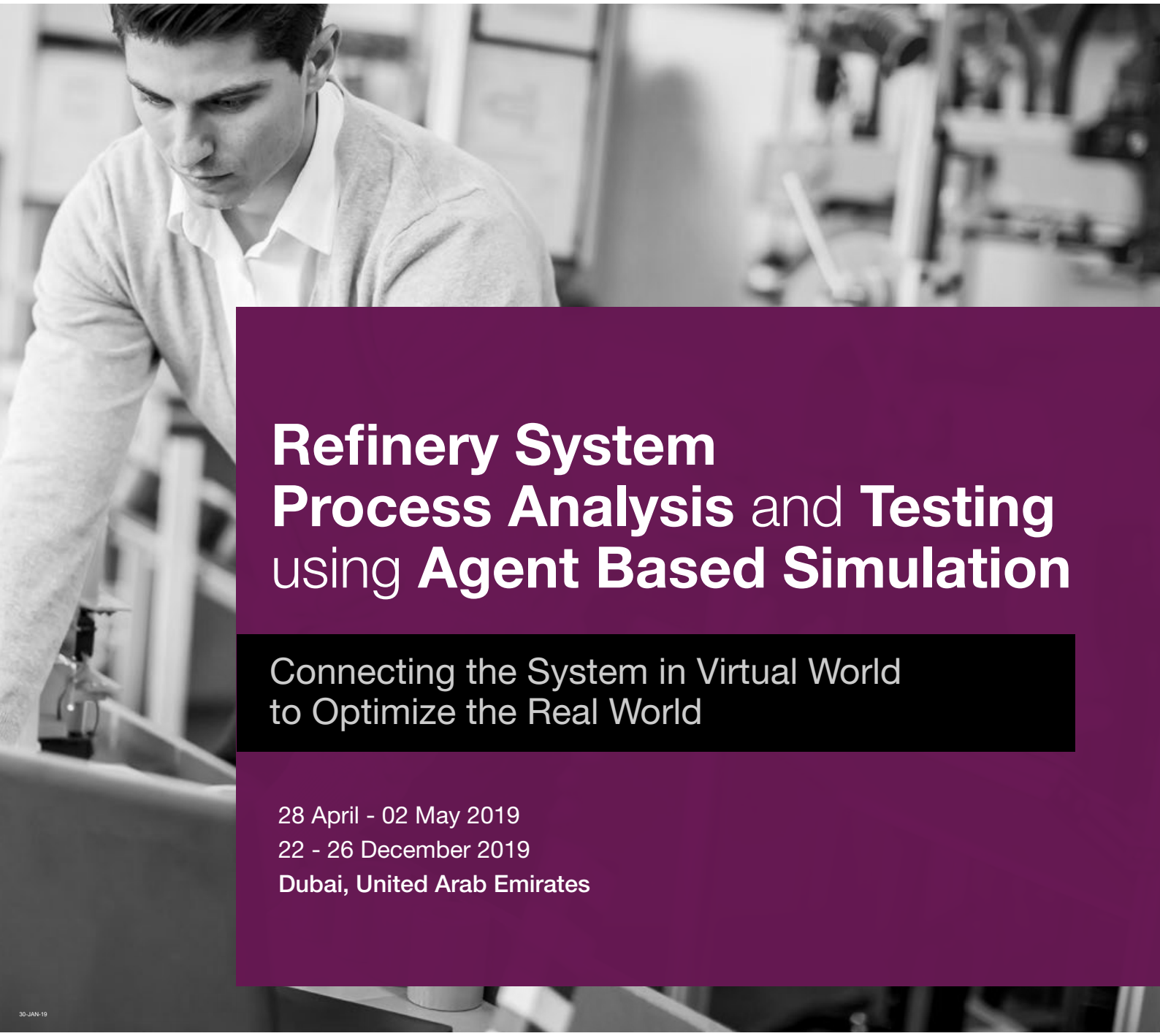
AZ TECH

An ISO 9001:2015 & ISO 29990:2010
Certified Company



Refinery System Process Analysis and Testing using Agent Based Simulation

Connecting the System in Virtual World to Optimize the Real World

28 April - 02 May 2019
22 - 26 December 2019
Dubai, United Arab Emirates

30-JAN-19

ACS REGISTRARS Quality Assurance ISO 9001

ACS REGISTRARS ISO 29990

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Institute of Asset Management IAM CORPORATE MEMBER

IAM endorsed TRAINER

THE GLOBAL COMPACT United Nations Global Compact

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WHY CHOOSE THIS TRAINING COURSE?

The oil refining process is one of the most complex processes in today's industry, as it incorporates catalyst systems, complex reactor designs, sophisticated computer control hardware and software, and advanced safety and environmental controls.

A typical medium-size refinery has hundreds of pumps, heat exchangers and drums; dozens of furnaces, compressors, and high temperature/high pressure reactors; and thousands of control loops and associated computer control technologies. In order to optimize these complex systems and their interactions approach to single point or single system optimizing cannot work as effectively as we hope, as the refinery has to be considered as a system, rather than connection of its parts. Here is where the multi-method simulation comes to play an important part, as we can use Discrete Event, Agent Based and System Dynamics simulation to incorporate all the refinery systems into one and be able to have the outputs from the system, as well as its components, rather than just having an output from one of the components.

This training course will feature:

- Explanation of refinery process
- Basis of Discrete Event, Agent Based and System Dynamics simulation
- Establishing relationships between measurements and reservoir properties
- How to minimize overall operating costs while achieving the maximum possible "upgrade" for each hydrocarbon molecule (called "molecule management")
- Hands-on practice in AnyLogic software for all three methods of simulation
- Advanced concepts: AnyLogic fluid library, incorporating operator performance

WHAT ARE THE GOALS?

By the end of this training course, participants will be able to:

- Learn the concepts and methods of selecting feedstocks and product slates
- Understand the capabilities of AnyLogic as multi-method simulation tool
- Acquire the knowledge to consider the refinery as a system, not a sum off its parts
- Incorporate optimizing models into a simulation package
- Create and run simulations of complex systems
- Harness the possibilities of testing change options in virtual environment

WHO IS THIS TRAINING COURSE FOR?

This training course is designed for all professionals working in the field of data analysis, oil and gas exploration, geology and reservoir modelling.

This AZTech training course is suitable to a wide range of professionals but will greatly benefit:

- Process engineers
- Refinery schedulers
- Planners, and managers
- Data Scientists
- Data Analysts
- Petroleum engineers
- Refinery Plant Engineers

HOW WILL THIS TRAINING COURSE BE PRESENTED?

This AZTech training course will utilise a variety of proven adult learning techniques to ensure maximum understanding, comprehension and retention of the information presented. This includes presentation of theoretical concepts, video lectures and many exercises that will be done through the guided work of the delegates themselves. The delegates will use free Personal Learning Edition AnyLogic software to create models and define and select statistics.

COURSE SCHEDULE:

28 April - 02 May 2019

22 - 26 December 2019

Dubai, United Arab Emirates

THE COURSE CONTENT

Day One: Refinery Process

- Basics of Petroleum refining industry
- Refinery Configuration
  - Distillation Processes
  - Coking and Thermal Processes
  - Catalytic Processes
  - Cracking Processes
  - Alteration Processes
  - Treatment Processes
  - Product Blending
- Mathematical Programming in Refining

Day Two: Multi-method Simulation

- Discrete Event Simulation Modeling
- System Dynamics Simulation Modeling
- Agent Based Simulation Modeling
- Introduction to AnyLogic software
- Exercise: First model development in AnyLogic software
- Multi-method modeling and its application to refinery process
- Exercise: Multi-model creation in AnyLogic

Day Three: Petroleum Refinery Planning

- Characterization, Physical and Thermodynamic Properties of Oil Fractions
- Crude Assay
  - Bulk properties
  - Fraction properties
- Regression-Based Planning
- Artificial-Neural-Network-Based Modeling
- Exercise: using fluid library in AnyLogic

Day Four: Planning Under Uncertainty for a Single Refinery

- Deterministic Model Formulation
- Stochastic Model Formulation
- Sampling Methodology
- Objective Function Evaluation
- Variance Calculation
- Demand Uncertainty
- Process Yield Uncertainty
- Variation Coefficient
- Exercise: Refinery plant model creation in AnyLogic

Day Five: Integration with Petrochemical Supply Chain

- Refinery and Petrochemical Synergy Benefits
- Delivery of crude oil to refinery
- Exercise: Connecting the delivery process with refinery process
- Exercise: Calculating outputs and statistics
- Exercise: Optimization results of the system as a whole
- Areas of application for multi-method-based simulation

THE CERTIFICATE

AZTech Certificate of Completion for delegates who attend and complete the course.

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DATE	VENUE	FEES(USD)
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22 - 26 Dec 2019	Dubai - UAE	$4,950

REGISTER NOW

This fee is inclusive of Documentation, Lunch and Refreshments may be subjected to 5% VAT

Complete & send by fax/mail to address given below.
Please use **BLOCK CAPITALS.**

REGISTRATION DETAILS

FAMILY NAME:

FIRST NAME:

POSITION: COMPANY:

MAILING ADDRESS:

TELEPHONE: MOBILE:

FAX: EMAIL:

AUTHORISATION

AUTHORISED BY:

POSITION: EMAIL:

TELEPHONE: FAX:

POSTAL ADDRESS:

MODE OF PAYMENT

- ☐ PLEASE INVOICE MY COMPANY
- ☐ PLEASE INVOICE ME
- ☐ PLEASE FIND ENCLOSED A CHEQUE PAYABLE TO AZTECH
- ☐ ONLINE / CREDIT CARD

DOWNLOAD TRAINING PLAN 2019

Scan this code with your smart phone to download Training Plan 2019

Our training portfolio will provide you a number of seminars and courses to choose from depending on your organisational goals and personal development objectives.

HOTEL ACCOMMODATION

Hotel accommodation is not included in the Registration Fee. A reduced corporate rate and a limited number of rooms are available for attendees wishing to stay at the hotel venue. Please make your request for accommodation at least 3 weeks prior to the commencement of the course.

EVENT DISCLAIMER

We reserve the right to cancel or postpone a seminar or related event, change venue, substitution of the Instructor and alter the course content at our sole discretion. If this occurs, our responsibility is limited to a refund of any registration fee(s) already paid. We are not responsible for airline tickets, hotels costs, other tickets or payments, or any similar fee penalties or related or unrelated losses, costs and/or expenses registrant may incur or have incurred as a result of any trip cancellations or changes.

CANCELLATION & SUBSTITUTION

You must notify the Registrar of cancellations at least 2 weeks before a scheduled seminar in order to be eligible for a credit. If you cannot attend, you may send a replacement from your organisation at no charge. There is a $250 handling charge for all cancellations or rescheduling. We reserve the right to cancel a seminar due to low enrollment. All registrants will be notified in advance and a full refund will be provided upon request.

CERTIFICATION

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4 WAYS TO REGISTER

Toll Free: **800-AZTECH**
Telephone: **+971 4 427 5400**
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Email Address: **info@aztechtraining.com**
Visit our website: **www.aztechtraining.com**