

Machining II

Course Outcome Summary

Course Information

Total Credits 3

Description

Students learn to perform basic trigonometric functions, and perform other procedures such as I.D. boring and facing operations, planning a sequence for machining operations, aligning work pieces, use work holding devices, jigs and fixtures, performing threading operations on lathes, machining keyways on a vertical mill, inspecting and dressing grinding wheels, performing O.D. & I.D. threading operations, performing O.D. & I.D. tapering operations, machining parts using milling cutters and milling machines, and tapping holes on a vertical mill.

Prerequisites

Machining I

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 basic trigonometric functions

Properties

Domain: Cognitive Level: Application

Linked Program Outcomes

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

2. Select cutting tools

Properties

Domain: Cognitive Level: Analysis

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

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

3. Perform I.D. boring and facing operations

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

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

4. Machine angles using a vertical mill

Properties

Domain: Psychomotor Level:

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

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

5. Plan a sequence for milling operations

Properties

Domain: Cognitive Level: Synthesis

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

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

6. Align work piece, work holding devices, jigs and fixtures on milling machines

Properties

Domain: Psychomotor Level:

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

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

7. Finish holes using countersinks, counter bores, reamers and taps

Properties

Domain: Psychomotor Level:

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

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

8. Perform preventive and housekeeping maintenance on a lathe

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

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

9. Perform O.D. and I.D. threading operations

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

10. Perform O.D. and I.D. taper operations

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

11. Establish zero reference point for work piece to be machined

Properties

Domain: Affective Level: Organizing

Linked Program Outcomes

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

12. Machine parts using milling cutters and milling machines

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

13. Tap holes on a vertical mill

Properties

Domain: Psychomotor Level:

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

14. Machine keyways on a vertical mill

Properties

Domain: Psychomotor Level:

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

15. Inspect and dress grinding wheels

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

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