TECHNICAL
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School of Engineering

COURSE PROGRAMME

000181

ATIC004 - Flow Assurance

Flow assurance is about ensuring that fluid flows as intended in a pipe or a well.



Learn from the Best in the Business!

Course overview

Duration: 5 days / 40 hours · Intermediate level

Why take this course

Flow assurance is about ensuring that fluid flows as intended in a pipe or a well. It relies heavily on well-established sciences like fluid mechanics, thermodynamics, mechanical engineering, chemical engineering, discrete mathematics, automation, and computer science. However, even though the sciences are well established, flow assurance is developing very rapidly, and keeping updated on all the latest developments can be a huge challenge.

Advanced flow assurance technology often leads to very significant cost savings, sometimes even making the building of permanent topside platforms redundant for new offshore development projects by sending unprocessed multiphase flow directly to shore.

This workshop will examine not only the key concepts and theories of flow assurance, but also compare the various simulation tools closely and through various examples, help participants understand the best way to apply these tools into their flow assurance practice

Who it is for and how it helps

Flow assurance engineers, field production operations staff, field chemist staff, surface facility design engineers, surface facility operations engineers, and production managers.

What you will learn

- Have a sound understanding of relevant flow regimes that affect the integrity of piping systems and methods of control
- Recognise the cause and influence of the formation of substances that may damage the piping system or disrupt the process flow
- Recognise various aggressive environmental factors affecting pipeline systems
- Understand the basic principles of pipeline corrosion and methods of protection
- Understand the application of relevant pipeline maintenance and cleaning techniques
- Have knowledge of process metering methods

Curriculum

Modules 01–03

01 Pipelines Systems and Structural Integrity

- Introduction to process pipelines from source to production facility
- Types of pipes, specifications and construction
- Materials strength and relevant mechanical properties
- Pipeline structural integrity and mechanical failure, Fatigue, Creep, etc.
- Water hammer
- Worked examples of stress analysis
- Materials of construction

02 Corrosion and Corrosion Control of Pipeline Systems

- Principles of corrosion
- Kinetics of corrosion
- Forms of Corrosion
- Uniform
- Bimetallic
- Pitting
- Stress corrosion cracking
- Erosion Corrosion
- Microbiologically influenced corrosion (MIC)
- Hydrogen Induced, H2S, CO2
- Pipeline Coatings, External, Internal
- Corrosion Inhibitors
- Cathodic Protection, Sacrificial, Impressed Current

03 Fundamental Principles of Flow Regimes and Flow Control

- Fundamental fluid Laws
- Flow profiles
- Pressure loss
- Multiphase flow
- Holdup effects
- Gas-liquid flow regimes in horizontal and vertical pipes, Flow regime maps

Curriculum

Modules 03–05 · Module 03 — continued

- Multiphase pumping systems
- Slug flow problems and damage
- Slug catchers
- OLGA Flow Assurance

04 Unwanted Products in Pipelines and Methods of Control

- Pipeline clogging and blockage of pipelines
- Unwanted product types
- Sand
- Salinity
- Hydrates
- Wax
- Asphaltenes
- Emulsions
- Scale
- Corrosion and Abrasive contents
- Chemicals injected to achieve flow assurance, Hydrate Inhibitors, Drag Reducing Agents, Solvents, etc.
- Testing and separation of unwanted products

05 Pipeline Maintenance, Cleaning & Inspection and Flowrate Measurements

- Direct and indirect pipe inspection
- Pigging methods for cleaning
- Pigging Inspection
- Hydro-testing
- Inspection (NDT) techniques, x-ray, ultrasonic, Magnetic, etc.
- Overview of API 570 Pipe Inspection Code
- Flow rate measurements

Programme instructor



Михаил Арабов

Инструктор по подготовке и переработке нефти и газа Михаил Арабов помогает нефтяникам и газопереработчикам улучшить производственный процесс и достичь долгосрочных преимуществ для своих компаний. К.х.н., доцент Астраханского государственного технического университета, Михаил обладает более чем 40-летним опытом работы в различных сферах нефтяной и газовой промышленности.

Михаил является автором пяти изобретений и более 100 рационализаторских предложений, которые были успешно внедрены на газоперерабатывающем заводе. Он также опубликовал более 100 научных статей в центральных и местных изданиях, направленных на улучшение работоспособности оборудования, экономию ресурсов и создание экологически безопасных технологий.

Михаил Арабов - высококвалифицированный специалист в области добычи, переработки нефти и газа. Он автор учебного пособия «Техника и технология добычи и подготовки нефти, газа и утилизации пластовых сточных вод» и множества научных трудов.

Михаил получил высшее образование и степень кандидата химических наук. Он окончил Томский политехнический институт по специальности «Инженер-технолог редких и рассеянных элементов», а также Астраханский Государственный университет, где получил дополнительное образование в области механики бурения и нефтепромыслового оборудования.

Михаил имеет богатый опыт работы в нефтегазовой отрасли, включая должности главного инженера по проектированию и строительству заводов по сжиженному газу, заведующего кафедрой «Машины и оборудование нефтяных и газовых месторождений», а также руководителя проекта по строительству морской буровой ледостойкой платформы для месторождения на каспийском море. Также в свое время работал начальником теплоцеха и установок по стабилизации углеводородного конденсата, нефти, утилизации пластовых сточных вод.

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Participation and contacts

Joining the programme

Contact the Academy and quote course code 000181 to confirm dates, delivery format, prices and enrolment terms.

Training for your team

Tell us your business goals, the roles and number of participants, and your preferred dates and location. This will help us discuss the right training option.

Preparing for the programme

The published programme does not specify any prerequisites. Contact us before enrolling to confirm how to prepare.

Discuss your training needs

mail@tecedu.org
www.tecedu.academy

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