



iRVision Operation* and Programming 2D

COURSE OVERVIEW

This course covers the basic tasks and procedures required for an operator, technician, engineer or programmer to setup, teach, test and modify iRVision applications on an R-30iB Robot Controller. This course is intended for the person who must install, set up, program, and troubleshoot a FANUC Robotics R-30iB iRVision system.

The course will include:

- Vision equipment and software overview
- Set up of communication between robot and teaching computer
- Vision concepts overview
- Vision Setup including camera setup, calibration, vision process setup
- TPP programming for vision
- Troubleshooting

In addition to presentations and demonstrations, this course offers a series of lab exercises for the student to complete. Lab exercises relate directly to the classroom presentations and are intended to reinforce what the student has learned through actual hands-on experience.

1.1 Course Goal

Upon successful completion of this course, the student will be able to perform the following:

Setup an 2D IRVision process

Run an 2D IRVision process

1.2 Prerequisites

Handling Tool, SpotTool, ArcTool, or DispenseTool Operation and Programming, although an understanding of Advanced TPP Programming would be preferred.

1.3 Objectives

Establish robot to computer communication

Setup Inspection Process

Perform Error Recovery

Setup 2D Single View Process

vFrame Creation

Students successfully completing this course will be able to:

• Establish robot to computer communication

- Identify all components involving robot to computer communication
- View and/or change parameters in the robot and computer to facilitate communication
- Test communication
- Access the robot web page in order to setup vision.

• Perform Error Recovery: Remove impediments to servo power-up

• Frame Creation: Create tool frame for robot applicator

• Setup Inspection Process

- Create user frames necessary for use with vision system
- Setup the camera
- Train the vision system to recognize the part
- Setup the criteria upon which judgment will be made

• Setup 2D or 3DL* Single View Process

- Setup the camera
- Calibrate the camera
- Setup the vision process
- Program the robot to respond to vision results

1.4 Course content

Session 1

Introduction

Safety regulations, Vision process components and camera settings will be cover in this section.

Session 2

Inspection Vision Process

Setup the Vision Process Tools.

Session 3

Vision and Lighting Concepts

Using the light properties in a Vision Process

Session 4

Establishing the zero position for robot axes.

Frames setup

Session 5

2D Calibration

This session will explain the procedure to get the vision system calibrated.

Session 6

2D Multiple View Process 2D Single View Process (fixed camera).

This chapter will cover the calibration process using a fixed camera and Multiple View Process for large parts.