

SEMPEO2-63 - SQA Unit Code F3E2 04

Using computer software packages to assist with engineering activities



Overview

This standard covers a broad range of basic competences that you need, to operate a computer and use a variety of software packages to assist with engineering activities, such as report writing, stock/stores control, costing activities and electronic mail. It will prepare you for entry into the engineering or manufacturing sectors, creating a progression between education and employment, or it will provide a basis for the development of additional skills and occupational competences in the working environment.

The types of software package used will include the computer operating system, word processing, databases, spreadsheets, graphics packages and electronic mail.

You will be expected to check that all power leads and peripheral connecting leads from your workstation are correctly and securely connected to the appropriate terminations, and that they are safely routed so as not to cause a trip hazard. You will use the correct procedure to power up and operate the computer and peripheral hardware, to access the appropriate software packages and to create and maintain suitable work folders and files. On completion of the activities, you will be expected to shut down the software and computer system, using the correct procedures, to return all documentation, reference manuals or specifications to the designated location, and to leave the work area in a safe and tidy condition.

Your responsibilities will require you to comply with health and safety requirements and organisational policy and procedures for working with the computer equipment. You will need to take account of any potential difficulties or problems that may arise with the computer hardware, software or activities undertaken, and to seek appropriate help and advice in determining and implementing a suitable solution. You will work under a high level of supervision, whilst taking responsibility for your own actions and for the quality and accuracy of the work that you carry out.

Your underpinning knowledge will provide an understanding of your work, and will enable you to apply appropriate computer operating procedures and techniques safely. You will understand the computer system and software packages used, and their application, and will know about the various tools and techniques used to carry out the various activities, to the required depth to provide a sound basis for carrying out the activities correctly.

You will understand the safety precautions required when working with the computer system. You will be required to demonstrate safe working practices

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throughout, and will understand the responsibility you owe to yourself and others in the workplace.

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Performance criteria

- You must be able to:*
- P1 work safely at all times, complying with health and safety legislation, regulations and other relevant guidelines
 - P2 check that all connections to the computer and peripherals are correctly connected and in a safe working condition
 - P3 power up the equipment, using the correct operating procedures
 - P4 use appropriate sources to obtain the required information for the activities to be undertaken
 - P5 access the correct application software for the activities undertaken
 - P6 use appropriate techniques to create files and documents, in the required formats, that are sufficiently and clearly detailed
 - P7 deal promptly and effectively with problems within your control, and seek help and guidance from the relevant people if you have problems that you cannot resolve
 - P8 shut down the computer system to a safe condition on completion of the activities

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Knowledge and understanding

You need to know and understand:

- K1 the specific safety precautions to be taken when working with computer systems (to include safety guidance relating to the use of visual display unit (VDU) equipment and work station environment (such as lighting, seating, positioning of equipment), repetitive strain injury (RSI); the dangers of trailing leads and cables; how to spot faulty or dangerous electrical leads, plugs and connections, also PAT test is in date
- K2 the importance of good housekeeping arrangements (such as cleaning down work surfaces; storage devices, manuals and unwanted items of equipment into safe storage; leaving the work area in a safe and tidy condition)
- K3 the correct start-up and shutdown procedures to be used for the computer systems
- K4 the methods and procedures used to minimise the chances of infecting a computer with a virus
- K5 the implications if the computer you are using does become infected with a virus and who to contact if it does occur
- K6 identification of the correct software package from the menu or operating systems environment; the various techniques that are available to access and use the software (such as mouse, menu or tool bar, light pens, digitisers and tablets, printers or plotters, and scanners)
- K7 the use of software manuals or help facilities and related documents to aid efficient operation of the relevant software system
- K8 how to deal with system problems (such as error messages received, peripherals which do not respond as expected, obvious faults with the equipment or connecting leads)
- K9 the various software packages that are used within an engineering environment (such as word processing, databases, spreadsheets, graphic design and drawing packages, and electronic communication)
- K10 the use of personal access codes, and logging on/off procedures that are required
- K11 the various standard document formats that are used (such as letters, memoranda, facsimile, technical reports)
- K12 how to create and set up a spreadsheet/worksheet, and how to determine and set out the required number of cells, rows, cell width
- K13 how to create a database record, and how to determine and set out the required alpha/numeric fields of the correct size and type
- K14 how to enter alpha/numeric and formulaic data, using keyboards, mouse and menu/tool bar facilities
- K15 how to use highlighting/enhancement features and techniques
- K16 how to edit documents using sort, search and edit facilities, spelling and grammar checks

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- K17 how to create tables, charts and graphs
- K18 how to import and export files to and from other locations and other software packages
- K19 how to save and store files/documents (such as determining document size; how to check that there is sufficient space to save the file in your chosen destination; saving and naming the file/document)
- K20 the need to create backup copies, and to file them in a separate and safe location away from contamination and possible corruption
- K21 how to produce hard copies of the documents that you have been working on
- K22 when to act on your own initiative and when to seek help and advice from others
- K23 the importance of leaving the work area and equipment in a safe condition on completion of the activities (such as correctly isolated, removing and disposing of waste)

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Additional Information

Scope/range related to performance criteria

You must be able to:

1. Prepare the computer system for operation, by carrying out **all** of the following:
 - 1.1 check that all the equipment is correctly connected and in a safe and usable working condition (such as cables undamaged, correctly connected, safely routed, PAT tested)
 - 1.2 power up the equipment and, where appropriate, log in as a user
 - 1.3 check that all peripheral devices are operating correctly (such as keyboard, mouse, light pen, web camera, digitiser/tablet, scanner, printer/plotter)
 - 1.4 create and maintain folders and files, in accordance with organisational procedures

2. Use **all** of the following software packages:

Word-processing: Produce **three** of the following types of documentation:

 - 2.1 standard letter
 - 2.2 work timetable
 - 2.3 memorandum
 - 2.4 layouts/templates
 - 2.5 facsimile
 - 2.6 macros
 - 2.7 curriculum vitae (CV)
 - 2.8 project report
 - 2.9 instruction manual
 - 2.10 other specific application

Database: Create and use a database for **two** of the following applications:

 - 2.11 personnel details list
 - 2.12 plant maintenance information
 - 2.13 address list (such as for mail merging)
 - 2.14 fault diagnosis information
 - 2.15 customer/sales details
 - 2.16 stock control (such as tools or consumables)
 - 2.17 other specific application

Spreadsheet: Create and use spreadsheets for **two** of the following

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applications:

- 2.18 budgeting
- 2.19 wages
- 2.20 cost analysis (such as transport, photocopying, materials)
- 2.21 project costing
- 2.22 other specific application

Graphics: Use graphics software to produce **two** of the following types of documentation:

- 2.23 preparing visual aids for a presentation
- 2.24 producing logbook entries
- 2.25 producing advertising material
- 2.26 producing technical information
- 2.27 other specific application

Electronic communication: Use **two** of the following methods :

- 2.28 company e-mail system
- 2.29 mobile text messaging
- 2.30 internet e-mail
- 2.31 web camera chat/conferencing

3. Carry out **all** of the following whilst using the software packages:
 - 3.1 ensure that you have all the required information/data for the activities to be carried out
 - 3.2 open or create a suitable word processing file/format document which will display the information effectively
 - 3.3 create a suitable spreadsheet/worksheet which contains a suitable number of cells and rows of the required width
 - 3.4 where appropriate, enter formulae at the relevant point within the worksheet
 - 3.5 use graphs which are representative of the information to be shown
 - 3.6 create a suitable database with appropriate alpha/numeric fields and search facilities
 - 3.7 use a font style and size of text in keeping with organisational codes and specific job requirements
 - 3.8 enter alpha and numeric data/text accurately into the correct location
 - 3.9 select and use appropriate text features (such as bold, italics, colour, underline)
 - 3.10 import and export information to and from other files or software packages
 - 3.11 correct routine errors or mistakes in operation
 - 3.12 edit documents, using appropriate techniques for the package being used (such as using sort, search and replace, spelling and grammar checks)

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4. Save and store files in appropriate locations, to include carrying out **all** of the following:
 - 4.1 create a group of folders or directories in which related files can be stored
 - 4.2 check that the file/document is correctly titled and referenced
 - 4.3 determine the size of the file/document, and check for sufficient space on the storage device for saving it
 - 4.4 save the file/document to an appropriate storage medium (such as hard drive, DVD, external storage device)
 - 4.5 where appropriate, create a separate backup copy and place it in safe storage
 - 4.6 produce a hard copy printout of the file/document

5. Use computer software packages in compliance with **one** or more of the following:
 - 5.1 organisational guidelines
 - 5.2 statutory regulations and codes of practice
 - 5.3 computer software standards
 - 5.4 BS and ISO standards

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