Unit 12
Creating a computer network

Model assignment
T/615/1379
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Please note:

You can use this assignment to provide evidence for summative assessment, which is when the learner has completed their learning for this unit and is ready to be assessed against the grading criteria.

You can use this assignment as it is, or you can modify it or write your own; we give more information in this document under Guidance for tutors.

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Guidance for tutors on using this assignment

General

OCR Cambridge Technical model assignments are available to download from our website: www.ocr.org.uk.

The purpose of this assignment is to provide a scenario and model of tasks that are typical of how an IT practitioner would install, test and apply system security to a computer network, to enable you to assess your learner against the requirements specified in the grading criteria. The scenario and its tasks are intended to give a work-relevant reason for applying the skills, knowledge and understanding needed to achieve the unit.

This assignment will not instruct learners how to meet the highest grade. Whether learners achieve a pass, merit or distinction will depend on what evidence they produce.

You can modify the scenario we provide in this assignment to make it more relevant to your local or regional needs. Please refer to the information under ‘Modifying the model assignment’ later in this section.

You don’t have to use this assignment. You can use it as a guide to help you to design your own assignment, and we provide an assignment checking service. You’ll find more information on these matters in section 8 of the qualification handbook.

In the tasks, we’ll refer to the format of evidence. Learners are not required to follow that format unless we tell them otherwise.

It’s essential that the work every learner produces is their own. Please make sure you read through the information we give on authenticity in section 8 of the qualification handbook and make sure that your learners and any staff involved in assessment understand how important authenticity is.

We provide this assignment to be used for summative assessment. You must not use it for practice or for formative assessment.

Before using this assignment to carry out assessment

Learners will need to take part in a planned learning programme that covers the knowledge, understanding and skills of the unit.

When your learners are ready to be assessed, they must be provided with a copy of the following sections of this assignment:

• General information for learners
• Assignment for learners
• Evidence Checklist

They may carry out preparation prior to undertaking the tasks and there is no time limit for this.
When completing the assignment

You should use this assignment in conjunction with the unit specification and qualification handbook.

This assignment should take between 10 and 15 hours to complete depending upon the level of complexity of the learners’ computer network designs.

For Task 2 learners will need to use the computer network diagram and specification below.

Tutors may wish to develop or use an alternate diagram which is acceptable providing the specification is detailed enough for learners to provide the required evidence to satisfy the grading criteria.

Progress Academy – Proposed Network Specification.

Requirements

- The workstations should be connected to facilitate efficient and secure file sharing.
- A shared printer and scanner should be installed.
- An external storage device is required.
- Internet connectivity is required with appropriate security measures.
- Appropriate cable connectivity to ensure the reliable connection of devices.
Resources to complete the tasks

There are resource requirements for this assignment. Every learner will need access to the following resources:

- For Task 3 learners will require access to a range of hardware components suitable for use in a computer network. Examples of suitable hardware can be found in the teaching content (LO3).

- For Task 3 learners must demonstrate configuring the settings of an operating system to allow file sharing and so learners will need access to a suitable computer workstation.

- For Task 4 learners need to demonstrate the application and testing of security measures to secure a network and so will require access to an appropriate computer workstation.

Examples of suitable software based security settings can be found in the teaching content (LO3).

Health and safety and the use of resources

For Task 3 learners are being asked to install components of network hardware.

Guidance and training should be provided to learners regarding the correct use of any necessary equipment and the safety precautions that should be taken when working on potentially live electrical equipment.

Learners should be provided with any appropriate safety equipment that may be required for the task.

Time

You should plan for learners to have 10–15 hours to complete this assignment.

Learners must be allowed sufficient time to complete all the tasks. The amount of time may vary depending on the nature of the tasks and the ability of individual learners. To help with your planning, against each of the tasks we’ve given an indication of how long it should take.

Learners can produce evidence in several sessions.

Format of evidence

Learners have to produce evidence that demonstrates how they have met the grading criteria. At the very least they must produce evidence that meets all of the pass criteria.

Please make sure your learners realise that missing just one pass criterion means they will not pass the unit, even if they have successfully met the merit and distinction criteria.

It’s possible that certain formats for evidence can naturally cover several grading criteria and avoid the need for excessive amounts of evidence. For example, a report can be a good way to pull together evidence to meet several grading criteria.

For more guidance on generation and collection of evidence, please refer to the section 8 ‘Internal Assessment’, in the qualification handbook.
Group work

This assignment hasn’t been written to include group work.

After completing the assignment

Once the learner has submitted their work to you to be assessed, you must judge or ‘mark’ the work against the grading criteria for the unit and identify one grade for the unit. For further information about assessment, please refer to section 8 of the qualification handbook.

Your assessment decisions must be quality assured across the cohort of learners in your centre who are being entered for the same unit. This must be done through an internal standardisation process. We give information on internal assessment and standardisation in the qualification handbook.

Reworking the assignment

If you and the learner feel they’ve not performed at their best during the assessment, the learner can, at your discretion, improve their work and resubmit it to you for assessment. If a learner is working on improving their work before it is resubmitted, you and the learner must continue to make sure the work is the learner’s own.

Any feedback you give to the learner must not direct them on how to improve their work. You can identify what area of the work could be improved but you cannot give the learner any details about how they could improve it. You must follow the guidelines given in section 8 of the qualification handbook under ‘Authenticity of learner work’.

Modifying the model assignment

The tasks in this assignment allow learners access to the full range of grades detailed in the grading criteria of this unit.

If you modify this assignment you must not change the grading criteria provided in the tasks for the learner or in the evidence checklist. These grading criteria are taken from the unit.

You can modify the scenario to suit your local or regional needs and the tasks may be contextualised to match any changes you have made to the scenario. If you supply your own drawings to support a different scenario, these must be sufficiently detailed for learners to complete the tasks.

You can modify the type of evidence and the format it takes, unless we expressly state that evidence must take a specific format.

You must also make sure that you avoid discrimination, bias and stereotyping and support equality and diversity. For more information, please see the section ‘Designing your own assignments for internally assessed units’ in section 8 of the qualification handbook.

If modifications are made to the model assignment, whether to the scenario alone, or to both the scenario and individual tasks, it’s your responsibility to make sure that all grading criteria can still be met and that learners can access the full range of grades.

If you’re using this model assignment and delivering the Certificate you have an opportunity to secure meaningful employer involvement by working with an employer to modify it.
General information for learners

Q  **What do I need to do to pass this assignment?**

A  You need to produce evidence to meet the requirements of *all* the pass criteria for the unit this assignment relates to. If you miss just one pass criterion, you will not achieve this unit and will receive an unclassified result.

Q  **What do I need to do if I want to get a merit or distinction for this assignment?**

A  For a merit, you need to produce evidence to meet the requirements of *all* the pass criteria for the unit this assignment relates to *and* you need to produce evidence to meet *all* the merit criteria.

For a distinction, in addition to the above, you also need to meet *all* the distinction criteria for this unit.

Q  **What help will I get?**

A  Your tutor will support you when completing this assignment and will make sure that you know what resources or facilities you need and are allowed to use. We’ve given your tutor information about how much support they can give you.

Q  **What if I don’t understand something?**

A  It’s your responsibility to read the assignment carefully and make sure you understand what you need to do and what you should hand in. If you are not sure, check with your tutor.

Q  **I've been told I must not plagiarise. What does this mean?**

A  Plagiarism is when you take someone else’s work and pass this off as your own, or if you fail to acknowledge sources properly. This includes information taken from the internet.

It’s not just about presenting a whole copied assignment as your own; you will also be plagiarising if you use the ideas or words of others without acknowledgement, and this is why it’s important to reference your work correctly (see Q&A below for more information on referencing)

Plagiarism has serious consequences; you could lose the grade for this unit or you may not be allowed to achieve the whole qualification.

*Always remember that the work you produce must be your own work. You will be asked to sign a declaration to say that it is.*

Q  **What is referencing and where can I find out more information about it?**

A  Referencing is the process of acknowledging the work of others. If you use someone else’s words and ideas in your assignment, you must acknowledge it, and this is done through referencing.

You should think about why you want to use and reference other people’s work. If you need to show your own knowledge or understanding about an aspect of subject content in your assignment, then just quoting and referencing someone else’s work will not show that you know or understand it. Make sure it’s clear in your work how you are using the material you have referenced to inform your thoughts, ideas or conclusions.

Q **Can I work in a group?**

A The assignment hasn’t been written to include group work.

Q **Does my work for each task need to be in a particular format?**

A You can present your work in a variety of ways – it can be handwritten, word-processed, on video or in digital media. What you choose should be appropriate to the task(s) and your tutor can advise you about this. There may be times when you need proof that you have completed the work yourself: for example, if you do something during work placement that you want to use as evidence, the tutor might ask the employer to provide a witness statement.

Make sure you check the wording in each task carefully. For each task, we'll tell you if your evidence has to be in a specific format:

- If we use the word ‘**must**’, for example ‘You must produce a report’ or ‘Your evidence/work must include a diagram’, then you must produce the work in the stated format.
- If we use the word ‘**could**’, for example ‘You could include sketches of your ideas’ or ‘You could do this by annotating your diagram’, this means that you are not required to follow the format we have given, but you must make sure that the work you do produce allows you to demonstrate the requirements of the grading criteria.

If you are unsure about what evidence you need, please ask your tutor.

Q **Can I ask my tutor for feedback on my work?**

A Yes, but they can’t give you detailed feedback.

We have given your tutor instructions on what kind of feedback they can give you. For example, they are **not** allowed to tell you exactly what to do to make your work better, but they can remind you about what they've taught you and you can use this additional learning to try and improve your work independently. They can say what they've noticed might be wrong with your work, for example if your work is descriptive where an evaluation is required, but your tutor can’t tell you specifically what you need to do to change it from a description to an evaluation – you will need to work out what you need to do and then do it for yourself.

Q **When I have finished, what do I need to do?**

A If you have included the personal details (such as name, address or date of birth) of someone other than yourself in your work, this must be blanked out (anonymised) – your tutor will tell you how to do this. You don’t need to do this for information contained in references.

You can complete the evidence checklist to show your tutor where they can find the evidence for each grading criterion in your work.

You should make sure your work is labelled, titled and in the correct order for assessing.

Hand in the work that you’ve completed for each task to your tutor. They might ask to see your draft work, so please keep your draft work in a safe place.

Q **How will my work be assessed?**

A Your work will be marked by someone in your centre who has been authorised to do so. They will use the information in the grading criteria to decide which grade your work meets. The grading criteria are detailed in each unit and are also given in the tasks within this assignment. Please ask your tutor if you are unsure what the grading criteria are for this assignment.
Scenario

Most organisations now incorporate sophisticated computer networks which are used to create and store the documentation required for the staff to perform their daily business duties effectively.

The fundamental benefit of a computer network is the ability to provide file sharing and global access for its users. File sharing allows the staff in an organisation to access and share documentation, policies or images easily and remotely.

Progress Academy – computer network

The SMT at Progress Academy has recognised the benefits of installing a computer network to be used by the teaching staff. The ability to file share documentation and educational material is considered a vital component in the development of the teaching resources within the Academy.

The computer network will allow all of the teaching staff the ability to update files or documents and then allow access to this information by other members of the teaching staff. However, the management of Progress Academy recognises that some of the documentation may require restrictions on access and so authorisation settings and password security will need to be developed.

The SMT is also concerned about the external security of the computer network because of the nature of the confidential information that may be stored. It would like to ensure that the computer network has robust security measures and would like to reduce the impact that external threats may create.
The tasks

Task 1: Outline the components of computer networks

(This task should take between 1 and 2 hours.)

**Learning Outcome 1:** Know the components of computer networks

Your task is to: outline and explain the key components of a computer network.

The SMT at Progress Academy would like to install a computer network for the teaching staff and wish to understand more about the equipment that would be required.

You need to brief the SMT of Progress Academy about the components and equipment required for the installation of a computer network. You will need to clearly explain the function of each component and you should include both hardware and software.

<table>
<thead>
<tr>
<th>Pass</th>
<th>Merit</th>
<th>Distinction</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1: Outline the components of a computer network</td>
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</table>

**Evidence**

A report, information guide or presentation with speaker notes.

This must include:

- the hardware and software components and characteristics;
- images of the components;
- an explanation of the function of each component.
Task 2: Prepare the installation of a computer network

(This task should take between 3 and 4 hours.)

Learning Outcome 2: Be able to prepare for the installation of computer networks to meet business needs

Your task is to: review a computer network diagram and itemise the hardware and software required plus any custom configuration settings and security that may be needed.

The SMT at Progress Academy has received a proposed network design and a specification from the IT department. As the IT professional you have been asked to review this design.

You have been asked to identify the components that would be required to allow the proposed computer network to be developed and installed. The computer network will also need to be configured to allow file sharing.

To protect the network you have also been asked to explain a range of security measures, both physical and software based, that could be used to protect the network from threats.

The SMT at Progress Academy will need to justify the cost of the computer network and so you must clearly explain why you have chosen each component and why each required component would be 'fit for purpose'.

<table>
<thead>
<tr>
<th>Pass</th>
<th>Merit</th>
<th>Distinction</th>
</tr>
</thead>
<tbody>
<tr>
<td>P2: Review a given computer network diagram and outline requirements</td>
<td></td>
<td>D1: Justify choice of components and equipment in relation to the computer network installation</td>
</tr>
<tr>
<td>P3: Select components and equipment to support the computer network installation</td>
<td>M1: Select security measures to support the computer network installation</td>
<td></td>
</tr>
</tbody>
</table>

Evidence

A detailed report or presentation including speaker notes.

This must include:

- network topology;
- connection methods;
- infrastructure options;
- components and equipment required for the installation;
- a range of security measures;
- justification for the choice of each component.
Task 3: Create and test the computer network

(This task should take between 3 and 5 hours.)

Learning Outcome 3: Be able to create computer networks to meet business needs

Your task is to: create and test the computer network and appropriately configure the network to allow file sharing.

The SMT of Progress Academy has now instructed you to install the computer network. Upon completion of the network you will need to configure the operating systems to meet the client’s requirements which includes file sharing.

You will next need to test the computer network to confirm that it will function correctly and will be ‘fit for purpose’.

<table>
<thead>
<tr>
<th>Pass</th>
<th>Merit</th>
<th>Distinction</th>
</tr>
</thead>
<tbody>
<tr>
<td>P4: Install and configure hardware for the computer network</td>
<td>M2: Test the installation and configuration of the computer network to confirm functionality</td>
<td></td>
</tr>
<tr>
<td>P5: Configure the operating systems to allow file and resource sharing</td>
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</table>

Evidence

A detailed report, annotated photographs or a video with narration.

This must include:

- the installation of a range of hardware components configured to meet requirements;
- configuration of the operating systems or software;
- evidence that file sharing has been enabled – including permission/authorisation settings;
- a detailed test plan (including evidence of iterative testing);
- evidence of the testing of network functionality.
Task 4: Install network security and testing

(This task should take between 3 and 4 hours.)

**Learning Outcome 4:** Be able to secure computer networks to meet business needs

Your task is to: install and test the security of the computer network and ensure that the network is ‘fit for purpose’.

The SMT at Progress Academy is concerned that the computer network, which contains confidential information, may be vulnerable to unauthorised access, hacking or virus attack.

You have been asked to configure and apply security measures to the network and then conduct testing of the security measures to ensure that they are effective.

As the IT support professional, you have been asked by the SMT at Progress Academy to provide a detailed report reviewing the functionality of the new network, including the security measures and explanation of how the network satisfactorily meets the needs of the Progress Academy staff.

<table>
<thead>
<tr>
<th>Pass</th>
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<th>Distinction</th>
</tr>
</thead>
<tbody>
<tr>
<td>P6: Apply security settings to the computer network</td>
<td>M3: Test the security of the computer network</td>
<td>D2: Evaluate the network installation based on the business requirements</td>
</tr>
</tbody>
</table>

**Evidence**

* A detailed report, annotated images, video, presentation with screen shots and notes.

This must include:

- evidence of the implementation of security features;
- a test plan and evidence of testing of the security measures;
- a review of the network and how it meets the needs of the business;
- any similarities and differences from the initial network diagram;
- possible improvements or extension to the network.
## Evidence Checklist

**OCR Level 2 Cambridge Technicals in IT**  
**Unit 12: Creating a computer network**

**LEARNER NAME:**

<table>
<thead>
<tr>
<th>For Pass have you:</th>
<th>Where can your tutor find the evidence? Give page no(s)/digital timings, etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(as a minimum you have to show you can meet every pass criterion to complete the unit)</td>
<td></td>
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<tr>
<td>P1: Outlined the components of a computer network?</td>
<td></td>
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<tr>
<td>P2: Reviewed a given computer network and outlined requirements?</td>
<td></td>
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<tr>
<td>P3: Selected components and equipment to support the computer network installation?</td>
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<tr>
<td>P4: Installed and configured hardware for the computer network?</td>
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<tr>
<td>P5: Configured the operating systems to allow file and resource sharing?</td>
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</tr>
<tr>
<td>P6: Applied security settings to the computer network?</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>For Merit have you:</th>
<th>Where can your tutor find the evidence? Give page no(s)/digital timings, etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1: Selected security measures to support the computer network installation?</td>
<td></td>
</tr>
<tr>
<td>M2: Tested the installation and configuration of the computer network to confirm functionality?</td>
<td></td>
</tr>
<tr>
<td>M3: Tested the security of the computer network?</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>For Distinction have you:</th>
<th>Where can your tutor find the evidence? Give page no(s)/digital timings, etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>D1: Justified the choice of components and equipment in relation to the computer network installation?</td>
<td></td>
</tr>
<tr>
<td>D2: Evaluated the network installation based on the business requirements?</td>
<td></td>
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</tbody>
</table>
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ocr.org.uk/it
or call our Customer Contact Centre on 02476 851509

Alternatively, you can email us on vocational.qualifications@ocr.org.uk