



AGENDA

CNC TRAINING PROGRAM

Program Duration

4 to 6 weeks

- **3 sessions per week**
- **Each session: 2-3 hours**

Learning Objectives

By the end of this course, participants will:

1. Understand how to translate CAD designs into machine-ready files for sheet metal machines.
 2. Gain proficiency in operating laser sheet metal machines, cutter machines, and bending machines.
 3. Minimize material waste by optimizing design layouts and understanding material properties like thickness.
 4. Learn safe and efficient practices for using each type of machine.
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Week-by-Week Curriculum

Week 1: Introduction and Fundamentals

1. Session 1: Course Overview & Safety Guidelines

- Importance of safety when working with sheet metal machines.
- Overview of laser cutting, cutting, and bending machines.
- Introduction to material types and thickness considerations.

2. Session 2: Introduction to CAD Files for Machine Use

- Reviewing and preparing designs in AutoCAD/SolidWorks.
- Exporting files in compatible formats (e.g., DXF).
- Common issues with CAD drawings and troubleshooting tips.

3. Session 3: Understanding Material Layout

- Techniques for nesting designs to reduce material waste.
- Measuring and setting workspace dimensions on machines.

Week 2 & Week 3: Laser Sheet Metal Machine Operations

1. Session 1: Machine Setup & File Transfer

- Loading CAD files into the laser machine.
- Configuring workspace dimensions and setting reference points.

2. Session 2: Understanding Laser Cutting Parameters

- Adjusting machine settings based on material thickness.
- Preventing common errors like overheating or material burns.

3. Session 3: Hands-On Practice

- Participants will prepare their designs and cut simple pieces.
 - Evaluating accuracy and troubleshooting design flaws.
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Week 4: Cutter Machine Operations

1. Session 1: Introduction to Cutter Machine Options

- Overview of cutter machine features and settings.
- Choosing appropriate cutting tools based on material properties.

2. Session 2: Hands-On Practice with Cutter Machines

- Adjusting settings for material thickness.
 - Cutting pre-designed shapes and ensuring smooth finishes.
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Week 5 & Week 6: Bending Machine Operations

1. Session 1: Introduction to Bending Angles

- Understanding how to calculate and set bending angles.
- Factors to consider: material thickness, stress points, and spring-back effects.

2. Session 2: Practical Application – Simple Bends

- Participants will practice basic bending techniques on sample designs.

3. Session 3: Complex Bends and Final Assembly

- Strategies for creating multiple bends in one project.
 - Assembling bent and cut pieces into a final structure or product.
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Program Assessment

- **Ongoing Evaluation:**
 - Participants will be assessed after each machine module through practical assignments.
 - **Final Project:**
 - Participants will design, cut, and assemble a complete sheet metal product of their choice, incorporating all skills learned.
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