Quality Control and Inspection
Course Outcome Summary

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. Operate machine tool equipment commonly found in industry including manual and computer controlled lathes, milling machines, drill presses and cutting machines
B. Manufacture parts from various materials in accordance with specifications from blueprints, electronic drawings and shop sketches
C. Solve quality problems using process planning, technical knowledge, teamwork, mathematics, and critical thinking
D. Apply safety principles in a work environment to minimize hazards and prevent losses to productivity
E. Demonstrate employability skills needed to obtain and retain employment in machine tool and related fields
F. Use CAD and CAM programs to design parts and program manufacturing machines

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
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