US616 – DCS 800 Maintenance & Commissioning

Course Description

Course Duration
The duration is 4 days.

Course Type
This is an instructor led course. Approximately 50% of the course is hands-on lab activities.

Course Goal
The goal of this course is to teach students to start-up, adjust, operate, maintain, troubleshoot and repair the DCS 800 DC Drive using available programming and troubleshooting tools.

Student Profile
The student will typically be electricians, technicians, and engineers responsible for installing, servicing and maintaining the DCS 800 Drives.

Prerequisites and Recommendations
The student should have a basic knowledge of power electronics, PC’s, DC motors, DC Drives and control circuits. The student should also have the basic ability to use test equipment such as digital meters, analogue meters, oscilloscopes and computers.

Course Objectives
Upon completion of this course, students will be able to:

- Understand DC Control theory & shunt wound motors
- Control and operate the DCS 800
- Program the drive to satisfy their application requirements
- Commission and tune the DCS 800
- Communicate with the drive using all available operator interfaces
- Troubleshoot and correct faults using available tools
- Repair faulty hardware
- Program the drive via Drives Window Light PC Tool

Main Topics
- Course Introduction
- Operator panel usage (CDP-DCS) & Start-up Wizard
- Control and operation principles of DC converters
- Complete software analysis
- Application macro analysis
- Complete hardware analysis
- Component and circuit board functions analysis
- Reading and interpreting circuit diagrams
- Drives Window Light PC Tool operation and usage
- Commissioning the drive
- Fault tracing and troubleshooting

www.abb.us/drives
# Course Description

## Course Calendar

<table>
<thead>
<tr>
<th>Day 1</th>
<th>Day 2</th>
<th>Day 3</th>
<th>Day 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 08:00 – 5:00</td>
<td>• 08:00 – 5:00</td>
<td>• 08:00 - 5:00</td>
<td>• 08:00 - 3:00</td>
</tr>
<tr>
<td>Course Introduction</td>
<td>General software overview</td>
<td>Hardware overview</td>
<td>12 Pulse presentation</td>
</tr>
<tr>
<td>DC theory</td>
<td>Commissioning of drive via DCS800 democase</td>
<td>Schematic block diagram analysis (D1-D7)</td>
<td>Serial Communication overview</td>
</tr>
<tr>
<td>Installing of DCS800 Tools</td>
<td>Firmware analysis w/labs</td>
<td>Hardware Lab Exercise for 480V D1-D7 Chassis sizes</td>
<td>Fieldbus interfacing</td>
</tr>
<tr>
<td>Control Panel Operation</td>
<td>AP programming w/labs</td>
<td>ESD concepts and procedure</td>
<td>PLC Control</td>
</tr>
<tr>
<td>Actual signal analysis</td>
<td></td>
<td>Safety procedures</td>
<td></td>
</tr>
<tr>
<td>DWL presentation w/startup assistant</td>
<td></td>
<td>Construction analysis</td>
<td></td>
</tr>
<tr>
<td>Configurable assistant</td>
<td></td>
<td>Troubleshooting and repair</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Warning &amp; fault analysis</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Failure symptom analysis</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Drive power system measurements</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Static measurements</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dynamic measurements</td>
<td></td>
</tr>
</tbody>
</table>