TECHNICAL EDUCATION ACADEMY

School of Engineering

COURSE PROGRAMME

000008

PROD018 - Acid and Hydraulic Fracturing

The course provides the knowledge and tools needed to design and analyze hydraulic and acid fracturing jobs.



Learn from the Best in the Business!

Course overview

Intermediate level

Why take this course

The course provides the knowledge and tools needed to design and analyze hydraulic and acid fracturing jobs. An overview of the fundamental of rock mechanics and its application to hydraulic fracturing will be presented. The data requirements and various elements of massive hydraulic fracturing treatment design, the design of fracture treatment using analytical tools and commercial simulators are covered in detail.

Who it is for and how it helps

Petroleum engineers, production engineers, development geologist, field engineers, production managers, field managers, oil field technical staff

What you will learn

- Demonstrate understanding of stimulation operations
- Explain formation damage mechanisms and their identification
- Explain acids reactions and their selection for carbonates and sandstones
- Recognize acids and additives used in matrix stimulation
- Conduct acid treatment design
- Apply acid placement and diverting technologies
- Explain acid displacement and flow back
- Analyze laboratory tests
- Demonstrate acid fracturing design basics
- Articulate HSE and acidizing operations
- Use safety & quality assurance measures

Curriculum

Modules 01–04

01 Acid Fracturing

- Acid fracture conductivity
- Diversion in acid fracturing
- Reservoir Simulation Problem – Carbonate
- Acid Fracture Simulation Problem – Carbonate

02 Fracture Mechanics

- Linear elasticity and fracture mechanics
- Fracturing fluid mechanics
- Leak off and volume balance in the fracture
- Basic fracture geometry
- Fracturing of high permeability formations
- Fracturing horizontal well in high permeability reservoirs
- Leak off models
- Fracture and non-Darcy flow
- Fracture propagation, toughness, and tip effects
- Reservoir Simulation Problem – Sandstone
- Fracture Simulation Problem – Sandstone

03 Fracturing Materials

- Fracturing fluids
- Fracturing fluid rheology
- Fracturing fluid additives
- Proppant types and proppant selection
- Impact of proppant and fluid type on the fracture conductivity
- Fracture Fluid Recycling

04 Fracture Treatment Design

- Micro-fracture Test
- Mini-fracture test
- Optimum treatment design

Curriculum

Modules 04–05 · Module 04 — continued

- Fracture treatment evaluation
- Water Block Problem – Reservoir Simulation Problem
- Predicting production increase

05 Fracturing Under Specific Circumstances; tight gas fracturing

- High rate gas wells fracturing
- Unconsolidated formation fracturing
- Skin bypass treatment
- Condensate dropout
- Shale gas production with Plastic-like deformation

Joining the programme

Contact the Academy and quote course code 000008 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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