Economic Dispatch & Grid Stability Constraints in Power System

09 - 13 June 2019
Dubai, United Arab Emirates
Economic Dispatch & Grid Stability Constraints in Power System

Why Choose this Training Course?

This highly-interactive training course includes real-life case studies and exercises where participants will be engaged in a series of interactive small groups and class workshops. This AZTech training course gives you sufficient knowledge about generator dynamics, and concept of stability in power system operation. Also, you will learn how electricity is generated in generators from an AC current supply and what intermediate steps are needed to deliver the generated power to the customers with high reliability.

This training course discusses the simplified generator models which are commonly used in dynamic stability studies. By taking this AZTech training course, the audience will learn the modern control approaches implemented for generators to maintain the voltage and frequency within the limits. The idea of primary and secondary frequency control/droop control in synchronous generators is included in the discussions. In order to increase the reliable operation of the system during the load changes, concept of power-angle stability and voltage stability (voltage collapse) are described in this course. Moreover, alternatives for load restorations using tap changer transformers are also covered. This course not only focuses on the generation side, but also covers the transmission level by introducing the concept of power flow as an advanced tool to calculate the operating points in the power system. Different power flow formulation approaches including DC and AC power flow is discussed. To solve the power flow in the power system, Guass-Seidel, Newton-Raphson and fast decoupled approaches are introduced. This lays the basic foundations of generation plants (or generators), their control, concepts of economic dispatch and power flow analysis.

What are the Goals?

By the end of this training course, participants will know:

- Power generation characteristics, Economic dispatch problem and Thermal unit economic dispatch and methods of solution
- Optimization with constraints, using dynamic programming for solving economic dispatch and other optimization problems and Transmission system effects
- The unit commitment problem and solution methods
- Generation scheduling in systems with limited energy supplies, Production cost models, Automatic generation control and Interchange of power and energy
- Power system security techniques, Least-squares techniques for power system estimation, and Optimal power flow techniques and illustrative applications

COURSE SCHEDULE:
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Who is this Training Course for?

This AZTech training course is suitable to a wide range of professionals but will greatly benefit:

- Power system analysts and engineers, including generation and transmission planners, protection engineers
- Power developers and marketers
- Transmission Planning Engineer
- Plant Operations Engineer (POE)
- Regulatory staff, economic and management consultants

How will this Training Course be Presented?

This AZTech training course will utilise a variety of proven adult learning techniques to ensure maximum understanding, comprehension and retention of the information presented. This includes lectures, workshops & work presentations, case studies & practical exercises, videos and software & simulators.

www.aztechtraining.com
DAY 01: Characteristics of Power Generation Units and Transmission System Effects
- Characteristics of Steam Units
- Variations in Steam Unit Characteristics
- Cogeneration Plants
- Typical Generation Data
- The Power Flow Problem and Its Solution
- Transmission Losses

DAY 02: Economic Dispatch of Thermal Units and Methods of Solution
- The Economic Dispatch Problem
- Thermal System Dispatching with Network Losses Considered
- The Lambda-Iteration and Newton’s Methods
- Gradient Methods of Economic Dispatch
- Economic Dispatch with Piecewise Linear Cost Functions and by using Dynamic Program
- Economic Dispatch Versus Unit Commitment

DAY 03: Unit Commitment
- Constraints in Unit Commitment
- Unit Commitment Solution Methods
- Composite Generation Production Cost Function
- Solution by Gradient Search Techniques
- Hard Limits and Slack Variables
- Fuel Scheduling by Linear Programming

DAY 04: Production Cost Models and Control of Power Generation
- Uses and Types of Production Cost Programs
- Probability Methods and Uses in Generation Planning Problems
- Generator, Load, Prime-Mover, Governor and Tie-Line Models
- Economy Interchange between Interconnected Utilities
- Transmission Effects and Issues
- Power System Security

DAY 05: Estimation in Power Systems and Optimal Power Flow
- Introduction to Advanced Topics in Estimation
- Application of Power Systems Estimation
- Solution of the Optimal Power Flow
- Linear Sensitivity Analysis
- Security-Constrained Optimal Power Flow
- Impacts of Free–Market Pricing on Economic Dispatch Decisions

THE CERTIFICATE:
AZTech Certificate of Completion for delegates who attend and complete the training course
Hotel Accommodation
Hotel accommodation is not included in the Registration Fee. A reduced corporate rate and a limited number of rooms are available for attendees wishing to stay at the hotel venue. Please make your request for accommodation at least 3 weeks prior to the commencement of the course.

Event Disclaimer
We reserve the right to cancel or postpone a seminar or related event, change venue, substitution of the Instructor and alter the course content at our sole discretion. If this occurs, our responsibility is limited to a refund of any registration fees paid. We are not responsible for airline tickets, hotels costs, other tickets or payments, or any similar fee penalties or related or unrelated losses, costs and/or expenses registrant may incur or have incurred as a result of any trip cancellations or changes.

Cancellation & Substitution
You must notify the Registrar of cancellations at least 2 weeks before a scheduled seminar in order to be eligible for a credit. If you cannot attend, you may send a replacement from your organisation at no charge. There is a $250 handling charge for all cancellations or rescheduling. We reserve the right to cancel a seminar due to low enrollment. All registrants will be notified in advance and a full refund will be provided upon request.

4 Ways to Register
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Fax Number: +971 4 427 5401
Email Address: info@aztechtraining.com
Visit our website: www.aztechtraining.com

Download Training Plan 2019
Scan this code with your smart phone to download Training Plan 2019

Certification
AZTech Certificate of Completion for delegates who attend and complete the training course

Complete & send by fax/mail to address given below. Please use BLOCK CAPITALS.

REGISTRATION DETAILS
FAMILY NAME:
FIRST NAME:
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<thead>
<tr>
<th>DATE</th>
<th>VENUE</th>
<th>FEES(USD)</th>
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<tbody>
<tr>
<td>09 - 13 Jun 2019</td>
<td>Dubai - UAE</td>
<td>$4,950</td>
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Register Now

This fee is inclusive of Documentation, Lunch and Refreshments and maybe subjected to 5% VAT.