UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

**Cambridge International Diploma in ICT
Standard Level**

Scheme of Work

5195
Computer Aided Design
Optional Module

UNIVERSITY *of* CAMBRIDGE
International Examinations

Introduction

This Optional Module is about using CAD tools to produce accurate scale drawings, setting up a drawing, generating 2D (orthographic) standard views, displaying an isometric view from 2D image.

What is assessed in this Module?

Setting up a drawing:
- establishing scales
- using specified units
- using grids
- using a title block (scale, title, dimensions, user name)
- generating 2D (orthographic) standard views
- determining height
- determining width
- displaying front elevation
- displaying end elevation
- displaying plan and sectional views
- using line types (outline, centre line, hidden detail, hatch)

Displaying isometric view of a 2D image:
- elevation added
- depth added
- produce isometric view
- saving an image
- printing/plotting an image
- printing/plotting a drawing to a specified scale

Tutor Preparation Required to Deliver this Module

You will need:

- prepared files for the students to load
- related documentation showing the amendments the students have to make
- documents prepared for the students to produce

Underpinning Knowledge

- why you use computer aided design

General Principles and Procedures

You should prepare your notes for this session to include details on the requirements for differing types of print when carrying out different tasks. Drawings, in particular, frequently require alterations to the output. These notes should include:

- choosing a printer
- choosing a plotter
- changing paper size, loading and adjusting paper
- starting a printout, cancelling a printout
- changing page set-up
- the print queue - access and function

It is always necessary to keep copies of work. It will, of course, depend on the system you are using, but one of the simplest ways of helping students to understand this requirement is to work on the following topics and requiring students to maintain copies of their own work.

- formatting a disk
- making back-up copies

Scheme of Work

Assessment Objectives	Performance Criteria	Classroom Ideas	Resources	Notes
Session Plan One				
• how CAD is used in the world of work • the language used within CAD • to set up a grid • to work to scale • to use standard drawing conventions (including title blocks and line types)	1.1.1 1.1.2 1.2.1 1.3.1 2.4.1	• understand the use of CAD in today's design industry • discuss the language of CAD: e.g. 2D, 3D, first angle projection, third angle projection, orthographic projection, isometric projection, scaling, grids, sectional • set up grids • set scales and units • produce standard document layouts including title blocks • use standard line types: e.g. Outline, centre line, hidden detail, hatching	• examples of products • handouts • practice exercises in setting scales and grids • practice exercises in title block layout • practice exercises using standard line types	• discuss the use of CAD in design industry

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Assessment Objectives	Performance Criteria	Classroom Ideas	Resources	Notes
Session Plan Two				
• the different views in orthographic projection • produce a simple drawing • the different views in orthographic projection • to plot and/or print a document	2.1.1 2.2.1 2.2.2 2.2.3 4.1.1	• produce a simple drawing to specified scale/grid as front elevation, end elevation and plan • discuss the difference between plotting and printing	• object/s and ruler or isometric drawings of object/s with dimensions	• produce on paper sketch of common everyday object • transfer the drawing to CAD package • produce drawing on CAD package – learning the difference between elevation specifications • produce on paper sketch of common everyday object • transfer the drawing to CAD package • understand the difference between plotters and printers and the settings involved

Assessment Objectives	Performance Criteria	Classroom Ideas	Resources	Notes
Session Plan Three				

• to display sectional views
• produce a CAD drawing to set dimensions using a variety of elevations
	2.3.1
	2.5.1
		• produce several different sectional views of the same object from the shape or an isometric drawing
		• produce drawings to defined scale showing:
		  - grid and title block
		  - front elevation
		  - end elevation
		  - plan as specified
			• practice exercises drawing sectional views through different planes
			• worksheets
			• handouts	

Session Plan Four				

• produce a CAD drawing as specified	All	• produce drawings showing:
		  - grid and title block
		  - front elevation
		  - end elevation
		  - plan as specified
		  - sectional view displayed
		  - use special line types as specified
		  - dimension only as specified
		  - produce isometric view of product
		  - saved and printed/plotted
			• worksheets
			• handouts
			• software and software manuals
				• produce drawing on CAD package – learning what is meant by sectional view and the use of lines e.g. hatching, centre line, outline
				• understand the difference between views of drawings and how to create an isometric view from a 2D image

Session Plan Five				
• all	All	• practice test		

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Assessment Objectives	Performance Criteria	Classroom Ideas	Resources	Notes
Session Plan Six				
		• practice test debrief: discussion of tasks and answers	• marked printouts for each student • prepared model answers for each task	• review special arrangements and procedures for test
Session Plan Seven				
• undertake CAD Module Assessment		• CAD Module Assessment		

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