

# S4 Programming and Operation Refresher

## Course Outline

Duration 2 days

Beneficial to candidates who have previously attended the S4 Operator or S4 programming and Operation courses

## Subject areas

### Safety Instructions

Cell entry and Interlocking  
Teach velocity & Enabling device  
Pinch points  
Collision awareness when changing flow during operation  
Emergency stops and recovery  
Operating the Brake release

### System Description

Robot and external mechanical units  
Operators panel and Teach pendant  
Controller Start up and Shut down procedures

### Program Operation

The program Test and Production windows  
Manual and Automatic modes of operation  
The Program Pointer and Cursor  
Error identification and recovery  
Modifying positions and Editing Offsets

### Jogging the robot using the joystick

Axis and Linear jogging  
Co-ordinate systems  
Tool Re-Orientation and Alignment to coordinate axis  
Increments

### Tool Centre Points and Work Objects

Theory and methods of definition

### Robot Calibration

Course Calibration (Rev counter update)  
Fine Calibration theory

### Modules

System and Program  
Saving and retrieving a program (Floppy disc & RAM disc / Hd0a)  
Backup and restore. (S4C, S4C Plus)

### Instructions revised

MoveJ, MoveL, MoveC and Move ABSJ  
WaitDI and Wait Until  
Set and Reset. SetDo  
TP erase / TP write, TP Read NUM / TP Read FK  
IF  
While  
For  
Test  
Increment / decrement

### Objectives

On completion, participants will be able to perform:

- Safe robot operation
- Pendant operation
- System start up, shut down and error recovery
- Update motor revolution counters
- RAPID programming and editing
- Position the arm using the Joystick
- Tool and Workobject definition
- Backup and Restore system information