



Republic of the Philippines
Department of Education
DepEd Complex, Meralco Avenue Pasig City



K to 12 TEACHER'S GUIDE

**TECHNOLOGY AND LIVELIHOOD EDUCATION
(INFORMATION AND COMMUNICATIONS TECHNOLOGY)**

**Exploratory Course
on**

TECHNICAL DRAFTING

**Kto12 BASIC EDUCATION CURRICULUM
TECHNOLOGY AND LIVELIHOOD EDUCATION
ICT – TECHNICAL DRAFTING
(Exploratory) – One Quarter**

Grade Level Standard

Information and Communication Technology (ICT) is one among the four (4) components of Technology and Livelihood Education (TLE). One of the mini-courses offered is Technical Drafting. This mini-course covers Process and Delivery (PD) and the common competencies that a Grade 7 or Grade 8 Technology and Livelihood Education (TLE) student ought to possess namely: 1) develop and update industry knowledge and 2) perform basic technical drafting operations.

CONTENT STANDARD

The learner demonstrates understanding of basic concepts, skills and underlying principles in Technical Drafting.

PERFORMANCE STANDARD

The learner independently demonstrates basic concepts, theories and competencies in Technical Drafting as prescribed in the TESDA Training Regulation.

LEARNING COMPETENCIES

1. Formulate learning goals and targets aligned with Technical Drafting.
2. Explore, examine and apply the basic concepts, and underlying principles.
3. Explore career opportunities that require Technical Drafting skills.

I. INTRODUCTION

1. The teacher may start by asking the learners if they know somebody who is a graphic artist, draftsman or layout artist.
2. If they know someone, ask them about what specific task she/he usually does.
3. After processing their answers, the teacher may now introduce Technical Drafting.

II. OBJECTIVES

Guided by the teacher and this module the learner is expected to:

- ❖ formulate your learning goals and targets in relation to technical drafting;
 - ❖ explore, examine and apply the basic concepts, underlying principles and common competencies in technical drafting specifically using the AutoCAD.
 - ❖ apply the concepts and skills learned in technical drafting;
 - ❖ appreciate the relevance of learning the basic concepts and skills of technical drafting.
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PRE-ASSESSMENT

HOW MUCH DO YOU KNOW .

This is a pre-assessment activity to determine the initial behaviour of the learners on Technical Drafting and Computer Aided Design (CAD) .

LEARNING GOALS AND TARGETS

Explain to the learners the objectives of the module and encourage them to think aloud and write their own learning goals. Emphasize that the objectives are their model and provide scaffolds for the learners as they write their own learning goals.

Based on the objectives of the lesson and results of the pre-assessment, let the learners define their personal goals and targets to achieve at the end of this module. Ask them to write their goals/targets in their journal/module.

PROCESS AND DELIVERY

A. Know

LESSON 1

1. **INTRODUCTION TO AUTOCAD**
2. **SELF –CHECK.** The learners will check out their prior knowledge about technical drafting. Use this as a springboard to introduce the lesson.

LESSON 2

1. **Drawing Lines with Line Command**

LESSON 3

1. **AutoCAD Drawing Commands**

B. Process

LESSON1

1. **NAME IT RIGHT.** Let the learners label the parts of the AutoCAD window and drawing window area.
2. **HANDSON TIME.** The learners will launch the AutoCAD program in different ways.

LESSON 2

1. **HANDSON TIME.** The learners will perform a handson activity and they should be properly guided by the teacher.

LESSON 3

1. **I CAN DO IT.**
 - A. Open a given existing AutoCAD drawing interface
 - Draw a line using the AutoCAD Line Command.
 - Draw a polyline using AutoCAD Polyline Command.
 - Draw a circle using AutoCAD Circle Command.
 - Save your work as (name, cad01)

- B. Open an Auto Cad drawing interface.
 - Draw lines , polylines and circles to create a simple image of your choice .
 - Save your work as (name, cad02).
- C. Open an Auto Cad drawing interface.
 - Draw curves , rectangles and spline to create a simple closed figure of your choice .
 - Save your work as (name, cad03).

**C. Reflect
and
Understand**

LESSON 1

DOWNLOAD AND WATCH . The learner will download and watch a video on AutoCAD user interface.

<http://www.youtube.com/watch?v=5gbLacjW90>

After watching the video , let them answer the questions in the module.

LESSON 2

SKETCH AND CONVERT. The learner will draw three polygons of their choice in a bond paper . Apply their learning in AutoCAD program , convert it into line segments focusing on the line command.

LESSON 3

WATCH AND LEARN. Watch tutorial videos related to AutoCAD through the specific URL given in the module (<http://youtube / YDiGd-HhY>) and answer the questions.

1.

D. Transfer

LESSON 1

1. **CLASS PRESENTATION .** Let the learner demonstrate their knowledge on the different elements of the AutoCAD
2. **INTERVIEW SOMEONE.** The learners will interview a draftsman , an architect or an IT student who is knowledgeable in CAD program or application. Ask questions and take down notes. (The teacher may provide questions for the learners to ask.)

LESSON 2

1. **CREATIVE DESIGNING.** The learners will create a toolbox using the AutoCAD line command.

LESSON 3

1. **THIS IS THE MOMENT.** The learner will create a simple house design using the basics of AutoCAD.

ASSESSMENT CRITERIA

Design	-	40%
Creativity and Originality	-	30%
Layout	-	<u>30%</u>
TOTAL		100%

SUMMARY

Technical Drafting and Computer Aided Design (CAD) are among the many features of Information and Communication Technology (ICT) that is incorporated in Technology and Livelihood Education (TLE).

This module enables you to learn the basic concepts, skills, techniques and ethical standards of Technical Drafting with the use of AutoCAD. Your learning might consequently help you become a good draftsman and designer in your community which may serve as your source of income.

GLOSSARY

arc: Any portion of a circle; usually dimensioned according to the radius.

background: The first multiline you select to create a closed cross intersection.

base point: The initial reference point AutoCAD uses when stretching, moving, copying, and scaling objects.

block: A symbol or shape saved and stored in a drawing for repeated use.

circle: A closed curve with a constant radius around a center point; usually dimensioned according to the diameter.

click: Press the left mouse button to select. Also called *pick*.

command: An instruction issued to the computer to complete a specific task. For example, use the LINE tool to draw lines. Also called a *tool*.

command line: Area where you can type commands (tool names) and options.

computer-aided design and drafting (CADD): The process of using a computer with CADD software to design and produce drawings and models.

ordinates: Numerical values used to locate a point in the drawing area.

imension: A description of the size, shape, or location of features on an object or structure.

drawing units: The standard linear and angular units and precision of measurement.

drawing scale: The ratio between the actual size of objects in the drawing and the size at which the objects plot on a sheet of paper.

elements: The individual lines that make up a multiline.

graphics window: The largest area in the AutoCAD window, where drawing and modeling occurs. Also called a *drawing window*.

layout space: The environment in AutoCAD in which you create layouts for plotting and display purposes. Also called *paper space*.

line conventions: Standards related to line thickness, type, and purpose.

orthographic projection: Projecting object features onto an imaginary plane.

spline curve: A curve that passes through the first and last fit points and is influenced by the other fit points.

text: Lettering on a CADD drawing.

workspace: Preset work environment containing specific interface items.

REFERENCES

Basics of Auto CAD

<http://www.amazon.com/Technical-Drawing-Edition-Frederick-Giesecke/dp/0130081833>

<http://www.eastlymeschools.org/page.cfm?p=1486>

<http://cad-notes.com/2009/11/how-to-label-coordinate-in-autocad/>

www.g-wlearning.com/CAD/9781605253282/student/

<http://www.youtube.com>