

# Turbo Machinery Control & Protection Systems



**March 16 -18, 2020**  
(3 Days Technical Program)

**FFC**  
FAUJI FERTILIZER COMPANY LTD.

[www.ffc.com.pk](http://www.ffc.com.pk)

# Workshop Overview

## Benefits:

The training workshop is designed to share our knowledge with our colleagues from the local industry. The program will give in-depth knowledge of Electronic Governors, Generator Control (ISO/Droop), Performance Control, Over-speed Protection and Anti-surge Systems. The course will focus on API 612 & 670 requirements for turbomachinery systems.

Operations, Maintenance and Design engineers, supervisors and senior technicians of all trades can take this opportunity to enhance their knowledge on engineering design, maintainability and retrofit aspects turbomachinery systems.

## Our Approach is Interactive & Personal:

Prepared directly by industry engineer, training incorporates a hands-on approach, with interactive lectures, case studies, visual demos, group discussions more of a forum of technical executives; an environment quite different from typical training institutes.

All participants are invited to utilize the rich experience of the instructor to its maximum by discussing their own plant cases for general benefit of the class.

## Our Inherent Expertise:

FFC has now been involved with imparting training to the local industry since more than a decade at our plant.

This training workshop is now being conducted at our Head Office in Rawalpindi by highly experienced technical experts.

## Target Audience:

This workshop is intended for:

- Instrument & Control System Engineers
- Maintenance Engineers
- Operation Engineers
- Process Engineers
- Instrument Supervisors & Technicians
- Maintenance Supervisors & Technicians

## Instructor Profile

Mr. Assadullah Qureshi is an accomplished professional in Instrumentation and Control (I&C) Systems having 16 years of multifaceted experience of process industry. He has worked on number of retrofit and expansion projects including Upgradation of DCS / ESD systems, Modernization of turbomachinery systems of compressors and turbo-generators, Installation and Commissioning of Gas Turbine, Waste heat boiler and Gas compressors.

He had privilege to represent FFC on an overseas Greenfield project, Pakistan Maroc Phosphor (2005-2008) in Morocco. He is currently working as Deputy Manager (I&C) at FFC-3.

Mr. Assadullah Qureshi graduated in Electronics Engineering from NED University, Karachi in 2003. He has participated and conducted various seminars and trainings. He had presented a paper on "Modernization of Turbomachinery Systems" at PCS (Process Control & Safety) Symposium 2016 in Houston USA.





## Day – 1

- Course Outline and Expectations
- Steam Turbines, Types and Applications
- Types of Turbine Governing Systems
- Hydraulic & Mechanical Governors
- Limitations of Hydraulic & Mechanical Governors
- Electronic Governors – Architecture
- Functions and Advantages of Electronic Governors
- Woodward 505/ 505E Governor and main features
- Woodward CPC-II Electro Hydraulic Converter
- API-612 / 670 Compliance

## Day – 2

- Refresher of Day-1 (Key Points)
- Multi-stage Turbine Control
- Steam Mapping (Induction / Extraction Turbine)
- Generator Governing System (ISO / Droop)

- Compressor Governing System (Performance)
- Over Speed Protection - Mechanical
- Electronic Over Speed Protection (OSP)
- Woodward Protech GII
- Trip Block (TMR) - Solenoid
- API-612 / 670 Compliance

## Day – 3

- Compressor (Basic and Types)
- Centrifugal Compressor (Types and Configurations)
- Compressor Surging and Consequences
- Anti-surge Controls (Recycle or Blow-off)
- Surge Limit Line (SLL) on OEM Maps
- Surge Mapping on Anti-Surge Controller
- Proximity to Surge Calculations
- Functioning of Anti-Surge Controller
- Loop Decoupling of Multiple Controllers
- Anti-Surge Valve Sizing
- Concluding Notes

# Registration & Venue

## Workshop Dates:

The three-day training workshop will be held from 16 - 18 March 2020.

## Venue:

The training will be conducted at FFC Head Office, SONA Towers situated opposite Pearl Continental Hotel (PC) on Mall Road in Rawalpindi Cantonment.

## Training Fee:

The fee for the training program is **Rs. 35,000/-** (excluding tax) per participant.

## Discounts:

Discount of 10% available for all nominations received before 20th Feb 2020. Group discount of 10% for 3 or more nominations from an organization.

## Lunch & Refreshments:

Refreshment breaks during workshop along with lunch at our cafeteria during the workshop days are included in cost.

## Registration:

Please fill in our application form for registration and email at **techservices@ffc.com.pk**.

## 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 Towers, 156 - The Mall, Rawalpindi,  
Tel: +92-51-8454840

## Cancellation/Substitutes & Refund:

In case a registered participant is unable to attend, please inform at least 5 days before the workshop for any substitute participation.



Cancellation is free up to 10 days before workshop start date (*except for an application processing fee of **Rs. 5,000***). A refund will not be possible after that or in case of no show.

## For Queries Contact:

Phone: 051-8454840  
Email: techservices@ffc.com.pk

# Turbo Machinery Control & Protection Systems

**3 Days Technical Program**

(March 16 – 18, 2020)

## REGISTRATION FORM

**Full Name:** \_\_\_\_\_

**Organization:** \_\_\_\_\_

**Designation:** \_\_\_\_\_

**Professional Experience (total no. of years):** \_\_\_\_\_

**Your current responsibilities in the organization:** \_\_\_\_\_

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\_\_\_\_\_

**Qualification:** \_\_\_\_\_

**CNIC:**

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**Address:** \_\_\_\_\_

**City:** \_\_\_\_\_ **Office Land Line:** \_\_\_\_\_

**Cell No:** \_\_\_\_\_ **E-mail:** \_\_\_\_\_

**Thank you!**

- On receipt of the application, an acknowledgement E-mail shall be sent to you.
- On receipt and realization of the program fee (by Banker's Draft) the nomination shall be confirmed.
- A program “invite” with complete details (Venue, contact person and detailed instructions) shall be communicated shortly thereafter.