Unit:
Computer Systems

Assignment title:
Practical Portfolio

Spring 2023 - Spring 2024

Important notes

- Please refer to the *Assignment Presentation Requirements* for advice on how to set out your assignment. These can be found on the NCC Education website. Hover over 'About Us' on the main menu and then navigate to 'Policies and Procedures' then scroll to the 'Student Support' area.
- You **must** read the NCC Education document *Academic Misconduct Policy* and ensure that you acknowledge all the sources that you use in your work. These documents are available on the NCC Education website. Hover over 'About Us' on the main menu and then navigate to 'Policies and Procedures' then scroll to the 'Student Support' area.
- You **must** complete the *Statement and Confirmation of Own Work*. The form is available on the NCC Education website. Hover over 'About Us' on the main menu and then navigate to 'Policies and Procedures' then scroll to the 'Student Support' area.
- You must submit a paper copy and digital copy (on disk or similarly acceptable medium). Media containing viruses, or media that cannot be run directly, will result in a fail grade being awarded for this assessment.
- All electronic media will be checked for plagiarism.

Introduction

This unit is assessed by three tasks which comprise a **portfolio of work.** Task 1 requires you to identify requirements and a system specification for a computer system. Tasks 2 and 3 are based on the practical work undertaken in the laboratories for **topics 6, 7** and **8** and consists of the laboratory reports that you have developed for each of these.

Task 1 – Updating IT Infrastructure **(50 Marks)**

The word count for Task 1 should be in the region of 2000 words

Scenario

You have been asked by a small / medium-sized enterprise (SME) to update its IT infrastructure. The current system is inadequate since it runs an unsupported operating system and outdated software / hardware is causing performance issues. You should therefore research suitable modern replacements. The Chief Executive Officer (CEO) is conscious of cost, so value for money is important. They are keen to add enhanced functionality and performance to the updated system to give a competitive edge and to include potential new ecommerce opportunities.

DO NOT USE the scenario in the student guide for this task!

Part a) Outline Requirements Specification – **20 marks**

This task will require you to produce a formal report addressed to the SME CEO, who understands IT terms and is competent with hardware and software. You do not need to explain standard terms, but you do need to justify any suggestions made.

1. Select an industry, for example, health, education, automotive, fashion retail, food retail, IT, leisure and tourism, construction, logistics, banking etc. in which you are interested.

2. You will need to make some assumptions about the IT infrastructure required by a typical modern small to medium sized organisation in your chosen industry and decide what the key components of their infrastructure are likely to be. For example, servers, desktops, mobile devices, network and telecoms hardware and system software / applications.

3. From the assumptions you have made in step 2, the SME has asked you to do the following:

    - Identify the requirements of a typical modern small to medium sized organisation in your chosen industry in terms of computer systems functionality. Remember that this is what they need the systems to do, not which systems to buy.

    - Identify the specifications needed for both hardware (system and peripherals) and software in detail.

4. The CEO is keen to understand more about the importance of CPU type on performance and disk space organisation. Your report should include an appendix discussing these issues.

5. The suggested structure of the report is as follows:

    a. Introduction

    b. Outline of the industry and organisation's business, including a summary of the assumptions you made in step 2.

    c. Systems needed to support the business: for example, Sales order processing, payroll, CAD/CAM, email, website.

    d. Outline of current problems.

    e. Outline list of system functions

    f. Outline list of non-functional requirements

    g. Appendix

        i) Explanation of the importance of CPU type (single/multi-core), RAM and Disk space in the performance of the system.

        ii) Discussion of how disk space may be organised in your selected company. Justify your choices.

Part b) System Design Specification - **20 marks**

Having read your report for part a) on the hardware and software required for the SME, the CEO would like you to proceed to the next stage.

Based on the requirements you have already determined the CEO has asked you to:

1. Produce systems specifications for the SME's needs. Remember that at this stage, these are still generic specifications and should not identify specific products.

Having completed the system specifications, the CEO has asked you to:

2. Identify TWO (2) different products for each area that match these specifications. This should include alternative application software, operating systems and hardware.

3. Provide exact product details, including suppliers, costs, exact configuration and options to be included. There needs to be enough detail to actually order the systems specified.

4. The SME requires the pricing in GBP (£) so prices, if not already in GBP will need converting.

Add your answer to the document you created for part a).

Part c) Critical Evaluation and System Selection – 10 marks

From the options you have offered in part b), select ONE (1) solution for each area and justify that selection.

Add your answer to the document you created for parts a) and b).

Task 2 – Windows Installation (30 Marks)

The 6 tasks of Topic 6 (Software, Installation and Configuration) in the laboratory session ask you to develop a report that describes the installation you have completed. This report, as part of your portfolio of work, should address the following:

a) Installation of Windows (10 marks)

1. Identification of key stages in the installation.
2. Identification and description of required device drivers and their source locations.
3. Identification and description of unresolved issues – especially missing device drivers.

b) Installation of antivirus software - 10 marks

1. Identification of product used.
2. Identification and description of key stages in installation.
3. Identification and description of problems and unresolved issues.
4. Outline of the update process for the antivirus software.

c) Installation of office software - 5 marks

1. Identification of product used.
2. Identification and description of key stages in installation.
3. Identification and description of problems and unresolved issues.

d) Installation of free utility - 5 marks

1. Identification of utility, outline of what it does and reason why you chose this (make it different from that of your classmates).
2. Identification and description of key stages in installation.
3. Identification and description of problems and unresolved issues.

***Note:* The laboratory instructor is required to provide a signed form for inclusion in your portfolio which records your success in the tasks outlined above – see Appendix 1.**

To assist in providing evidence that this is your own work, you will need to include photographs and/or screen shots (including date and time stamps to provide evidence that it is your own work) of tasks being completed. These should be incorporated into your report.

Task 3 – Faulty PCs and Software Maintenance (20 Marks)

This task deals with Topic 7 (System Testing) where you will be presented with a minimum of THREE (3) faulty PCs and Topic 8 (Software Maintenance) where you will need to perform routine maintenance tasks on a computer system.

a) Fault finding and computer maintenance - 10 marks

The report for your portfolio should indicate for each PC:

Faulty PCs	Maintenance of Computer System
1) The steps that you followed to identify the fault.	1) Identification of OS update / software package to update.
2) The cause of the fault.	2) Identification of hardware driver to update.
3) The steps taken to resolve the fault.	3) Performance of system maintenance and the outcome explaining why it was done and the improvements brought to the system.
4) The success or failure of the repair.	

***Note:* The laboratory instructor is required to provide a signed form for inclusion in your portfolio which identifies that you have completed the fault-finding and remedy tasks for each PC – see Appendix 2.**

b) Routine / Preventative maintenance - 10 marks

Users often complain that after a while their computer is 'running slowly'.

1. Identify FIVE (5) potential reasons why a user might experience this problem and for each of the issues identified explain how you would recommend investigating and addressing the issue.

2. Identify FIVE (5) regular maintenance tasks that users should undertake and for each of the issues identified explain why each of them is important.

Guidance and Submission Requirements

- The portfolio should directly address the tasks as presented and include only your reflection on the tasks – *generic information taken from websites and other sources is not required.*

- The portfolio should clearly and comprehensively outline all the stages you followed.

- The portfolio should be supported by screenshots and/or photographs that identify key stages or issues. However, such screenshots and photographs should not be overused.

Candidate Checklist

Please use the following checklist to ensure that your work is ready for submission.

Have you read the NCC Education document *Academic Misconduct Policy* and ensured that you have acknowledged all the sources that you have used in your work?	❑
Have you completed the *Statement and Confirmation of Own Work* form and attached it to your assignment? **You must do this.**	❑
Have you ensured that your work does not contain viruses and can be run directly?	❑

Appendix 1

Task 2: Laboratory Supervisor Sign-Off

Student Name		
Student ID		
Student Signature		
Laboratory Supervisor Name		
Laboratory Supervisor Signature		
Task	Degree of Completion (to be completed by supervisor)	Completed (Signed Laboratory Supervisor)
Installation of Windows	(Include identity of drivers used)	
Installation of Antivirus Software	(Include identity of antivirus package)	
Installation of Office Tools	(Include identity of office tools installed)	
Installation of Utility	(Include identity of utility installed)	

Appendix 2

Task 3: Faulty PC Laboratory Supervisor Sign-Off

Student Name		
Student ID		
Student Signature		
Laboratory Supervisor Name		
Laboratory Supervisor Signature		
Faulty PC Number	Fault Found (to be completed by laboratory supervisor)	Fault Remedied (to be completed by laboratory supervisor)

Task 3: Software Maintenance Laboratory Supervisor Sign-Off

Identification of OS update / software package update (to be completed by laboratory supervisor)	Identification of hardware driver update (to be completed by laboratory supervisor)	System maintenance undertaken (to be completed by laboratory supervisor)