

Comprehensive Course in Electric Submersible Pump (ESP)

Cairo (Egypt)

23 November - 4 December 2025

UK Training

PARTNER



Comprehensive Course in Electric Submersible Pump (ESP)

Code: OG28 From: 23 November - 4 December 2025 City: Cairo (Egypt) Fees: 6800 Pound

Introduction

This in-depth course provides a detailed understanding of Electric Submersible Pumps ESPs, focusing on their principles, design, and operational aspects. Participants will gain comprehensive knowledge of ESP systems, their components, troubleshooting methods, and their applications in artificial lift systems, as well as their advantages and limitations.

Course Objectives

By the end of this course, participants will:

- Understand the fundamental principles and components of Electric Submersible Pumps ESPs.
- Learn the operational techniques of ESP systems and controllers.
- Evaluate the advantages and limitations of ESP systems compared to other artificial lift methods.
- Acquire skills in designing ESP systems for specific applications.
- Master troubleshooting methods to optimize ESP efficiency and performance.

Course Outlines

Day 1: Introduction to ESP Systems

- Overview of Electric Submersible Pumps ESPs.
- Reasons for using ESPs in production.
- Key components of an ESP system.
- Basic operating principles of ESPs.
- Comparison of ESPs with other artificial lift systems: advantages and disadvantages.

Day 2: ESP Design and Application

- Fundamentals of pump design.
- Key parameters in ESP design.
- Selection criteria for ESP systems.
- Understanding performance curves.
- Applications of ESP systems in various environments.

Day 3: ESP System Components

- Electric motor design and function.
- Seal chamber design and its role in system protection.
- Pump structure: shaft, pump intake, and stages impeller and diffuser.



- Types of power cables and installation considerations.
- Role and design of check valves in ESP systems.

Day 4: ESP Controllers

- Functions of ESP controllers.
- Ensuring proper electrical flow to the motor.
- Variable speed drives and soft-start controllers.
- Controller settings for different applications.
- Troubleshooting controller-related issues.

Day 5: Troubleshooting and Maintenance

- Identifying common issues in ESP systems.
- Diagnosing pump operation problems.
- Techniques for resolving motor and power cable failures.
- Best practices for maintaining ESP systems to extend lifespan.
- Review of case studies and real-world troubleshooting scenarios.

Day 6: Advanced Pump Design Concepts

- Advanced impeller and diffuser designs.
- Designing for high-temperature and corrosive environments.
- Integrating ESPs with other production systems.
- Advanced power cable configurations.
- Future trends in ESP technology.

Day 7: Operational Considerations

- Monitoring ESP performance.
- Controlling flow rates and pressure.
- Managing gas and solid intrusion in ESP systems.
- Environmental considerations and compliance.
- Optimizing production efficiency.

Day 8: Safety in ESP Operations

- Electrical safety during ESP installation and operation.
- Risk assessment and hazard mitigation.
- Emergency response procedures.
- Best practices for handling ESP equipment.
- Adherence to industry safety standards.

Day 9: Case Studies and Applications

- Analysis of real-world ESP applications.
- Problem-solving for complex ESP installations.
- Discussion of successful ESP designs.
- Common challenges and solutions in ESP operations.



- Lessons learned from practical case studies.

Day 10: Final Review and Practical Exercises

- Comprehensive review of course content.
- Hands-on exercises with ESP systems.
- Group discussions and problem-solving activities.
- Participant presentations on specific ESP scenarios.
- Final assessment and feedback session.



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BLACKBIRD
FOR TRAINING

 International House 185 Tower Bridge
Road London SE1 2UF United Kingdom

 +44 7401 1773 35
+44 7480 775526

 Sales@blackbird-training.com

 www.blackbird-training.com

