

Course Objectives/Course Outline
Spokane Community College

Course Title: CNC Theory II

Prefix and Course Number: MACH 221

Course Learning Outcomes:

By the end of this course, a student should be able to:

- Understand tool and work station offsets
- Show correct part zero selection
- Identify G & M codes and show their proper use
- Write basic G & M code for CNC Lathes

Course Outline:

I. MACHINE CONFIGURATIONS

- A. Universal Slant Bed
- B. Chucker Slant Bed
- C. Gang Style
- D. Screw machine

II. UNDERSTANDING PROGRAM ZERO AND COORDINATE SYSTEM

- A. Axes of a turning center
- B. XZ plane
- C. Where to place the program zero point
- D. Incremental mode
- E. Absolute mode

III. TURNING CENTER SPEEDS AND FEEDS

- A. Constant Surface Speed
- B. Per Revolution Feed rate
- C. Inches Per Minute Feed rate

IV. TYPES OF COMPENSATION

- A. Tool Geometry Compensation
- B. Tool Nose Radius Compensation
- C. Part offsets

V. CANNED CYCLES

- A. Turning or Boring
- B. Facing
- C. Threading
- D. Drilling

