

## Direct Current Crane Controls

OEM: Rockwell Automation • Duration: 3 Days (24 hrs) • Code: MUS-305

### COURSE MODULES & TOPICS

#### Objectives

- Identify and explain component layout of a crane
- Describe the function and operation of electrical components associated with DC cranes
- List and describe the purpose of components located in a DC power control system
- Describe the operation of DC motors
- Analyze a DC schematic to determine failed component
- Demonstrate proper troubleshooting techniques
- Demonstrate proper maintenance associated with cranes

#### Prerequisites

- Understanding of electrical theory and electrical systems

#### Next Level Learning

- Motor Control and Troubleshooting course (EMS-230)

#### Course Agenda

##### Day 1

- Detailing Power Circuits
- Tracing Control Circuits
- Operating Series Motors
- Operating Shunt Motors
- Listing Crane Hoist Controls
- Describing Hoist Points 1-5
- Troubleshooting Hoist Direction

##### Day 2

- Explaining crane lowering controls
- Defining lowering principles
- Identifying collector shoes
- Identifying collector bars

- Explaining limit switch controls
- Defining dynamic lowering
- Troubleshooting lowering direction
- Using knife switches
- Describing off-position dynamic braking
- Explaining time limit acceleration
- Tracing reversing-plugging control

### Day 3

- Explaining condenser timing
- Using voltage drop acceleration
- Troubleshooting bridge control circuits
- Troubleshooting trolley control circuits
- Troubleshooting bridge/trolley circuits
- Review