

Course Objectives/Course Outline

Spokane Community College

Course Title: Technical Drawings

Prefix and Course Number: IMMA 101

Course Learning Outcomes:

By the end of this course, a student should:

- Describe the basic components of an engineering drawing, including the title block, revision block, graphical portion, and notes
- Explain and interpret line types, lettering, and symbols on engineering drawings
- Identify and calculate dimensions, tolerances, scales, and units
- Interpret pictorial, orthographic, auxiliary, and section views of parts and/or assemblies
- Create hand-sketched multiview projections and isometric drawings of parts
- Explain and interpret assembly drawings and their components, including parts lists and fastener types
- Interpret geometric dimensioning and tolerancing (GDT) symbols and calculate tolerances
- Interpret engineering drawings for cams, gears, and splines
- Interpret schematics for fluid power systems
- Interpret and explain welding symbols, surface finish symbols, machining callouts, and other manufacturing process instructions on engineering drawings
- Interpret and describe revision systems for engineering drawing
- Demonstrate professionalism, critical thinking, and teamwork during in-class discussions, presentations, and hands-on activities

Course Outline:

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

I. Week One

- A. Technical Drawings Overview
- B. Anatomy of a Print: Blocks and zones
- C. Lines and Lettering on Prints

II. Week Two

- A. Orthographic Views
- B. Understanding Multiviews
- C. Sketching Lines and Arcs
- D. Pictorial/Isometric Sketching
- E. Activity: Sketching – Orthographic Projection

III. Week Three

- A. Sectional Views
- B. Detail and Removed Views
- C. Auxiliary Views
- D. Activity: Sketching – Sectional and Auxiliary Views

IV. Week Four

- A. Dimensioning Lines and Symbols
- B. Dimensioning Schemes
- C. Calculating Tolerances

V. Week Five

- A. Machining Terminology
- B. Machining Operations, Callouts, and Notes
- C. Surface Finish Symbols

D. Activity: Examine Machined Parts and Prints

VI. Week Six

A. Midterm Exam covers skills learned in Weeks 1 - 5

VII. Week Seven

A. GD & T Fundamentals

B. Interpreting Feature Control Frames

C. Calculating Geometric Tolerances

D. Activity: GDT Inspection Project

VIII. Week Eight

A. Assembly Drawings

B. Interpreting Welding Symbols

C. Activity: Sketching Project – Day 1

IX. Week Nine

A. Screw Thread Representation

B. Springs and Fasteners

C. Activity: Sketching Project – Day 2

X. Week Ten

A. Gears, Splines, Serrations

B. Cam Diagrams and Drawings

C. Activity: Sketching Project – Day 3 (due end of class today)

XI. Week Eleven

A. Instrumentation and Control Drawings

XII. Week Twelve

A. Final Exam covers skills learned in Weeks: 1 - 11