



## Coiled Tubing Applications Training Course





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## Introduction:

Coiled tubing CT has many applications within the petroleum industry, including drilling CT drilling, cementing, wellbore cleanup, oxidizing, and hydraulic fracturing. In contrast, excessive frictional pressure loss, due to the relatively small tubing diameter and the curvature of the coiled tubing which is thought to be secondary to the flow, often restricts the maximum achievable fluid injection rates. Therefore, it is of practical importance to study the flow regularity and friction properties in coiled tubing operations.

A comprehensive look at coiled tubing components, tools, and the breadth of operations possible with this technology. Participants will learn about the tools that make coiled tubing operations successful and the essential components that ensure the tubing withstands the harsh conditions of the oil and gas environment.

## What is Coiled Tubing in Oil and Gas?

This coiled tubing course is dedicated to unraveling the definition, use, and significance of coiled tubing in the oil and gas sector. Attendees will comprehensively understand the indispensability of coiled tubing technology in modern petroleum extraction and management operations.

From its role in enabling complex drilling processes to facilitating critical oil and gas well intervention tasks, the multifaceted applications of coiled tubing will be thoroughly examined and contextualized for real-world scenarios.

## Targeted Groups:

Engineers, Senior Operations Personnel, and Company Representatives with zero-to-intermediate well intervention knowledge assigned to evaluate, plan, and/or execute coiled tubing, slackline, or wireline interventions will find this coiled tubing course extremely beneficial.

## Course Objective:

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

- Plan, design, manage, and execute interventions utilizing Coiled Tubing.
- Enhance operational performance during the various interventions using Coiled Tubing applications.
- Explain the recommended procedures for different Coiled Tubing field situations and applications.
- Discuss the proper pressure control system for any given situation.
- Learn about the most commonly used downhole tools and explain their properties.
- Understand how to calculate and define string limits for Coiled Tubing.
- Learn how to work safely with liquid nitrogen.

## Targeted Competencies:

Upon the end of this coiled tubing training, participants' competencies will:

- Master coiled tubing operations and procedures.
- Understand coiled tubing equipment and tools.
- Proficiency in coiled tubing oil and gas well intervention techniques.
- Know safety protocols and risk management in coiled tubing operations.
- Ability to troubleshoot and solve problems in coiled tubing processes.
- Familiar with coiled tubing applications in various oil and gas well conditions.
- Competence in interpreting and analyzing coiled tubing data.
- Skills in planning and executing coiled tubing jobs.
- Insight into the latest advancements and technologies in coiled tubing.
- Capability to work effectively in a coiled tubing team environment.

## Becoming a Skilled Coiled Tubing Engineer:

This coiled tubing training will help you dive into the world of a coiled tubing engineer and discuss the necessary training, skills, and insights required to excel in this demanding field. Students will explore the various aspects of coiled tubing, from the initial steps of inspection and deployment to the execution of high-stakes operations, ensuring engineers are well-prepared to tackle the challenges they may face.

## Course Content:

### Unit 1: Background of Coiled Tubing Technology:

- The historical development of coiled tubing technology.
- Coiled tubing package components, operational procedures, and limitations, well control principles.
- Troubleshooting procedures.
- Hydraulic applications that involve the circulation of fluids.
- Mechanical services that involve the downhole conveyance of required tools or equipment.
- Electrical services employ downhole tools powered by or transmitted through an electrical cable.
- Completed permanent applications with coiled tubing installed either as the producing conduit or as a part of it for flow control or other requirements e.g., ESP conveyance.

### Unit 2: Pumping Services in Coiled Tubing Operations:

- Fluid displacement nitrogen lifting.
- Reservoir oil and gas well improvement acid washing/stimulation.
- Acid washing.
- Acid stimulation matrix acidizing.
- Fill cleanouts sand removal/pressure jetting.
- High-pressure jetting.
- Remedial/abandonment services sand consolidation/cementing.
- Chemical sand consolidation.
- Cementing in coiled tubing oil and gas scenarios.



### **Unit 3: Work String Components and Services:**

- Drilling/milling as a coiled tubing application.
- Underream within a cased hole.
- Fishing operations using coiled tubing technology.
- Coiled tubing slick line operations.

### **Unit 4: Stiff Wireline and Coiled Tubing Integration:**

- Log procedures facilitated by coiled tubing.
- Perforate in the realm of coiled tubing engineer expertise.
- Utilize downhole video cameras in coiled tubing inspections.

### **Unit 5: Completions with Coiled Tubing Deployment:**

- Manufacture and understand production and velocity strings.
- Production strings and their function.
- Injection strings - what is coiled tubing's role?
- Implementing tubing patches.