T Level Technical Qualification in Digital Support Services

Occupational specialism assessment (OSA)

Network Cabling

Assignment 1

Tasks 1 and 2

Assignment brief

v1.1: Additional sample material
16 November 2023
603/6901/2

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Contents

About this assignment

Introduction

This assignment is set by NCFE and administered by your provider over 3 days. The times and dates will be specified by NCFE.

The assignment will be completed under supervised conditions.

You must complete all tasks in this assignment independently. You are required to sign a declaration of authenticity to confirm that the work is your own. This is to ensure authenticity and to prevent potential malpractice and maladministration. If any evidence was found not to be your own work, it could impact your overall grade.

Internet access is **not** allowed.

Timing

You have 13 hours to complete all tasks within this assignment.

Task 1 = 8 hours (this task will be completed in 4 sessions over 2 days)

Task 2 = 5 hours (this will be provided after completion of task 1 and be completed in 2 sessions over one day)

Individual tasks must be completed within the timescales stated for each task, but it is up to you how long you spend on each part of the task, therefore be careful to manage your time appropriately.

Marks available

Across all assignment 1 tasks: 60 marks.

Details on the marks available are provided in each task.

You should attempt to complete all of the tasks.

Read the instructions provided carefully.

Submit all evidence in .pdf format using the file naming convention: Surname_Initial_student number_evidence reference for example, Smith_J_123456789_Task 1.

Performance outcomes (POs)

Marks will be awarded against the skills and knowledge performance outcomes (POs) as follows:

Task 1

(40 marks)

PO1: Apply procedures and controls to maintain the digital security of an organisation and its data (12 marks)

PO2: Install and test cabling in line with technical and security requirements (16 marks)

PO3: Discover, evaluate and apply reliable sources of knowledge (12 marks)

Task 2

(20 marks)

PO1: Apply procedures and controls to maintain the digital security of an organisation and its data (12 marks)

PO2: Install and test cabling in line with technical and security requirements (8 marks)

Scenario

You are required to provide a network data installation for an established Manchester-based business. The firm has 5 members of staff moving to a new branch office space that is a small single-storey building located in Newcastle.

This new office will be used to attract new customers in the Newcastle area. The building will have an open office space and a small meeting room.

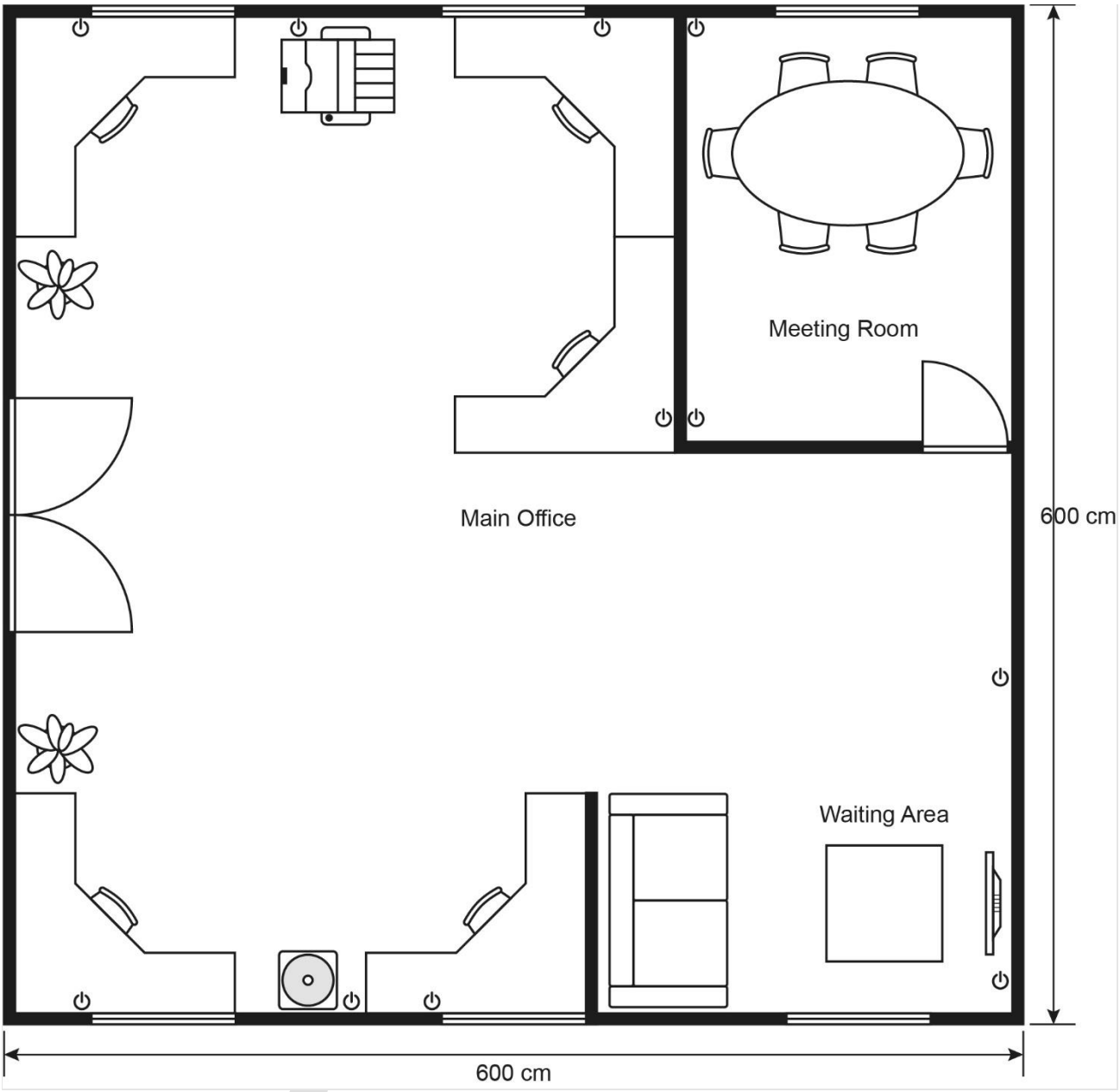
There is ample supply of power sockets in all areas of the building. There needs to be a discussion on where to locate the server/communications cabinet.

The needs of the various users are:

- the members of staff will all be part of the sales team, with one sales manager – adequate file shares and permissions must be considered
- the entire sales team would need to have a secure site-to-site connection back to the main office in Manchester
- the sales team will need to access their customer relationship management (CRM) system and require a voice-over IP (VoIP) phone each
- the server/communications cabinet location will need to be planned by you, including why it must be in that location
- all the staff in the sales team will need access to the main printer located in the office – staff have also requested cloud printing capabilities
- network cabling will need to be run throughout the office, ensuring every staff member has 2 ethernet ports
- ethernet ports will need to be provided for guests in the waiting area when they come to visit the office
- wireless coverage is required in the office and staff have asked for a guest network for customers to use when they visit

An outline plan of the building (Image A) has been provided on the next page.

Image A



Dimensions are in cm

Double power sockets are indicated by a ⏻ logo by each desk and around the office.

Task 1: designing the new network

Time limit

8 hours

You can use the time how you want but all parts of the task must be completed within the time limit.

(40 marks)

You are required to produce a network design specification, including a diagram of the physical layout for the proposed installation of the new network and supporting rationale.

Your proposal should:

- include a cabling diagram which shows the physical layout for the network
- make proposals for containment/trunking, cable management and separation from power
- clearly state how many users will be able to access the network at any given time, both on-site and remotely
- describe how remote workers will access the network and the security considerations associated with remote access
- describe how ample wireless connectivity will be provided throughout the entire building
- specify the types of data which will be transmitted across the network and where the data is stored
- name the required hardware which will allow network access and the specifications of this hardware
- specify how data will be transferred in each segment of the network, either wired or wirelessly, and justify your selection for each choice
- describe the security measures which will be put in place to best ensure the integrity and 24-hour availability of the network, justifying the reasoning for any measures selected
- explain the type of cable you have chosen
- provide an estimate for the amount of cable required for the installation, based on the dimensions shown in the outline plan of the office:
    - add 10% to the length of cable you have calculated will be required, in anticipation of encountering obstacles to your cable run
    - show how you have arrived at your estimation

You will have access to the following equipment:

- word processing software
- an appropriate diagramming tool

Evidence required for submission to NCFE

A diagram of the physical network design with headings that clearly show your proposal for each of the points above, in .pdf format.

Written justification for the design decisions you have made, where the task requires this.

Task 2: creating the network diagram

Time limit

5 hours

You can use the time how you want but all parts of the task must be completed within the time limit.

(20 marks)

You must produce a network diagram of the logical network layout for the company using Cisco Packet Tracer. Your network diagram should clearly show all devices and connection points that make up the network and their locations within the building.

Your diagram, screenshots and accompanying documentation should evidence:

- all resources/components identified to meet requirements in task 1
- identification of each component on the network and demonstrate how they are connected
- the IP addressing structure, evidenced by detailing the IP addressing and subnetting scheme and how this will be applied to each networked component
- details of the security measures implemented
- how all components on the network work together

You will have access to the following equipment:

- word processing software
- Cisco Packet Tracer

Evidence required for submission to NCFE

Screenshots of your logical network diagram that demonstrate how the network is configured and a word-processed description of how all components on the network work together, in .pdf format.

Document information

The T Level Technical Qualification is a qualification approved and managed by the Institute for Apprenticeships and Technical Education. NCFE is currently authorised by the Institute to develop and deliver the T Level Technical Qualification in Digital Support Services.

Owner: Head of Assessment Design

Change History Record

Version	Description of change	Approval	Date of Issue
v1.0	Additional sample material		01 September 2023
v1.1	Sample added as watermark	November 2023	16 November 2023