

COMPETENCY PROFILE

MECHANICAL ENGINEERING/ENGINEERING TECHNOLOGY

BTC: ENGT 121 – Drafting I (120 clock hours/6 credits)



An introduction to engineering drawing and graphics technology. Students will learn sketching and drafting techniques, drafting concepts and terminology, methods for improving visualization skills, standards for object views and drawing sizes and proper usage of drafting equipment to construct geometric shapes and mechanical drawings.

Upon completion of this course, the student will be able to perform the following competencies:

Produce basic mechanical drawings by mastering the following manual skills:

- Use drafting equipment, measuring scales, drawing media, drafting instruments and consumable materials
- Apply line styles, weights (Alphabet of Lines)
- Apply freehand lettering techniques
- Apply axonometric sketching techniques
- Prepare graphical presentations with balance and layout of simple multi-view sketches

Given the necessary drawing tools, the student will be able to produce complex drawings using:

- Appropriate scales
- Conversion tables for fractions, decimals and metric measurements
- Reprographics equipment, i.e., blueprint machine (diaz process)
- Title blocks, other drafting formats and revision blocks
- Basic geometric construction
- Simple multi-view drawings
- Simple dimensioning techniques

Given the necessary equipment, the student will be able to prepare multi-view drawings:

- Select proper drawing scale, views and layout
- Containing horizontal and vertical surfaces
- Containing circles and arcs
- Containing inclined and oblique surfaces
- Incorporating partial views
- Incorporating removed details and conventional breaks

Given the necessary equipment, the student will be able to prepare pictorial drawings:

- Prepare isometric drawings

Given the necessary equipment, the student will be able to prepare sectional views:

- Containing full sections and half sections
- Containing offset sections
- Containing revolved sections
- Containing removed sections and broken-out sections

Culminating Project: To be determined by instructor

College Textbook Reference:

Technical Drawing, 12th Edition by Giesecki, Mitchell, et al

Note: focus of this course is development of machine or mechanical drawing/drafting skills using sketching techniques (pencil/handwork). Teachers can use any medium to teach the basic concepts (combination of paper, pencil and AutoCAD).