

**Course Objectives/Course Outline**  
**Spokane Community College**

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**Course Title:** Inspection

**Prefix and Course Number:** PMF 203

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**Course Learning Outcomes:**

**By the end of this course, a student should:**

- Demonstrate the fundamental approaches for verifying quality using inspection techniques, measuring instruments, nondestructive testing, and new technology in hands-on activities
- Evaluate sheet metal product dimensions, surface texture, coatings, material hardness, welds, threads and fasteners, assemblies, and manufacturing processes for quality
- Evaluate inspection tasks to determine the proper selection of tools and procedures
- Create documentation of inspection procedures and perform analyses on the results
- Apply Geometric Dimensioning and Tolerancing principles to inspection
- Apply calibration procedures and techniques to measuring tools
- Design a flat pattern layout
- Apply statistical process control and sampling plans to inspection
- Demonstrate professionalism, critical thinking, and teamwork during in-class discussions and hands-on activities

**Course Outline:**

A. *NOTE:* This course schedule is subject to change at the discretion of the instructor.

**Week 1: Introduction to Inspection**

Inspection Fundamentals

Inspection in Aerospace

Measuring Tools and Techniques

**Week 2: Measuring Tools and Precision Gages**

Micrometers, Indicators

Gauge Blocks, Precision Gauges

Angle Measurement

**Week 3: Inspecting Threads and Holes**

Thread Characteristics and Measurement

Specialized Aircraft Fasteners

Hole Characteristics and Measurement

**Week 4: GD&T Applications in Inspection**

GD&T Fundamentals

Interpreting Feature Controls

GD&T Positioning

**Week 5: Layout and Calibration**

Layout Tools and Techniques

Calibration Standards and Techniques

**Week 6: Midterm**

Midterm Exam (covers material from weeks 1-5)

**Week 7: CMMs and Optical Comparators**

CMM Inspection

Manual CMM Setup

Optical Comparators

**Week 8: Inspecting Surface Texture and Hardness**

Surface Texture Characteristics

Surface Roughness Measuring

Review of Hardness Testing

**Week 9: Coating Inspection**

Coating Quality Control Checkpoints

Surface Profile and Coating Thickness

Visual Paint Inspection

**Week 10: Welding Inspection Techniques**

Welding Quality Control Checkpoints

Weld Discontinuities

Nondestructive and Destructive Testing

**Week 11: Statistical Process Control**

Statistical Process Control

Histograms and Control Charts

**Week 12: Final**

Final (covers material from Weeks 1 – 11)