The course is designed to teach students how to identify the electrical components, theory of operation, and introduce proper troubleshooting procedures on the IRC5 Compact robot controller. In addition, this course will teach the student how to properly disassemble and reassemble the mechanical unit. It will also teach proper preventive maintenance procedures.

Topics include
- Theory of operation of the IRC5 Compact robot controller
- Safety precautions used while troubleshooting the IRC5 Compact robot controller electrical system
- Description of components in the IRC5 Compact robot controller
- Principles of logical troubleshooting from power up through emergency stop loop and servo system
- Input/Output interfacing between the IRC5 Compact robot controller and peripheral equipment
- Proper safety precautions used while performing mechanical repair
- Operation of robot control and mechanical unit
- Description and operation of mechanical components
- How to use manual for repair and ordering of spare parts

Course objectives
After successfully completing the course, the participant should be able to:
- Practice safety as it pertains to the robot system
- Identify and use the FlexPendant
- Run the robot system in manual mode and automatic mode
- Interpret and respond to event messages, use event logs
- Identify different parts of the robot modules and arm
- Load system software
- Troubleshoot Power ON circuits
- Troubleshoot computer and drive system to a board level
- Troubleshoot Motors ON/Run Chains circuits
- Troubleshoot the Motors, brakes, and resolvers
- Calibrate the robot
- Interface an input device and an output device to the robot
- Perform safety precautions used while doing mechanical repair
- Properly start-up, operate and shutdown the robot
- Describe the operation of mechanical components
- Disassemble and reassemble mechanical unit
- Use the manual for repair and ordering of spare parts
- Describe preventive maintenance procedures on the robot
- Calibrate robot

Student profile
- Industrial electricians
- Electrical Troubleshooting technicians
- Engineers
- Supervisory personnel
- Industrial personnel required to mechanically repair the robots and to perform regular preventive maintenance

Prerequisites
- Familiarity with use of electronic test equipment (voltmeter and oscilloscope)
- Basic understanding of digital electronics is helpful
- Programming I for Material Handling (US420) is strongly recommended
- Mechanical background or experience is helpful

Duration
The course duration is 4.5 days.