

1. Module details**Module name****CAD for Electrotechnology****Module duration**

It is expected that students with the appropriate entry knowledge and skills will successfully complete this module in 36 - 40 hours.

Module code

NUE074

Discipline code

0703110

2. Module purpose

This module will introduce the student to computer aided drafting (CAD) techniques. The student will learn how to draw simple electrical/electronic circuits and electrical layout diagrams using CAD techniques.

3. Prerequisites**4. Relationship to competency standards**

This module provides part of the underpinning knowledge and skills in the 'Evidence Guide' of specific units of competency in the National Electrotechnology Training Package and provides similar support, where mapped, to equivalent units in the National Metals and Engineering Competency Standards. For details refer to the module to unit maps, available from EEQSBA.

5. Content**1. Computers Systems (Introduction)**

- Types:
- Computer hardware
- Computer software
 - Windows 95 – 98, 2000 NT and new platforms
 - CAD programs (eg AutoCAD 14)

2. CAD basics

- Terminologies
- Commands:
 - window / frames, menus, toolbars, opening / closing files

3. Design

- domestic floor plans
- SAA symbols
- electrical services
- dimensioning style, vertical, horizontal, angular, continuous, editing

4. Printing/plotting

- selection

- setup
- paper selection:
 - A1, A2, A3, A4, A5
- scaling
 - manual and best fit

5. Creating text

- text entry
- spelling
- customisation:
 - font, characters, size, colour

6. Assessment strategy

Assessment methods

Assessment should be progressive reflecting a holistic approach to ensure the module purpose is met. To assist in ensuring validity, reliability and fairness assessment instruments should include practical exercises, assignments and written tests consisting of a number of item types, such as multiple choice, short answer and problem solving.

Conditions of assessment

Learning and assessment will take place in an environment that is conducive to a learner's development.

7. Learning outcome details

Learning outcome 1

Describe the function of computers and their peripherals.

Assessment criteria

- 1.1 Identify the basic component parts of a computer used for CAD, such as:
 - types
 - hardware
 - software
- 1.2 State the purpose of hardware and software components used for CAD.
- 1.3 List a variety of computer hardware components and software program types used in the design of electrical diagrams.

Learning outcome 2

Manage a software program to produce a simple domestic floor plan

Assessment criteria

- 2.1 Describe the procedures for booting up a CAD software program.
- 2.2 State the purpose of a:
 - pull down menus

Learning outcome 3**Assessment criteria**

- toolbar
- tool palette
- drawing area
- command prompt
- status line

2.3 Sketch and dimension a simple domestic floor plan from a scaled diagram, using a CAD software package.

Design the layout for the electrical services for a domestic installation

3.1 Create, using CAD software, SAA drawing symbols for electrical services such as:

- GPOs
- luminaires
- hot water units
- switchboards
- appliances
- switches:
 - one way
 - two way
 - three way

3.2 Use a CAD software program to sketch the wiring and services layout for the electrical services on a domestic floor plan, using SAA drawing standards.

3.3 Create text entries for a domestic installation using a CAD software program.

Learning outcome 4**Assessment criteria****Save and print a CAD file in a variety of scaled formats**

4.1 State the requirements necessary for saving and printing CAD files.

4.2 List the format styles in which CAD files can be saved and printed.

4.3 Save CAD files to a:

- hard drive
- floppy disk
- new location

4.4 Print CAD files to a:

- printer
- plotter

8. Delivery of the module**Delivery strategy**

Delivery strategies must be suitable for learning both theoretical and practical aspects described in the module purpose. It is considered that the most effective method to achieve this is by integration of theory and practice where students learn by experimentation, research and reports. It is recommended that learning and assessment be facilitated in a holistic manner that may require learning outcome sequence other than that indicated in the module.

Resource requirements

Resources should be sufficient for students to carry out learning activities on an individual basis.

Suggested Learning Resource:

Appropriate technology and software

Occupational health and safety requirements

A safe and healthy environment will be provided for students and teachers as well as the particular safety procedures followed as part of the learning / teaching activity and content.