



Course Name : *TURNING-Numerical Control Programming*

Course Duration : Hrs.

Course Overview

- **Course Description**
 - This course teaches the use of the CNC Turning Numerical control programming on Siemens 808D & 840Dsl controller
- **Intended Audience**
 - This course is designed for manufacturing engineers, process planners
- **Prerequisites**
 - Education: Diploma 3 year Students or Degree 2nd year completed in any one of following Streams.
 - Aeronautical, Automobile, Industrial, Marine, Mechanical, Mechatronics, Metallurgy, Production and Manufacturing Engineering.
 - Software: None

Course Objective

- After successfully completing this course, you should be able to perform the following activities on CNC Turning Machine:
 - Introduction to Manufacturing, History & Processes
 - Introduction to Conventional Lathe
 - Introduction to MCMT/CNC
 - Mechanical Elements of CNC machine
 - Introduction to CNC Programming
 - Introduction to SIEMENS 808D & 840Dsl controller.
 - Cutting Tools and Parameter Selection Turning
 - Programming using Siemens standard cycles for Turning
 - Hands on practical – All standard Cycles of 808D & 840Dsl Turning

Course Contents

- Different Machine Modes
- Introduction to Turning Controller
- Introduction to Milling Controller
- ISO Machine Tool Axis
- Right Hand Thumb Rule
- Lathe & Milling Coordinate Systems



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- Mechanical Elements of CNC M/C
 - Electrical Elements of CNC M/C
 - Absolute and Incremental Programming
 - Introduction To G-Codes
 - Introduction To M-Codes
 - Other Codes
 - Facing Operation
 - Turning Operation
 - Radius Turning
 - Chamfer Operation
 - Taper Operation
 - Stock Removal Cycle
 - Contour Cycle
 - Drilling Cycle
 - Grooving Cycle
 - Undercut Cycle
 - Cut-Off Cycle
 - Threading Cycle
 - **NX-CAM Manufacturing Fundamentals**
 - Basic Manufacturing Concepts
 - Analyzing a manufacturing part
 - Tools
 - Operation Navigator
 - Parent groups



Course Name : *MILLING-Numerical Control Programming*

Course Duration : Hrs.

Course Overview

- **Course Description**
 - This course teaches the use of the CNC Milling 808D & 840Dsl Control Programming using Sinumerik Controllers.
- **Intended audience**
 - This course is intended for Manufacturing Engineers, Process planners.
- **Prerequisites**
 - Education: Diploma 3 year Students or Degree 2nd year completed in any one of following Streams.
 - Aeronautical, Automobile, Industrial, Marine, Mechanical, Mechatronics, Metallurgy, Production and Manufacturing Engineering.
 - Software: None

Course Objectives

- Elements of CNC machine
- Introduction To CNC Programming
- Introduction to SIEMENS 808D & 840Dsl controller.
- Cutting Tools and Parameter selection Milling
- Milling Work holding & Tool Holding Devices
- Basics Milling Programming
- Programming using Siemens standard cycles for Milling
- Hands on practical – All standard Cycles of 808D & 840Dsl Milling

Course Contents

- Up milling
- Down Milling
- Cutting Tools in Milling
- Facing Operation
- Chamfer & Radius Operations
- Contour Cycle
- Facing Cycle
- Drilling Cycle
- Reaming Cycle
- Boring Cycle
- Rectangular Pocket Milling



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- Circular Pocket Milling
 - Spigot Milling Cycle
 - Groove Milling Cycle
 - Threading Cycle
 - High Speed Milling
 - Step by Step Programming Procedure & Safety
 - **NX Manufacturing Fundamentals**
 - Cavity milling
 - Machining with T-Cutters
 - Coordinate systems
 - Visualization (ISV)
 - Planar milling
 - Floor and wall milling
 - Manual drilling
 - Fixed axis contouring
 - Tool path information output