Course Outline
Duration 5 days
Beneficial to Integrators, Programmers, Advanced Operators
Instructor led online demonstrations with practical exercises.
The language of the course is English

Prerequisites
Students must have attended the UKR552 IRC5 Programming & Operation Course or have an extensive working knowledge of the topics covered
Experience using Microsoft Windows.
Each Student will require a computer with internet connection.
Headset with microphone and webcam is preferable
RobotStudio installed preferably with premium or trial license.
Robotware 6 will also need to be installed.

Subject areas

Safety

Complex Tool Centre Points
TCP Orientations and Stationary Tools

Work Object coordinate systems
Definition of Work Objects and Mirroring

Optional Arguments
Review Move Instructions and their options

Task structure and Module Declarations
Attributes, Load and Unload during execution Local & Global data

World coordinate system and World zones
Definition of World co-ordinates
Definition of temporary and stationary World Zones

Working with Numbers
Assigning a value to data using instructions and manual definition
Increment, Decrement and Clearing Values
Checking data or values using “IF” and “TEST”
Common Numeric Functions

Cycle Timing Instructions
Reset, Start, Stop and reading a clock used for timing

Configuration Instructions
Control robot axis configuration during Joint and Linear motion
Interpolation method through Singular Points

Positional Functions
Offset / Retool and reading the current position

Searching
Linear and Circular search instructions

Routine Handling
Explanation and Uses
Instructions and data
Backwards Handling
Error and Undo Handling

Position Displacement
Activating and deactivating program displacement
Activating program displacement by specifying a value

Interrupts and Trap routines
Connecting a variable to a trap routine
Interrupt from a Digital /Analogue Input signals or Time
Activating and deactivating individual interrupts
Enabling all interrupts
Commonly used interrupt Instructions

Event Handling
Power on, Start, Restart, Stop, Qstop, Reset

Logical Instructions
For, While, Goto and Label

Advanced I/O Instructions
Changing Analogue Output values / Group of Digital Output signals
Waiting and testing for Inputs
Configuration of Group/Binary signals and Cross Connections

Trigg Instructions
Defining a fixed position I/O or interrupt event

Performance Instructions
Reducing acceleration and overriding or limiting program velocity
Defining and activating payload

Soft Servo and External Axes activation & deactivation

Creating Your Own Instructions and Functions
Routine declarations and parameters

Communication Instructions
TPWrite, TPErase, TPReadFK & TPReadNum

User Interaction Instructions & Functions

Objectives
On completion, participants will be able to:

Practise all areas of robot safety
Perform basic programming techniques
Create and properly use complex tool centre points
Define and use work object co-ordinate systems
Define and use world zones
Use numerical data instructions
Perform String Manipulation
Use instructions for avoiding singularity areas
Use search and error handling instructions
Use program displacement instructions
Use interrupt instructions and trap routines
Use event routines and backward handling
Use Error Handlers and Undo Handlers
Use communication instructions
Use advanced I/O instructions
Use instructions to enhance robot performance
Create basic ‘user’ instructions and functions