

Production
Operations

Course

VSD Advanced Engineering



LINKING QUALITY - CONNECTING EXCELLENCE

OUR VALUES



Service Excellence

We prioritize and consistently deliver top-tier service quality, exceeding industry standards to ensure the success of our clients.



Industry Support

Committed to actively supporting and addressing the evolving needs of the Oil and Gas industry, we strive to contribute to its growth and sustainability.



Client-Centric Growth

We embrace client feedback as a catalyst for growth, continuously evolving our business to align with the dynamic requirements of our valued clients.



Respectful Project Prioritization

We prioritize projects with a deep commitment to honoring and respecting people. Our approach creates a friendly, collaborative environment that builds lasting trust within our team and with our clients.

Learning Objectives

Upon completing of this course, students will be able:

- To define the operation and construction of the electrical drives based on the inverter technology
- To review VSD Parts and function
- To understand troubleshooting methods for VSD
- To analyses and familiarize on how to utilize VSD drawings and Part
- Step up transformer function and how to select the tap changer
- Calculate motor voltage and voltage drop
- Successful perform commissioning and startup

Module 1

- Class Introduction
- Pre-Training Test

VSD Drive

- Reasons and advantages of variable speed drive comparisons
- Variable speed drives basic theory, voltage source inverter and convertor
- Variable speed drives disadvantages, harmonics mitigation
- Variable speed drives parameter programming

Module 2

Drives Fundamentals

- Basic principles of Variable-Speed Drives (VSD's)
- Power semiconductors, diode, thyristor (SCR), IGBT
- Inverters, voltage-source and current-source, pulse width modulated (PWM) inverters
- Switching transients, harmonics and power factor
- Simulator video for rectifier and inverter operation

Module 3

Variable speed drives generic troubleshooting techniques

- Variable speed drives modes of operations, and, common failure modes
- Testing and identification of failed thyristor and diode
- inspections, detecting phase unbalances, loss of phases

Module 4

Protection of AC motors, requirements and drives protection

- VSD motor problem areas
- Variable speed drives maintenance
- Protection of inverters and electronic converters driving motors

Module 5

VSD problem areas and protection

- Methods of preventing VSD failures
- How to select the correct VSD for your applications.
- Step up transformer selection and adjusting voltage.
- Commissioning VSD and startup
- Final Test

OUR SERVICES



NEXUS PETROLEUM ACADEMY



NEXUS MENTORING



ENGINEERING SERVICES



TRAININGS



**NEXUS COLLABORATION
(TECHNICAL WORKSHOPS AND
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EMPLOYEE GAP ASSESSMENT



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FIELD DIGITALIZATION



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