MERCURY

Advanced HVAC Design - Principles and Practices for Efficient Systems (15442)

23 May – 3 June 2027
Dubai (UAE)



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Istanbul - Türkiye: +90 539 599 1206
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Advanced HVAC Design - Principles and Practices for Efficient Systems (15442)

Ref: 15442_308054 **Date:** 23 May – 3 June 2027 **Location:** Dubai (UAE) **Fees:** 8500 Euro

Introduction:

In this Advanced HVAC Design course, participants will delve into the core concepts of HVAC design, exploring topics ranging from heat transfer and load calculations to equipment selection, air distribution, and control strategies. They will have the expertise to create HVAC systems prioritizing comfort, energy efficiency, indoor air quality, and sustainability.

Participants in this Advanced HVAC Design course will understand the unique requirements and challenges of HVAC design for oil and gas facilities. They will explore the concepts of the HVAC oil and gas industry using advanced HVAC solutions and systems.

Participants will be exposed to the responsibilities of an HVAC engineer in the oil and gas sectors, focusing on tailored design, engineering, and advanced HVAC training relevant to the industry. Emphasis will be on integrating advanced HVAC tools and design principles that align with the safety standards and efficient operation of HVAC systems in this sector.

Targeted Groups:

- HVAC Engineers and Designers.
- Facility Managers and Maintenance Engineers.
- Project Managers and Supervisors.
- Offshore Operation and Construction Engineers.
- Safety and Asset Integrity Personnel.
- Inspection and Quality Control Engineers.
- Regulatory and Compliance Professionals.
- Individuals involved in HVAC system planning, installation, or operation on offshore Jackup rigs.

Course Objectives:

At the end of this Advanced HVAC Design course, the participants will:

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- Provide senior engineers with advanced knowledge in HVAC, ventilation, and ducting systems specifically tailored for offshore Jackup rigs.
- Familiarize participants with the design, installation, operation, and maintenance of HVAC systems in offshore environments.
- Enhance understanding of international standards, codes, and regulations governing jack-up rigs' HVAC systems.
- Develop skills in load calculations, equipment selection, and sizing for offshore conditions.
- Enable participants to design and optimize ventilation systems for various areas on Jackup rigs.
- Understand duct design, insulation requirements, and heat load estimation techniques.
- Gain knowledge on air filtration, maintenance, and compliance with industry standards.
- Learn about control systems, automation, and energy efficiency strategies in offshore HVAC.
- Develop expertise in fire protection, smoke control, humidity control, and corrosion prevention.
- Acquire commissioning, operation, and maintenance skills for offshore HVAC systems.

Targeted Competencies:

At the end of this Advanced HVAC Design training, participants competencies will:

- Introduction to HVAC Systems and Design Fundamentals.
- Air Distribution Design and Duct Sizing.
- HVAC Equipment Selection and System Components.
- Hydronic System Design and Thermal Comfort.
- HVAC Controls and System Commissioning.

Course Content:

Unit 1: Introduction to Offshore HVAC Systems:

- Overview of HVAC systems on Jackup rigs.
- The role of HVAC is to maintain safe and comfortable working conditions.
- Introduction to relevant standards: API RP 500 and IMO MODU Code.

Unit 2: HVAC Design Considerations for Offshore Rigs:

- Load calculations for offshore environments.
- Equipment selection and sizing for offshore conditions.
- Compliance with international standards: ASHRAE Standard 62.1 and 90.1.

Unit 3: Ventilation Systems Design:

- Types of ventilation systems on offshore rigs.
- Ventilation design considerations for various areas living quarters, control rooms, workshops.
- Compliance with relevant standards: API RP 505 and NFPA 71.

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Unit 4: Ducting Design and Heat Load Estimation:

- Ductwork sizing, layout, and insulation requirements.
- Estimating heat gains and losses in ducting systems.
- Compliance with duct design standards: SMACNA HVAC Duct Construction Standards.

Unit 5: Air Filtration and Maintenance:

- Importance of air filtration in offshore HVAC systems.
- Selection and maintenance of air filters.
- Compliance with ASHRAE Standard 52.2 for filter testing and efficiency ratings.

Unit 6: HVAC Controls and Automation:

- Overview of control systems and automation in offshore HVAC.
- Control strategies for energy efficiency and occupant comfort.
- Compliance with relevant industry standards: ASTM C1668-20 and ISO 16484.

Unit 7: Fire Protection and Smoke Control Systems:

- Design and installation of fire protection and smoke control systems.
- Compliance with standards: NFPA 72, NFPA 101, and API RP 14C.
- Detailed study of ASTM E2816-20a in HVAC system.

Unit 8: Humidity Control and Corrosion Prevention:

- Importance of humidity control in offshore environments.
- Techniques for corrosion prevention in HVAC systems.
- Compliance with NACE MR0175 and ISO 8502 for corrosion protection.

Unit 9: Energy Efficiency and Sustainability:

- Energy-saving opportunities in HVAC systems on Jackup rigs.
- Implementing energy-efficient practices and technologies.
- Compliance with energy management standards: ISO 50001 and ASHRAE Standard 90.1.

Unit 10: Commissioning, Operation, and Maintenance:

- Commissioning procedures for HVAC systems.
- Regular maintenance and troubleshooting techniques.
- Compliance with maintenance standards: ASHRAE Guideline 0 and API RP 573.