Quality Control and Inspection

Course Outcome Summary

Updated November 2022

Course Information

Total Credits 1

Description

Students are introduced to the science of dimensional metrology and its applications to ensure form and function of machined parts and assemblies using semi-precision and precision measuring instruments.

Prerequisites

None

Exit Learning Outcomes

Program Outcomes

A. Given the necessary job process sheets for a part and verbal instructions, the student will identify and select the required measuring instruments and conduct the required inspection procedure(s).

B. The student will complete required written inspection report and decide to accept or reject component parts.

C. Provide a brief verbal explanation of inspection procedures, results, and decisions.

D. Solve quality problems using process planning, technical knowledge, teamwork, mathematics, and critical thinking

E. Apply safety principles in a work environment to minimize hazards and prevent losses to productivity

F. Demonstrate employability skills needed to obtain and retain employment in machine tool and related fields

Competencies

1. Perform first piece inspection

Properties

Domain: Psychomotor

Linked Program Outcomes

Operate machine tool equipment commonly found in industry including manual and computer-controlled lathes, milling machines, drill presses and cutting machines

Manufacture parts from various materials in accordance with specifications from blueprints, electronic drawings, and shop sketches

Solve quality problems using process planning, technical knowledge, teamwork, mathematics, and critical thinking

2. Inspect surface finishes

Properties

Domain: Psychomotor

Linked Program Outcomes

Solve quality problems using process planning, technical knowledge, teamwork, mathematics, and critical thinking

Demonstrate employability skills needed to obtain and retain employment in machine tool and

related fields

3. **Inspect parts using radius gauges**

   Properties

   Domain: Psychomotor

   Linked Program Outcomes

   Solve quality problems using process planning, technical knowledge, teamwork, mathematics, and critical thinking

   Demonstrate employability skills needed to obtain and retain employment in machine tool and related fields

4. **Inspect parts using angle gauges**

   Properties

   Domain: Psychomotor

   Linked Program Outcomes

   Solve quality problems using process planning, technical knowledge, teamwork, mathematics, and critical thinking

   Demonstrate employability skills needed to obtain and retain employment in machine tool and related fields

5. **Inspect parts using dial indicators**

   Properties

   Domain: Psychomotor

   Linked Program Outcomes

   Operate machine tool equipment commonly found in industry including manual and computer-controlled lathes, milling machines, drill presses and cutting machines

   Solve quality problems using process planning, technical knowledge, teamwork, mathematics, and critical thinking

6. **Measure parts using vernier measuring tools**

   Properties

   Domain: Psychomotor

   Linked Program Outcomes

   Operate machine tool equipment commonly found in industry including manual and computer-controlled lathes, milling machines, drill presses and cutting machines

   Solve quality problems using process planning, technical knowledge, teamwork, mathematics, and critical thinking

7. **Measure parts using special micrometers**

   Properties

   Domain: Psychomotor

   Linked Program Outcomes

   Operate machine tool equipment commonly found in industry including manual and computer-controlled lathes, milling machines, drill presses and cutting machines

   Solve quality problems using process planning, technical knowledge, teamwork, mathematics, and critical thinking

8. **Measure parts using telescoping gauges**

   Properties

   Domain: Psychomotor

   Linked Program Outcomes

   Operate machine tool equipment commonly found in industry including manual and computer

controlled lathes, milling machines, drill presses and cutting machines

Solve quality problems using process planning, technical knowledge, teamwork, mathematics, and critical thinking

9. Measure parts with height gauges

Properties

Domain: Psychomotor

Linked Program Outcomes

Operate machine tool equipment commonly found in industry including manual and computer-controlled lathes, milling machines, drill presses and cutting machines

Solve quality problems using process planning, technical knowledge, teamwork, mathematics, and critical thinking

10. Measure threads

Properties

Domain: Cognitive Level: Evaluation

Linked Program Outcomes

Operate machine tool equipment commonly found in industry including manual and computer-controlled lathes, milling machines, drill presses and cutting machines

Solve quality problems using process planning, technical knowledge, teamwork, mathematics, and critical thinking

11. Measure parts using small hole gauges

Properties

Domain: Psychomotor

Linked Program Outcomes

Operate machine tool equipment commonly found in industry including manual and computer-controlled lathes, milling machines, drill presses and cutting machines

Solve quality problems using process planning, technical knowledge, teamwork, mathematics, and critical thinking

12. Measure parts using dial calipers

Properties

Domain: Cognitive Level: Evaluation

Linked Program Outcomes

Operate machine tool equipment commonly found in industry including manual and computer-controlled lathes, milling machines, drill presses and cutting machines

Solve quality problems using process planning, technical knowledge, teamwork, mathematics, and critical thinking

13. Measure parts using outside micrometers

Properties

Domain: Psychomotor

Linked Program Outcomes

Operate machine tool equipment commonly found in industry including manual and computer-controlled lathes, milling machines, drill presses and cutting machines

Solve quality problems using process planning, technical knowledge, teamwork, mathematics, and critical thinking

14. Measure parts using depth micrometers

Properties

Domain: Psychomotor

Linked Program Outcomes

Operate machine tool equipment commonly found in industry including manual and computer-controlled lathes, milling machines, drill presses and cutting machines

Solve quality problems using process planning, technical knowledge, teamwork, mathematics, and critical thinking

15. Inspect parts with comparison measuring tools

Properties

Domain: Psychomotor

Linked Program Outcomes

Solve quality problems using process planning, technical knowledge, teamwork, mathematics, and critical thinking

Demonstrate employability skills needed to obtain and retain employment in machine tool and related fields

16. Determine what to do with a part that does not meet specifications

Properties

Domain: Cognitive Level: Evaluation

Linked Program Outcomes

Solve quality problems using process planning, technical knowledge, teamwork, mathematics, and critical thinking

17. Clean and store precision measuring tools

Properties

Domain: Psychomotor Level:

Linked Program Outcomes

Apply safety principles in a work environment to minimize hazards and prevent losses to productivity

Demonstrate employability skills needed to obtain and retain employment in machine tool and related fields