

## Course Objectives/Course Outline

### Spokane Community College

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**Course Title:** Inspection

**Prefix and Course Number:** APM 222

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#### Course Learning Outcomes:

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

- Demonstrate proper calibration, care, and use of measuring tools such as micrometers, calipers, thread wires, indicators, CMMs, and gauge blocks. (1 ,2, 6)
- Evaluate machined part dimensions, surface texture, material hardness, and threads for quality. (1 ,2, 6)
- Design a layout of a machined part based on an engineering drawing. (1 ,2, 6)
- Describe the uses and applications of coordinate measuring machines (CMMs). (1 ,4, 6)
- Apply inspection techniques using the principles of geometric dimensioning and tolerancing (GD&T). (1 ,2, 6)
- Describe material hardness testing methods. (1 ,2, 6)
- Describe the definition and purpose of statistical process control and sampling plans. (1 , 2, 6)
- Evaluate a process using statistical process control (1, 2, 6).
- Describe inspection planning, first article inspection, and in-process inspection techniques. (1 ,2, 4, 6)
- Create inspection plans and inspection documentation, and analyze the results. (1 ,2, 3, 4, 6)
- Demonstrate professionalism, critical thinking, and teamwork during in-class discussions and hands-on activities. (1, 3, 5)

#### Course Outline:

- I. **Week One**
  - A. Introduction to Measurement and Measuring Tool
- II. **Week Two**
  - A. Single Purpose Measuring Tools
- III. **Week Three**
  - A. Layout Skills and Basics of Calibration
- IV. **Week Four**
  - A. Threads and Holes
- V. **Week Five**
  - A. Surface Roughness & Hardness Testing
- VI. **Week Six**
  - A. Midterm – covering weeks 1-5
- VII. **Week Seven**
  - A. Inspection Planning
- VIII. **Week Eight**
  - A. CMM and Optical Comparators
- IX. **Week Nine**
  - A. Guest Lecturer, Fieldtrip or MTU visit
- X. **Week Ten**
  - A. Statistical Process Control
- XI. **Week Eleven**
  - A. Inspection Techniques and GD & T
- XII. **Week Twelve**
  - A. Final Exam – covering weeks 1-11

Print Date: 3/19/18