Robotics and Material Handling 2 with SCORBOT-ER 4u

Catalogue Number	8083-0000
Category	Robotics
Duration	15 Hours

Activity 1: Robotics

- Applications of Industrial Robots
- Simulation Software
- Programming Language: RoboCell Robotic Software
- RoboCell Window Components
- RoboCell Working Modes
- 3D Image Window
- Task: Selecting Working Modes
- Task: Adjusting the View of the Robot Workcell

Activity 2: Basic Robotic Programming Tools

- RoboCell Program Structure
- Object Inspection Task
- Task: Recording Positions
- Task: Programming an Object Inspection Task
- Task: Adding Remarks
- Variables
- Task: Adding Variables to a Program
- Debugging Commands
- Task: Adding Debugging Tools and Delays to a Program
- Making Commands Non-Executable
- Task: Making Ring Bell Commands Non-Executable

Activity 3: Manipulating Blocks Project

- Project Definition: Manipulating Blocks
- Task: Recording Positions to Manipulate Two Blocks
- Task: Programming the Block Manipulation Project
- Task: Running and Evaluating the Program
- Task: Modifying the Stacking Order

Activity 4: Programming the Robot to Execute Circular Movements

- Controlling the Robot Trajectory
- Using the Go Linear to Position and Go Circular to Position
- Task: Recording Positions to Write the Letter B
- Task: Programming the Robot to Write B
- Task: Running the Program
- Task: Writing the Number 3

Activity 5: Drawing a House

- Drawing a House - Overview
- Task: Recording Positions for Drawing a House
- Task: Programming the Robot to Draw a House
- Task: Running and Evaluating the Program
- Challenge
- Task: Programming and Running the Challenge

Activity 6: Roll and Pitch

- Degrees of Freedom
- Task: Running RoboCell and Loading the Project
- Adjusting the Roll
- Task: Modifying Positions #13 and #23
- Task: Modifying Position #2 by Manipulating the Roll
- Task: Running the Program

Activity 7: Block Alignment Project

- Aligning a Block
- Task: Recording Positions for the Block Alignment Project
- Task: Programming
- Task: Running and Evaluating the Program
- Task: Programming a Continuous Cycle

Activity 8: Feeders and Templates

- Feeder
- Template
- Using a Feeder and Template in a Production Process
- Task: Running RoboCell
- Task: Recording Positions with Feeders and Templates
- Turning Outputs On and Off in Robocell
- Task: Programming and Running the Program
- Task: Using a Template to Move Parts in a Workcell

Activity 9: Peripheral Devices

- What is a Robot Work Envelope
- Task: Determining a Robot's Work Envelope
- Rotary Table
- Using a Rotary Table to Stack Cylinders
- Task: Recording Positions with Peripheral Devices
- Task: Recording Positions for Peripheral Devices
- Task: Programming and Running a Stacking Operation
- Task: Making a Program More Efficient

Activity 10: Linear Slidebase Project

- Linear Slidebase Project
- Recording Positions for the Robot and Peripheral Devices
- Task: Moving a Robot Along a Slidebase
- Task: Recording Positions for the Robot and Peripheral Devices
- Task: Programming
- Task: Running and Evaluating the Program
- Task: Optimizing a Program

Activity 11: Programming Using Encoder Values

- Using Encoder Values
- Using Encoder Values to Record Positions
- Task: Recording Positions using Encoder Values
- Task: Programming with Encoder Values
- Task: Running and Evaluating the Program
- Task: Independent Programming

Activity 12: Conditional Branching

- Review of Inputs and Outputs
- Conditional Branching
- Task: Recording Positions for a Sorting Program
- Task: Programming a Sorting Task
- Task: Running and Evaluating the Sorting Program

Activity 13: Programming with Conditional Branching

- Review of Conditional Branching
- Storing Equipment Using the If Input Command
- Sampling Inputs
- On Input Interrupt # On Jump Command
- Task: Running RoboCell and Recording Positions
- Task: Programming
- Task: Running and Evaluating the Program

Activity 14: Analog Inputs and Outputs

- Analog and Digital Signals
- Task Definition
- Task: Running RoboCell and Recording Positions
- Programming Tools
- Task: Programming
- Task: Running and Evaluating the Program
- Task: Modifying the Program

Activity 15: Programming a Sorting System Project

Sorting Blocks from a Conveyor

Gripper Sensor

Task: Recording Positions for Sorting

Task: Programming the Variables

Task: Writing the Program

Task: Running the Program