

The detailed content for a 2-day training program on "**CNC (Computer Numerical Control) Milling, Lathing, and Router Operations**":

Day 1:

A. Introduction to CNC Milling and Lathing

- Overview of the concepts and principles of CNC milling and lathing
- Explanation of the history and evolution of CNC milling and lathing, including the different types of CNC machines and their applications
- Discussion of the benefits of CNC milling and lathing, including accuracy, speed, and repeatability

B. Design for CNC Milling and Lathing

- Overview of the design considerations and best practices for CNC milling and lathing
- Explanation of the limitations and challenges of CNC milling and lathing, including material properties, accuracy, and tooling
- Hands-on exercises to reinforce the concepts and techniques covered, including designing and testing simple CNC programs

C. Introduction to CNC Programming

- Overview of the types of CNC programming languages and their applications
- Explanation of the basic features and functions of CNC programming, including G-code and M-code
- Hands-on exercises to reinforce the concepts and techniques covered, including using CNC programming software to prepare and run CNC programs

Day 2:

A. CNC Milling and Lathing Processes and Techniques

- Overview of the different types of CNC milling and lathing processes and techniques, including end milling, face milling, and drilling
- Explanation of the advantages and disadvantages of each process and technique, including material compatibility, accuracy, and speed
- Hands-on exercises to reinforce the concepts and techniques covered, including using different CNC milling and lathing processes and techniques to produce parts

B. CNC Router Operations

- Overview of the concepts and principles of CNC routing
- Explanation of the different types of CNC routers and their applications
- Discussion of the benefits of CNC routing, including accuracy, speed, and versatility
- Hands-on exercises to reinforce the concepts and techniques covered, including using a CNC router to produce parts

C. Troubleshooting and Maintenance of CNC Machines

- Overview of the common problems and challenges encountered in CNC milling, lathing, and routing
- Explanation of the techniques and tools used to troubleshoot and maintain CNC machines, including cleaning, calibration, and repair
- Hands-on exercises to reinforce the concepts and techniques covered, including troubleshooting and maintaining a CNC machine