



# FANUC LEVEL 3

## ADVANCED ELECTRICAL TROUBLESHOOTING & MAINTENANCE

### INTENDED AUDIENCE

Journeymen, ECTs, supervisors, and engineers who have received FANUC Level 2 training or have in-depth experience working with FANUC robots on a regular basis.

### COURSE DESCRIPTION

This course is designed to ensure students with experience with the FANUC robot learn to safely troubleshoot, repair, and/or replace components with minimal downtime. This course focuses on root cause troubleshooting and robot recovery.

Hands-on exercises will be used to teach students the advanced skills necessary to quickly determine the correct course of action; once repairs have been made, recovery procedures will be implemented to eliminate the need for timely program touch-ups and/or unnecessary re-mastering of the robot when it is not required.

Tool center point adjustments after minor crashes and robot mastering using the Valentine method will be practiced to further ensure fast robot recovery after repairs. Troubleshooting exercises and labs will include motor and brake testing and motor replacement, and controller component replacement of all key controller components. I/O and network troubleshooting will also be covered.

## 2026 LEVEL 3 CLASS SCHEDULE

Start Date	End Date	Location	Seats Open	Duration	Language
6-08	6-12	Michigan, USA	8	5 Days	English
9-28	10-02	Michigan, USA	5	5 Days	English
11-02	11-06	Michigan, USA	8	5 Days	English
12-14	12-18	Michigan, USA	8	5 Days	English

**Course applies to:** R-J3, R-J3i, R-J3iB, R-30iA, R-30iB, R-30iB Plus robot controllers.



## STUDENTS WILL LEARN TO

- Work safely when replacing electrical components, motors, gears, and internal robot cables.
- Efficiently navigate to critical status, I/O, setup, and diagnostics screens when troubleshooting.
- Quickly recover the robot system using various methods based on common faults.
- Access the Boot Monitor and Controlled Start menu for backup and restore functions.
- Apply correct procedures for making and reloading image files based on controller type and memory size.
- Effectively troubleshoot using fault codes and I/O screens to identify and make correct repairs.
- Verify the correct TCP and adjust the TCP to eliminate unnecessary point touch-up after minor collisions with tooling.
- Identify root cause and safely replace internal robot controller components.
- Identify communications and connections between components within the robot controller.
- Identify fuse locations, types and functions, and board indicators to properly troubleshoot the system.
- Perform removal and replacement of power supply, main board, processor, FROM/SRAM card, axis control board, fiber optic cable, E-stop unit, servo amplifier, and OP-panel board.
- Troubleshoot I/O networks and understand scanner/adaptor relationships.
- Identify when re-mastering is justified and how to recover and avoid re-mastering when it is not required.
- Identify and safely test for motor and brake issues.
- Take precautions when removing and replacing Axis 2–6 motors.
- Perform proper motor replacement and resetting of pulse coder alarms.
- Use single axis mastering, quick mastering, and calibration after replacing a motor or internal cables.
- Use the Valentine Mastering Method to eliminate point touch-up after robot repairs.
- Identify and eliminate unnecessary downtime when touch-up to positional data is not warranted.

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