For further information please contact the Training department
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Robotics
S4
Programming and Operation

Course Outline
Duration 5 days
Beneficial to programmers, operators and maintenance staff

Subject areas
Safety Instructions
Emergency stops
Enabling device
Cell interlocking and modes of operation
Brake release and Pinch points
Program reset and Collision awareness

System Description
Robot and external mechanical units
Control system and Operators panel
TeachPendant overview
Start up and Shut down procedures

Program Operation
Starting and stopping the program
The program test and Production windows
Manual and Automatic modes of operation
Override speed
Stepping through program Instruction by instruction
Continuous & cycle running modes
The Program Pointer and Cursor

Jogging the robot using the joystick
Axis and Linear jogging
Tool Re-Orientation
Co-ordinate systems
Fine positioning

Error codes
Error identification
Error recovery
Error logs

Basic tool point definition
Why use a tool centre point (TCP)
Define a TCP using the approach method

Work object coordinate definition
Why use a custom work piece coordinate system
Definition using calibration points

Basic Programming Theory
Creating a new program
Main routine
Instructions pick lists
Move instructions (MoveJ & MoveL)
Editing a move instruction
Saving and retrieving a program (Floppy disc & RAM disc / HD0A)
File Management & Backup. (S4C, S4C Plus)

Program editing
Deleting, inserting, changing & marking
Cut, copy, paste

Routines & modules
Creating, calling & returning from routines
System modules
Program modules

Data
Data definition local / global
Robtarget, speed, zone, tool, numbers
Decision making
If Then
Changing an instructions structure
Compact If
Comment
Label
While

Working with numbers
Increment / decrement
Clear
Using Then with If and Test

Teach pendant communications
TP erase / TP write
TP Read NUM / TP Read FK

Objectives
On completion, participants will be able to perform:
✔ Safe robot operation
✔ TeachPendant operation
✔ System start up, shut down and error recovery
✔ RAPID programming and editing
✔ Programming and operating inputs and outputs
✔ Tool and Workobject definition
✔ Backup and Restore system information