

Flexible Manufacturing Systems

Catalogue Number	77-3022-0000
Category	CNC
Duration	15 Hours

Activity 1: Getting Started

- Defining FMS
- FMS System Components
- Robotic System Safety
- CNC System Safety

Activity 2: CNC Machining

- What is CNC?
- What is a Mill?
- What is a Lathe?
- What is a Router?
- NC Programming Overview

Activity 3: RoboCell Simulation and Control Software

- RoboCell Control Software
- Task: Running RoboCell
- RoboCell Window Components
- RoboCell Working Modes
- RoboCell Projects
- Task: Saving a Project
- 3D Image Window
- Task: Adjusting the View
- Running Programs
- Task: Running a Sample FMS Cycle

Activity 4: Designing an FMS Workcell

Workcell Design

CellSetup for RoboCell

Task: Adding a Table to the Workcell

Task: Adding a Robot to the Workcell

Task: Adjusting the Table Position

Robot Axes

Task: Manipulating the Robot

Cartesian Coordinate System

Homing

Task: Homing the Robot

Activity 5: Expanding the Workcell

Inputs and Outputs

Feeders

Templates

Task: Adding a Feeder to the Workcell

Task: Defining the Parts in the Feeder

Task: Adding Storage Devices to the Workcell

Robot Positions

Task Description

Task: Recording Absolute Positions

Relative Positions

Task: Defining Relative Positions

Task: Evaluating Positions

Activity 6: Writing a Program

Programming

Go To Position Commands

Task: Writing a Pick and Place Program

Task: Running and Evaluating Your Program

Output Commands

Task: Modifying Your Program

Task: Running and Evaluating Your Program

Remarks

Task: Adding Remarks to Your Program

Variables

Task: Adding Variables to Your Program

Task: Running and Evaluating Your Program

Activity 7: Programming Mill Operations

Workcell Description

Task Description

Task: Recording Positions for Tending the Feeder

Task: Writing the Program for Tending the Feeder

Task: Recording Positions for Tending the Mill

Task: Writing the Program for Tending the Mill

The Wait Command

Task: Modifying Your Program

Activity 8: Conditional Programming

Conditional Programming

Jump To and Label Commands

Task Description

Task: Adding Labels to the Program

Task: Conditional Programming for the Feeder

Task: Evaluating the Program Execution

Task: Conditional Programming for the Mill

Task: Running and Evaluating Your Program

Activity 9: Storing Finished Parts

Peripheral Devices

Recording Positions for Peripheral Devices

Task: Recording Positions for Peripheral Devices

Task Description

Task: Recording Positions for Storing the Part

Task: Writing the Program for Storing Parts

Task: Modifying Your Program

Task: Running and Evaluating Your Program

Activity 10: Multiple Part Programming

Multiple Part Programming

Set Variable Command

Task Description

Task: Recording Positions for the Second Template

Task: Programming for the Second Template

Task: Defining Variables

Task: Modifying Your Program

Task: Running and Evaluating your Program

Activity 11: Lathe Operations

Task Description

Task: Recording Positions

Task: Programming

Task: Running and Evaluating Your Program

Activity 12: Multiple Part Lathe Operations

Task Description

Task: Recording Positions for the Second Template

Task: Programming for the Second Template

Task: Modifying Your Program

Task: Running and Evaluating Your Program

Activity 13: Program Integration

Task Description

Task: Modifying Your Program

Activity 14: Designing the Final Project

Finals Project Specifications

Task: Designing Your Workcell

Task: FMS Programming

Activity 15: Running the Final Project

Conclusion

Task: Completing Your FMS Program