



# IE264: Advanced Distributed Control System Operation

## Training Description:

DCS family of controllers, communication interfaces and I/O modules match the most challenging requirements in industrial automation thanks to DCS rich experience in general and industry-specific process and power automation. DCS control and I/O products contribute to higher return on assets by improving production control, maximizing process availability, and minimizing maintenance.

DCS also offers the High-Integrity Controller - an IEC 61508 and TÜV-certified control environment for combining safety and business critical process control in one controller without sacrificing safety integrity.

This intensive training course is a comprehensive course to the Distributed Control System (DCS) Operation (Advanced) which are used in the process and refinery industries, where they provide flexibility and are easy to maintain. The training course will provide details on DCS in relation with international standards. For DCS, we focus on the practical aspects in plants.

## Training Objectives:

By the end of the training, participants will be able to:

- ✓ Explain the EORI Number
- ✓ Understand DCS System architecture
- ✓ Understand Remote I/Os
- ✓ Understand Network components
- ✓ Understand Unit start-up/shut down and emergency handling through DCS operation
- ✓ Understand Trouble shooting equipment/process problems
- ✓ Understand Pre-start-up instrument checks-Stroking control valves, Control loop check, IPF loop checks
- ✓ Understand Start-up and stabilization of plant through DCS operation after turn around, normal/emergency shut downs
- ✓ Understand Normal shut down of plant through DCS operation
- ✓ Understand Upset/Emergency handling through DCS operation during feed/utilities/power failure scenarios and fire emergencies
- ✓ Understand Executing special procedures through DCS operation
- ✓ Identify equipment/process variations/irregularities from observed DCS data and trends, assess urgency and impact of activity, initiate corrective actions and communicate to concerned divisions and/or personnel
- ✓ Understand Generate Maximo work requests and unit monthly production reports
- ✓ Understand Perform Overall duties of CCR Operator Position (Grade 13) independently

## Training Requirement:

“Hand’s on practical sessions, equipment and software will be applied during the course if required and as per the client’s request.”

This training course is available upon request in English or Arabic. Content, location and duration can be adapted to your specific wishes. It is therefore possible to focus on specific modules of the training course as per client’s learning needs and objectives. Further, it should be forwarded to us a month prior to the course dates.

## Training Designed for:

This course is intended for those engineers, this course will provide a broad understanding of the technology and an excellent base for further learning.

For those coming from an operating environment, the course will lead to a greater knowledge of the maintenance, inspection and repair needs of DCS including information on common causes of failure. Solutions will be offered using latest “state of art” technologies. The course is designed for professionals who want to improve the performance of DCS in their company.

## Training Program:

### DAY ONE:

- ❖ Pre-Assessment
- ❖ Introduction
- ❖ System architecture of DCS
- ❖ The operator level
- ❖ The process level
- ❖ System communication
- ❖ Technical details of the control network
- ❖ Unit start-up/shut down and emergency handling through DCS operation
- ❖ Trouble shooting equipment/process problems

### DAY TWO:

- ❖ The controller DCS
- ❖ Pre-start-up instrument checks-Stroking control valves
- ❖ Control loop check
- ❖ IPF loop checks
- ❖ Start-up and stabilization of plant through DCS operation after turn around
- ❖ Normal/emergency shut downs

### DAY THREE:

- ❖ DCS accessories
- ❖ Front panel
- ❖ Protection
- ❖ Remote I/Os
- ❖ Digital input / output module DC 732F
- ❖ Normal shut down of plant through DCS operation
- ❖ pset/Emergency handling through DCS operation during feed/utilities/power failure scenarios and fire emergencies

### DAY FOUR:

- ❖ I/O terminal units of DCS
- ❖ Communication
- ❖ Network components
- ❖ The Operator Level with DigiVis
- ❖ Messages & operator hints
- ❖ Executing special procedures through DCS operation

- ❖ Identify equipment/process variations/irregularities from observed DCS data and trends, assess urgency and impact of activity, initiate corrective actions and communicate to concerned divisions and/or personnel

**DAY FIVE:**

- ❖ Hardware structure
- ❖ Commissioning
- ❖ Advanced controller
- ❖ Additional advanced I/O
- ❖ Generate Maximo work requests and unit monthly production reports
- ❖ Perform Overall duties of CCR Operator Position (Grade 13) independently
- ❖ Course Conclusion
- ❖ POST ASSESSMENT and EVALUATION

Course Related Standards and Professional Manufacturer – ISA, ABB, Yokogawa, Foxboro, Honeywell

**Training Methodology:**

This interactive training course includes the following training methodologies as a percentage of the total tuition hours:-

- 30% Lectures, Concepts, Role Play
- 70% Workshops & Work Presentations, Techniques, Based on Case Studies & Practical Exercises, Software & General Discussions
- Pre and Post Test
- Group Exercises (2)
- Project work
- Role Play
- Simulation
- Case Studies
- Gamification (learning through games)
- Individual Exercises

**Training Certificate(s):**

Internationally recognized certificate(s) will be issued to each participant who completed the course.

**Training Timings:**

**Daily Timings:**

- 07:45 - 08:00 Morning Coffee / Tea
- 08:00 - 10:00 First Session
- 10:00 - 10:20 Recess (Coffee/Tea/Snacks)
- 10:20 - 12:20 Second Session
- 12:20 - 13:30 Recess (Prayer Break/Lunch)
- 13:30 - 14:30 Last Session

**For training registrations or in-house enquiries, please contact:**

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Training & Career Development Department

