Business and Community Education Department

Foundation for Success in Machining

A 75 Hour Course Offering

Temple College
Downtown Center
2600 South First Street, Temple, TX 76504 7435

Course Overview:

Course Goal: To provide the student with foundational skills in safety, math, print reading, measurement, and a general knowledge of the work environment for success in the field of machining.

Target Audience: Machine shop or manufacturing operators or machinists, Individuals with aptitude and interest in the field of machining.

Prerequisites: An interest to learn fundamentals in machining. Mechanical and mathematical aptitude and a desire to enhance or pursue a current or future career in this field.

Course Format: A combination of class room, interactive computer, and local industrial on-site facility reviews, designed to enhance and reinforce the learning experience.

Equipment: Since 10 professionally produced, interactive online lessons will be a primary source of instruction; students will need access to any computer with a CD read drive and internet connection. As part of the program, Temple College will make its computer lab available to the students of this program. All other equipment will be provided by the college and local industry. Safety and measurement tools/gages will be used in classroom sessions.

Course Objectives and Learning Results:

Students / Employee-Students:

- Obtain fundamental machinist and measurement methods knowledge which can be immediately applied as either a new or existing employee
    - Identify various types of precision instruments and their applications
    - Determine the degree or resolution of precision measurement required
    - Verify accuracy of precision measuring instruments to a standard
    - Select and use most appropriate precision measurement tool for part / application
    - Understand handling and storage requirements for various types of measuring instruments
    - Interpret blueprint requirements, convert between English units and Metric units
    - Compute total tolerances between mating features or parts
- Higher perceived value to a future or current employer
- Better on job performance through reduction of knowledge based errors
- Stronger skill foundation for potential increase in job responsibility or promotion
- Better understanding of company culture and related positive effects on attitudes

Course Topics Outline:

This course is a combination of 10 computer based learning lessons in "Precision Measurement for Machinists" (PMM) and 22 group training sessions. The PMM lessons are completed as independent study. They each provide a solid foundation of knowledge and simulated practice in key topics relating to success in the machining environment. Each includes a pre-test, a lesson, and a post-test. Each is a prerequisite to the classroom session on the same topic. The group sessions will reinforce the computer based training and will include other custom training elements. This outline and relationship is shown in the following matrix, where the session # refers to the classroom, group training sessions, and the Computer PMM column refers to the online lessons that must be completed prior to the session relating to the classroom topic.

Session #	Topic	Computer PMM Lesson #
1	Introduction Overview	
2	Shop Safety	
3	*Shop Tour 1* - Safety/Qlty	
4	Math for Machinists	
5	Math for Machinists	
6	Math for Machinists	
-	Self Study during Break	
-	Self Study during Break	
7	Basic Print Reading	**1**
8	GD and T	**2**
9	*Shop Tour 2* - Jobs & Prints	
10	Datums and Bonus Tolerances	**3**
	Inch and Metric Systems	**4**
11	Analog and Digital Micrometers	**5**
12	*Shop Tour 3* - Manual Mach Ops	
13	Calipers and Go/No-Go Gages	**6**
14	*Shop Tour 4* - Gages	
15	Measuring Surface Finish	**7**
16	Optical Comparitors and Threads	**8**
17	*Shop Tour 5* - CNC Machining	
18	Open Set Up inspection	**9**
19	*Shop Tour 6* - CMM	**10**
20	Elements of Success Beyond the Tools	
21	Elements of Success Beyond the Tools	
22	Elements of Success Beyond the Tools	

Precision Measurement for Machinists

Computer Based Learning Lessons

Lesson 1: **Basic Print Reading.**

Lesson 2: **Geometric Dimensioning and Tolerancing**

Lesson 3: **Datums and Bonus Tolerance**

Lesson 4: **Using the Inch and Metric Systems.**

Lesson 5: **Analog and Digital Micrometers**

Lesson 6: **Using Calipers and Go, No-Go Gages.**

Lesson 7: **Measuring Surface Finish**

Lesson 8: **Optical Comparators and Thread Measurement**

Lesson 9: **Open Setup Inspection**

Lesson 10: **Coordinate Measuring Machines**

References:

- Temple College Business and Community Education – Temple TX
- MasterTask Training Systems – Rockford IL