The hotel is located 50m from the Av. Diagonal, near María Cristina metro station, directly connected to the city centre and main railway stations.

The hotel has pre-booked rooms for course attendees at special rates. Please mention the attendance of the course during reservation.

Atenea Hotels website: [www.city-hotels.es](http://www.city-hotels.es)

## COURSE PRICE

This 3 days course is priced **€ 1,500**, VAT (18%) excluded.

The course price includes: the course lectures, the use of the software, the printed course material, the coffee breaks and the lunch meals.

## PAYMENT

All bank transfers to:

**Banco Santander Central Hispano, S.A.**

CCC: **0049 4736 20 2916085794**

IBAN: **ES13 0049 4736 2029 1608 5794**

SWIFT: **BSCHEMXX**

Send us an email with a copy of the bank transfer to inform us about the payment ([training@inprocessgroup.com](mailto:training@inprocessgroup.com))