

# KMAT-0010 Introduction to Machinist

## Author

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## Competencies and Learning Objectives

1. Describe the expectations of the machinist profession.
  - Explain the job outlook of the profession
  - Identify types of machinists
  - Describe the professional characteristics required for a machinist
  - Describe career path possibilities for machinists
2. Describe safe practices and safety concerns in a machine shop.
  - Describe safe attire for a machine shop
  - Describe safe behaviors in a machine shop
  - Describe the use of safety equipment in a machine shop
  - Describe proper cleaning and maintenance in a machine shop
3. Demonstrate proper use of measuring equipment
  - Demonstrate precision measurements with calipers
  - Demonstrate precision measurements with micrometer
  - Identify various types of precision measuring tools
  - Identify units of measure

## Course Description

This course is an overview of the job performances and attitudes expected in the machinist industry. In addition, possible career paths will be discussed. Along with that, basic safety topics and beginning measurement will be covered.

## Competencies

Upon completion of the course, you will be rated as MC (Mastered Competency) or NM (Not-Mastered Competency) based on ability to demonstrate the established competencies for the course. You will:

- Describe the expectations of the machinist profession.
- Describe safe practices and safety concerns in a machine shop.
- Demonstrate proper use of measuring equipment.

## Assessment

During the course you be given written and performance exams.

General Safety Exam

Measuring Lab and Performance Exam

Written Exam

You must pass with at least a score of 80% or higher on each summative assessment to be considered Master Competent and complete the course.

## Course work

The course work for this class will be available partially online and partially in the lab. You will need to complete both the online and classroom portions to obtain the all of the course information.

## Safety

In this course, you are expected to utilize safe behaviors and safety equipment for a machine shop. Safety will be evaluated in all performance exams.

## Flexibility

If you feel that you are ready to do the lab final or exams without completing the course modules, please contact your instructor.

## Contact and Assistance

If you need additional assistance with course material, you may consult with your instructor during open lab times Mon-Thur from 5pm to 9pm.

If you have questions about coursework outside of lab hours you may contact your instructor via text/voice 347-920-1047 or email [darrell.smith@slcc.edu](mailto:darrell.smith@slcc.edu).

If you have technical issues with Internet access, computer labs, applications, BruinMail, Printing, or software navigate to <http://www.slcc.edu/student/help.aspx>

If you have technical issues with Canvas, navigate to <https://faculty.slcc.edu/elearning/canvas.aspx>

## Syllabus

The expectations for this course are described in detail in the course syllabus. (Link to syllabus)

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## Course Navigation

In the left navigation bar is a Course Tools menu. It provides information about what tools you need for the course, and how to navigate in Canvas. Start the course with the first module below. You can also click on the **Modules** link in the left navigation bar to navigate through the course.

## Modules

### Module 1

#### **Machinist Profession Overview**

Introduction to the Module: This module will give you the expectations of the machinist profession. You will have access to a video lecture and a practice quiz. Assessment of competencies in this module will take place in an exam at the end of Module 3, to be taken when you have completed modules 1-3.

The course work in this module, combined with class sessions should prepare you to:

1. Explain the job outlook of the profession
2. Identify types of machinists
3. Describe the professional characteristics required for a machinist
4. Describe career path possibilities for machinists

#### **Lecture 1: Introduction to Machinist Profession**

Watch the videos for lecture set 1.

Information in this video lecture set includes:

1. [What is a machinist?](#)
2. [Roles in a machine shop.](#)
3. [Job outlook for machinists and career path, including typical wages.](#)
4. [What characteristics are required from someone wanting to be a machinist.](#)
5. [Tooling University \(Tooling U\) overview.](#)
6. [Daily duties and requirements](#)

**Quiz: Machinist Profession Quiz** (*Instructions for learning management system*)

#### **Testing Procedures:**

1. Click **Take this Quiz** link.

2. Read each question and choose the best answer(s).
3. When you have answered all the questions, click the **Submit** button. You will be shown your score.

### Check in

Now that you have completed Module 1, check in with your instructor if you have questions. If not, move on to module 2.

## Module 2

### Safety Equipment Overview

Introduction to the Module: This module will give you an overview of the safety expectations in a machine shop. You will have access to a video lecture, learning resources and quizzes in Tooling U. Assessment of competencies in this module will take place in an exam at the end of Module 3, to be taken when you have completed modules 1-3.

The course work in this module, combined with class sessions should prepare you to:

1. Describe safe attire for a machine shop
2. Describe safe behaviors in a machine shop
3. Describe the use of safety equipment in a machine shop
4. Describe proper cleaning and maintenance in a machine shop

### Lecture 2: Safety in a Machine Shop

Watch the video titled: Machinist Lecture 2.

Information included in this video lecture

1. [Safety list for SLCC machine shop](#), including daily duties and requirements.

Click this link to view the video.

### Tooling U *(Instructor uses materials and learning activities from this publisher)*

The learning resources listed below will give you a basic overview of the basic safety in a machine shop. It is recommended that you complete all of the Tooling U modules listed below within one week. \* Learning modules contain learning material, assignments and a practice quizzes.

Click the resource link to get started.

1. INTRO TO TOOLING UNIVERSITY(T)
2. MACHINE GUARDING (T)(safety)
3. SAFETY FOR METAL CUTTING
4. LOCKOUT/TAGOUT PROCEDURES(T)
5. SAFETY FOR LIFTING DEVICES(R)
6. INTRO TO OSHA(R)

\*Note: Modules vary in length so budget your time wisely.

## Check in

Now that you have completed Module 2, check in with your instructor if you have questions. If not, move on to module 3.

## Module 3

### Basic Metrology/Units of Measure Overview

Introduction to the Module: This module will cover the proper use of measuring equipment in a machine shop. Assessment of competencies in this module will take place in an exam at the end of this module, to be taken when you have completed modules 1-3.

The course work in this module, combined with class sessions should prepare you to:

1. Demonstrate precision measurements with calipers
2. Demonstrate precision measurements with micrometer
3. Identify various types of precision measuring tools
4. Identify units of measure

### Lecture 3: Measuring Instruments

Watch the videos in lecture set 3.

Information in this video lecture set includes:

1. [Care of measuring instruments](#)
2. [How to use calipers](#)
3. [How to use micrometers](#)
4. [How to measure with dial calipers](#)
5. [How to measure with micrometers](#)

### Activity: Reading Measuring Tools

The learning activities below will give you some instruction on how read micrometers and calipers. Each learning resource contains learning material and a practice activity.

Click on the links below to get started.

1. Reading a [caliper](#)
2. Reading a [micrometer](#)

## **Tooling U: Measuring**

The learning resources listed below will cover basic metrology and units of measure in machine shop. Learning resources must be complete by the end of the Intro to Manual Machinist course. Each learning resource contains learning material and a practice quiz.

Click this module link to get started.

3. BASICS OF TOLERANCE
4. BASIC MEASUREMENT

\*Note: Modules vary in length so budget your time wisely.

## **Measuring Tools Quiz**

Once you have reviewed the study sheet and Tooling U learning resources, check your knowledge by taking the Measuring Tools Quiz.

## **Study Guide**

The study guide below will help you to review the tools you need to know for the end of course exam.

1. Tool Study Sheet

## **Written Exam**

Review the learning materials, activities, and quizzes for modules 1-3. When you feel you are ready, contact your instructor to set up your Written Exam in the computer lab.

## **Instrument Reading Quiz: Calipers**

Once you have completed the learning materials on how to use calipers, check your knowledge by taking the Caliper Reading Quiz.

## **Instrument Reading Quiz: Micrometers**

Once you have completed the learning materials on how to use a micrometer, check your knowledge by taking the Micrometer Reading Quiz.

## **Measuring Lab and Performance Exam**

This lab final will be performed in the machinist lab under the supervision of your instructor. It covers the ability to make precision measurements using calipers and a micrometer. You will measure 5 small objects with a caliper accurate within .001 inch. You will also measure 5 small objects with the micrometer accurate within .0005 inch.

To pass, the submission must score at least 8 out of 10 points (80%). If the submission does not pass on the first attempt, you will have the opportunity to take an alternative form of the lab final after meeting with your instructor and practicing.

## **Check-in Course Completion**

Now that you have completed Modules 1-3, check in with your instructor to discuss your Exam results and completion of the course.