



Performance Monitoring of Industrial Pumps

Training Workshop
Feb 18-20, 2020



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Day One:

* Theory of Pumping

- Requirement of pumping
- Pumps' flow, head
- Affinity laws

* Type of Pumps

- Constant head & capacity
- General Selection criteria

* Centrifugal Pump

- Pumps' flow
- Velocity triangle
- Internal flow & Energy losses
- Theoretical & Practical Head
- Characteristics Curves

Day Two:

* Performance of Centrifugal Pump

- Calculations of Head, Power, Efficiency
- Operating vs. Design conditions
- Calculation of NPSH
- Use of Software

* Effects of Piping System on Pumps

- System curve and throttling control.
- Friction losses in pipes
- Pumps operating point
- Effect of specific gravity

* Miscellaneous

- Capacity uprates of pumps
- Minimum flow requirement
- Pump drivers (motors, turbines)
- Parallel pumps operation
- Capacity Control Methods

- Mechanical aspects affecting performance

Day Three:

* Reciprocating Pumps & Performance

- Calculations of Head, Power, Efficiency
- Volumetric efficiency & Flow estimation

* Case Studies of Pumps

- High pressure trip on fluid density change
- Loss of lubrication
- Uprate of lube oil pumps
- Pump impeller pre-mature failure
- Cavitation of BFW pump

Instructor Profile

Mr. Rizwan Ahmed Khan is a Lead Process Engineer with 10 years of experience in process engineering. His major experience includes Process Engineering & Technical Services, Modification studies, Project feasibility, Process / Equipment sizing & design. He remained involved in various major projects like compression studies, plant optimization & catalyst change out activities.

Course Benefits

Design, selection, operation and optimization of modern pumping systems.

Target Audience

Managers

Process & Production Engineers

Senior Supervisors

Workshop Dates :

February, 18-20, 2020

Venue:

FFC Sona Tower, 156 The Mall, Rawalpindi

Training Fee:

Fee for training program is **Rs. 35,000** (excluding tax) per participant.

Discounts:

Discount of 10% available for all nominations received before 20th Jan, 2020.

Group discount of additional 10% for 3 or more nominations from an organization.

Lunch & Refreshments:

Refreshment breaks during workshop along with lunch during the 3 workshop days are included in cost.

Registration:

Please fill in our application form for registration and email at **techservices@ffc.com.pk**. Confirmation will be sent within one week of registration.

Payment Mode:

Payment is due upon receipt of the acceptance letter along with the invoice. Please ensure that the payment reaches the office before the start of the program.

Our preferred mode of payment is by cheque / banker's draft payable to Fauji Fertilizer Company Limited.

Please send the cheque / draft to:

**Technical Services (HO),
Fauji Fertilizer Company Ltd,
Sona Tower, 156 - The Mall, Rawalpindi,**

Cancellation/Substitutes & Refund:

In case a registered participant is unable to attend, please inform at least 2 days before the workshop for any substitute participation. Cancellation is free up to 7 days before workshop start date (except for an application processing fee of Rs. 5,000).



Refund will not be possible after that or in case of no show.

Participants Feedback:

"A very good initiative by FFC in achieving the milestone of promotion of Technical Platform for Pakistan"

"Welcoming questions about any topic & even on 1st slide, Highly appreciate the vast knowledge of trainers"

"A good experience and a good technical forum for interaction between employees of different organizations"

For Technical Queries Contact:

Shawala Azhar (051-8454346)

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