TECHNICAL
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ACADEMY

School of Engineering

COURSE PROGRAMME

000130

Fundamentals of Pumps and Compressors

Immerse yourself in the world of pumps and compressors with our unique five-day "Fundamentals of Pumps and Compressors" training program!



Learn from the Best in the Business!

Course overview

Duration: 5 days / 40 hours · Intermediate level

Why take this course

Immerse yourself in the world of pumps and compressors with our unique five-day "Fundamentals of Pumps and Compressors" training program! This course is designed for anyone who wants to learn about different types of pumps, their selection, operation, and maintenance, as well as gain knowledge on the functioning of compressors and their management.

You will start by learning about the classification and construction of various pumps, including centrifugal and positive displacement pumps, as well as the features of gland packing. Then, you will move on to pump parameters, their characteristics, and the factors influencing their selection. An important topic of the course is the combined operation of multiple pumps, where you will study parallel and series pump installation schemes.

The course also thoroughly covers various methods of adjusting pump parameters, as well as the overall efficiency of pump systems and proportional regulation of pump head. A significant component of the training is the maintenance of pumps, where you will learn how to correctly install, service, prepare for startup, and manage pump operation, as well as determine the requirements for operation and maintenance systems.

Additionally, the course will enable you to master knowledge of different types of compressors, such as reciprocating, diaphragm, multistage, as well as rotary, screw, centrifugal, and axial compressors. You will learn how to work with compressor installations and the specifics of their control.

Don't miss the opportunity to take this comprehensive and in-depth course, which will allow you to become an expert in the field of pumps and compressors and provide a competitive advantage in the job market. Register today and begin your education with the "Fundamentals of Pumps and Compressors"!

Who it is for and how it helps

Engineers, senior technicians, and system operators designing, operating, and maintaining pump and compressor systems in oil and gas facilities.

What you will learn

- Selecting the appropriate integrated pump and compressors units (drivers, pumps, compressors, and auxiliary systems)
- Integrating the pump or compressor units with the upstream and downstream piping and process equipment
- Evaluating pump and compressor units and their drivers in multiple train configurations, parallel and series
- Identifying the key local and remote control elements of pumps and compressors as well as their drivers

Course overview — continued

- Defining the major life-cycle events, such as changes in flows, fluid composition, and operating conditions that can affect equipment selection and operating strategies
- Assessing the key pump hydraulics and compressor thermodynamics, and their effect on selection and operations
- Identifying significant operating conditioning monitoring parameters and troubleshooting techniques

Curriculum

Modules 01–05

01 Pumps

- Pumps classification
- Pumps construction
- Centrifugal pumps
- Positive placement pumps
- Pump packing

02 Choosing the pump

- The pumps parameters
- The pumps characteristics
- Factors for choosing the pump

03 Cooperation of several pumps

- Parallel installed pumps
- Consistent installed pumps

04 Regulation of pumps parameters

- Throttle pump
- Bypass governing
- Correction of impeller’s diameter
- Comparison of the regulation methods
- Total efficiency of pumping system
- Regulation by constant pressure drop
- Proportional regulation of discharge head

05 Pump Maintenance

- Installation
- Pumps servicing
- Launch preparation and pump launch
- Pumps work control

Curriculum

Modules 05–08 · Module 05 — continued

- Pump shutdown
- Pump exploitation requirements
- Maintenance system
- Pump failure
- Impeller pump failure
- Rotor pump failure
- Pump alignment with gearbox and electric motor

06 Compressors

- Types of compressors
- Reciprocating compressors
- Diaphragm compressors
- Stage compressor. Cooling
- Theory of reciprocating compressors

07 Rotary compressors

- Impeller compressors
- Screw compressors
- Centrifugal compressors
- Axial compressors

08 Air compressors systems

- The compressors management

Programme instructor



Jeyhun Aliyev

With over 25 years of immersive experience, Jeyhun has established himself as a strategic force in the realms of Mechanical Maintenance, Engineering, Operations, and training within high-stakes industries. His journey began in the oil fields of Azerbaijan and has spanned across various pivotal roles, culminating in significant tenures at esteemed organizations such as BP and ADNOC Technical Academy.

Jeyhun's expertise is deeply rooted in developing and implementing competency programs, notably achieving OPITO Levels 2 & 3, which are pivotal for mechanical technicians to perform with high efficiency and minimal support. His role in crafting career and competency maps for mechanical staff has been instrumental in enhancing operational capacities of numerous organizations.

A substantial portion of his career is dedicated to courses on Mechanical Static and Rotating Equipment, equipping professionals with the necessary skills to excel in a highly technical field. His proficiency extends to managing comprehensive maintenance operations, ensuring adherence to Service Level Agreements (SLAs), Standard Operating Procedures (SOPs), and company regulations, thus driving profitability and operational effectiveness.

Jeyhun's experience includes the safe delivery of maintenance activities across a variety of mechanical equipment, optimizing resources to achieve daily maintenance goals. His significant experience in project execution, planned shut downs, and annual turnarounds focuses on the strategic utilization of manpower and materials, underscored by his adherence to quality standards like API610, API 617, ISO 14001, and ASME16.5.

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Participant ratings

Programme evaluation based on participant feedback

Overall programme rating — 4.4 / 5

Clarity of learning objectives	**4.3 / 5**
Confidence in applying knowledge and skills	**4.2 / 5**
Achievement of learning objectives	**4.3 / 5**
Relevance of content to job tasks	**4.1 / 5**
Suitability of difficulty for the level of preparation	**4.2 / 5**
Increase in knowledge	**4.1 / 5**
Skills development	**4.1 / 5**
Willingness to recommend the programme to colleagues	**4.4 / 5**

16 responses

Joining the programme

Contact the Academy and quote course code 000130 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

Learn from the Best in the Business!