Consulting and Training | Reach New Heights

Course Name

MSF Desalination Plant Operation & Performance Ratio Calculations

Sector Name

Mechanical Engineering

Document Type

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Course Introduction

Desalination technologies play a big role in supplying fresh water especially in Gulf area where shortage of Fresh water supplies is present. In this short course emphasize is directed towards multistage flash desalination

systems. The attendees will have the opportunity to be exposed to the recent developments in this area. Desalination technologies are overviewed, effect of the different operational parameters on multi – stage flash systems (MSF) are given. Design, operation and maintenance of MSF are presented. Full and part load operations are illustrated in connection with control systems.

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Target Audience

- ✓ Automotive Engineer
- ✓ Boiler Engineer
- ✓ Ceramics Engineer
- ✓ Equipment Engineer
- ✓ High-Pressure Engineer
- ✓ Marine Engineer
- ✓ Mechanical Design Engineer
- ✓ Mechanical Engineer
- ✓ Naval Architect
- ✓ Pipeline Engineer
- ✓ Power Engineer
- ✓ Rotating Equipment Engineer
- ✓ Senior Mechanical Engineer
- ✓ Turbine Engineer
- ✓ Validation Engineer

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Learning Objectives

- ✓ To enable attendees to understand the desalination technologies available
- ✓ To give the thermal and mechanical background of multistage flash systems
- ✓ To layout the theories for thermal as well as the mechanical sizing
- ✓ To illustrate the operation and troubleshooting of multistage desalination
- ✓ To give the maintenance schedules used for such plant

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Course Outline

✓ 01 DAY ONE

Module (01) Introduction To Desalination Technologies:

- ✓ Multistage Flash (MSF)
- ✓ Once-through and recirculation systems
- ✓ Applications from Operating Plants around the world
- ✓ Multi-Effect Distillation (MEF)
- ✓ Vapor Compression
- ✓ Reverse Osmosis (RO)
- ✓ Electrodialysis Systems (ED)

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Course Outline

✓ 02 DAY TWO

Module (02) Heat Balance And Energy Evaluations Of MSF Systems

- ✓ Evaporation Flashing Theories
- ✓ Single and Multistage Flash Analysis
- ✓ Heat and Mass Balance Calculations
- ✓ Thermal and Mechanical Design Details
- ✓ Once-through and recirculation systems
- ✓ Applications from Operating Plants around the world

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Course Outline

✓ 03 DAY THREE

Module (03) Multi-Stage Plants, Components, and Equipment

- ✓ Stage Designs
- ✓ Brine Heaters
- ✓ Measuring Instruments
- ✓ Valves
- ✓ Pumps
- ✓ Auxiliaries System
- ✓ Material Selection

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Course Outline

✓ 04 DAY FOUR

Module (04) Operation And Maintenance Strategies of Multi-Stage Flash Systems

- ✓ Steady State Operation
- ✓ Part Load Operation
- ✓ Control and Dynamic Performance Analysis
- ✓ Optimize Operation Process
- ✓ Preventive Maintenance
- ✓ Predictive Maintenance
- ✓ Conditioning Monitoring Schedules for MSF

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Course Outline

✓ 05 DAY FIVE

Module (05) Multi-Stage Systems In Cogeneration Plants

- ✓ Gas Turbine Systems combined with MSF
- ✓ Steam Turbines with MSF
- ✓ Cycle and System Thermal Analysis
- ✓ Economic Aspects of Cogeneration Desalination

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Confirmed Sessions

FROM	TO	DURATION	FEES	LOCATION
Nov. 16, 2026	Nov. 20, 2026	5 days	4250.00 $	UAE , Dubai
Aug. 10, 2026	Aug. 14, 2026	5 days	4950.00 $	Austria , Vienna
May 17, 2026	May 21, 2026	5 days	4250.00 $	Bahrain , Manama
April 5, 2027	April 9, 2027	5 days	4250.00 $	UAE , Dubai

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