



Accredited

OCR LEVEL 2 CAMBRIDGE TECHNICAL CERTIFICATE/DIPLOMA IN IT

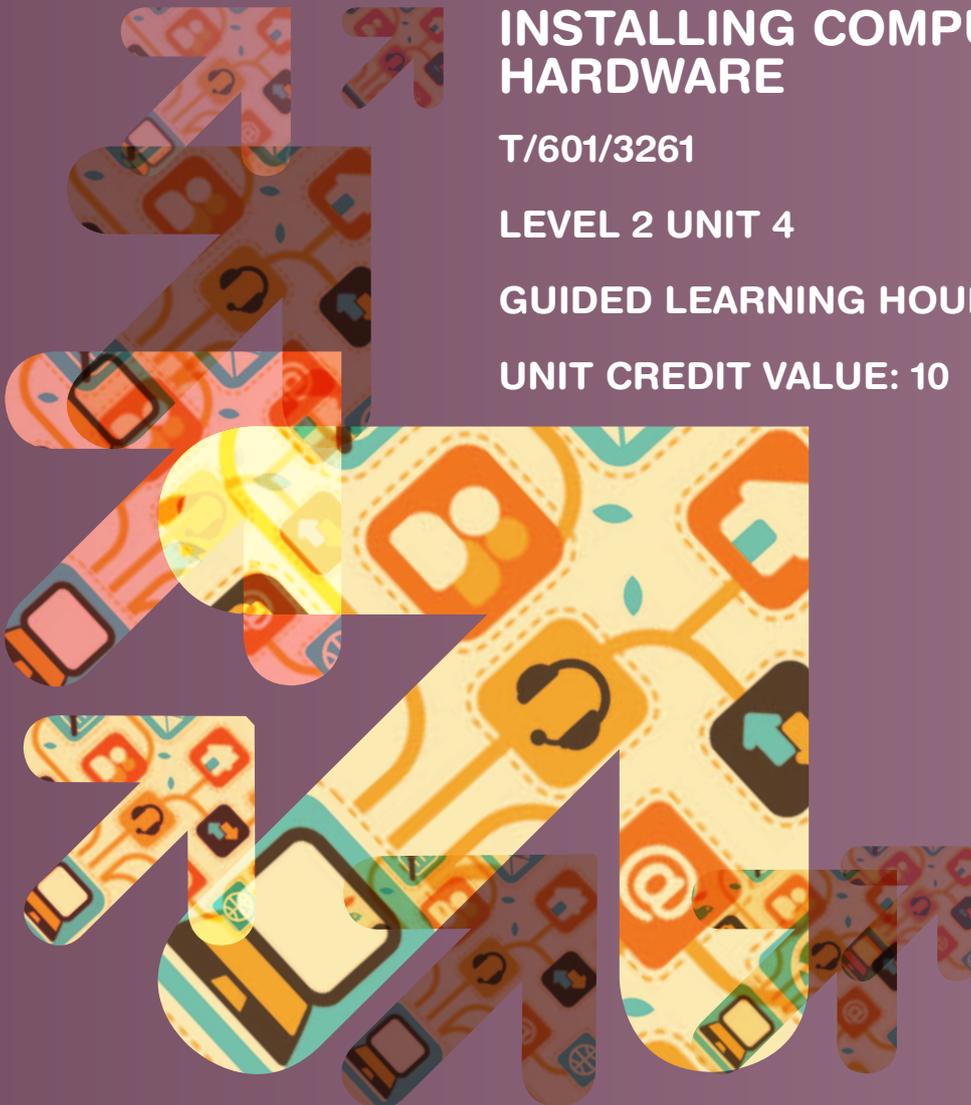
INSTALLING COMPUTER HARDWARE

T/601/3261

LEVEL 2 UNIT 4

GUIDED LEARNING HOURS: 60

UNIT CREDIT VALUE: 10



INSTALLING COMPUTER HARDWARE

T/601/3261

LEVEL 2

AIM OF THE UNIT

The aim of this unit is to provide the learners with a detailed knowledge of hardware components and the range of skills required to ensure the correct procedures and practices are followed when installing hardware components.

This unit will give the learners the necessary knowledge and skills to carry out the typical day to day tasks for safely installing hardware.

ASSESSMENT AND GRADING CRITERIA

Learning Outcome (LO) The learner will:	Pass The assessment criteria are the pass requirements for this unit. The learner can:	Merit To achieve a merit the evidence must show that, in addition to the pass criteria, the learner is able to:	Distinction To achieve a distinction the evidence must show that, in addition to the pass and merit criteria, the learner is able to:
1 Know the reasons for and implications of installing hardware components	P1 describe the reasons for and implications of installing hardware components		
2 Understand risks involved and precautions needed when installing hardware components	P2 explain potential risks to consider when installing hardware components	M1 identify precautions that should be taken when installing hardware	
3 Be able to install and test hardware components	P3 prepare a computer system for a specified hardware installation or upgrade	M2 demonstrate the safe installation of hardware components	
	P4 install or upgrade hardware components safely, configuring associated software		D1 create a log to identify tasks completed and checks made
	P5 test the computer system for functionality		
4 Be able to document an installation or upgrade	P6 produce updated documentation for the modifications	M3 explain the reasons for registering products	

TEACHING CONTENT

The unit content describes what has to be taught to ensure that learners are able to access the highest grade.

Anything which follows an i.e. details what must be taught as part of that area of content.

Anything which follows an e.g. is illustrative, it should be noted that where e.g. is used, learners must know and be able to apply relevant examples to their work though these do not need to be the same ones specified in the unit content.

LO1: Know the reasons for and implications of installing hardware components:

- **reasons**
 - routine maintenance (e.g. cleaning equipment, defragmentation, deleting unwanted files)
 - upgrade (e.g. user requirements, new products, new technologies, compatibility, increased capacity, increased speed, increased reliability, software requirements)
 - fault repair
- **implications**
 - training (e.g. installer or user)
 - compatibility
 - decommissioning
 - service level agreements (SLA's)
 - health and safety
 - response times (e.g. increased, reduced).

LO2: Understand risks involved and precautions needed when installing hardware components

- **risks:**
 - equipment damage
 - electrostatic discharge; damage to components (e.g. printed circuit boards, memory cards)
 - risk to data (e.g. data loss, data corruption)
 - other risks to include loss of service.
- **precautions:**
 - health and safety regulations
 - secure backup of data
 - antistatic equipment (e.g. anti-static packaging and mats, wrist straps)
 - use of appropriate tools.

LO3: Be able to install and test hardware components

- **hardware components** (e.g. memory/video card, optical drive, hard drive, network devices/connectors/ports)
- **preparation**
 - tasks list or Job sheet (e.g. test selection, test configuration, reading instructions, following procedures, safety check)
 - sourcing resources (e.g. tools, hardware components, access rights, associated installation software)
 - check equipment
 - other tasks (e.g. backing up data, configuration and settings, recording serial numbers).
- **install the hardware component:**
 - disassemble computer
 - fit hardware component
 - reassemble computer (e.g. reassemble system, reconnect, clean, carry out safety checks, test components, system test)
 - other tasks (e.g. restore data, software installation and drivers, software configuration).
- **test the hardware component**
 - software tools (e.g. utility, run-time analysers, diagnostics)
 - creating and using a test plan
 - testing (e.g. validity of information, responding to test information such as errors or inconsistencies, recording and correcting errors, checking specification/purpose)
 - Troubleshooting (e.g. loose connections, power supply, Power On Self Test (POST)).

LO4: Be able to document an installation or upgrade

- **documentation:**
 - installation records
 - updated manuals (e.g. technical, user)
 - product registration (e.g. method, recording).

DELIVERY GUIDANCE

Wherever possible the unit should be delivered effectively within a workshop environment giving the learners practical exercises or case studies. Which ever method or methods are used, learners must have a variety of experience in installing hardware. There are elements of this unit that could be delivered with unit 3 Computer Systems and learners should be encouraged to cross-reference their learning activities where appropriate to develop their realisation that IT professional activities are holistic.

Know the reasons for and implications of installing hardware components

Learners should be taught the reasons as to why hardware needs to be replaced or upgraded and discuss the reasons for both. Ideally this could be achieved with small group discussions feeding back to a larger group for a range of tasks, the learners should also be encouraged to carry out research on options for installation of hardware components, following on from this, the options and findings can be reinforced with hand-outs, a presentation by learners or quizzes.

Understand risks involved and precautions needed when installing hardware components

The learners will require a detailed understanding of the health and safety requirements needed when handling, and installing hardware components. This is also covered briefly in Unit 3 Computer Systems but more depth is needed for this unit due to its practical nature. The learners need to understand the health and safety requirements and regulations and become accustomed to routinely using appropriate precautions such as antistatic mats whenever handling electronic components.

Before the installation process goes ahead the learners need to understand the importance of planning the installation and getting any resources that are needed, carry out checks and plan how to test if the installation is successful. They will need to understand what precautions need to be taken when they will be installing the hardware, such as using antistatic bags, mats, wrist straps, the system not switched on etc. They should then be given an appropriate range of activities for the actual installations or upgrades that they will carryout in a work place or workshop environment.

Be able to install and test hardware components

The main focus of this unit needs to be the installation of the hardware components. Learners must be introduced to all the hardware components and investigate and understand a range of hardware components that they may be required to work on. The components covered with the learners will need to be components that will need some configuration once installed such as graphic cards, sound cards, network cards, wireless cards, motherboard, webcam, mouse, scanner, printer, graphic tablets etc. These activities should be hands-on with the learners completing checklists and documentation whilst understanding and complying with the health and safety requirements for each task. Learners should explore the installations options on obsolete or irreparable computers where possible until they have developed the basic skills and abilities to carry out activities on damaged computers or those requiring upgrade.

Once the hardware components have been installed the learners will need to be shown how to log installation activities, test the components and system. They should install a range of different components to experience a wide range of activities and potential problems. This should enable them to identify any issues that could happen if testing has not been thorough and detailed.

Learners will need to understand what happens after installation and testing, as this is not the end of their involvement.

Be able to document an installation or upgrade

As an IT practitioner qualification the learners will need to understand the importance and purpose of creating detailed and accurate documentation on the installation, this should include at the least, details on the dates of the installations, clear reasons for installing the components, explanations detailing that all reasonable precautions have taken place, detailed test plans with the results as identified and any issues arising from the installation. They should understand the importance of registering the products and what benefits this gives the user and organisation in addition to providing the user with some details on maintaining the newly delivered system. This could be delivered as part of a group discussion following on from their practical activities where learners should be encouraged to share their experiences and identify areas that would require documentation to be kept. This may also identify naturally to the learners the records they need to maintain themselves.

SUGGESTED ASSESSMENT SCENARIOS AND TASK PLUS GUIDANCE ON ASSESSING THE SUGGESTED TASKS

To achieve a pass grade, learners must achieve all the pass criteria listed in the assessment and grading criteria grid.

Assessment and Grading Criteria P1, P2, M1

Learners must provide detailed descriptions of the reasons for and implications of installing new or upgraded hardware components; this could be evidenced by presentations (with associated note pages), posters or reports.

Learners must develop detailed explanations of any potential risks when installing or upgrading hardware components. Learners must demonstrate their ability to identify all the key aspects that have been listed in the teaching content for learning objective 2, for a relevant hardware component installation.

For the merit criterion M1 the learners need to identify the precautions that should be considered when installing the hardware components. This could be evidenced by a report, a presentation or checklist produced by the learner.

Assessment and Grading Criteria P3, M2

For P3, the learners must prepare a computer system for a specified hardware installation or upgrade. The learners will need to have been given an upgrade for which the components (at least two components) will need some configuration. This could be evidenced by tutor observation of the learners doing the preparation and providing detailed witness statement, this could also include photographic evidence but all evidence must be accompanied by completed planning documentation. The planning documentation should include, explanations of what components they are considering to install, what precautions need to be taken when installing the components i.e. backup, health and safety issues etc,

For the merit criterion M2 the learners will need to use what they have discussed in M1 and demonstrate that the precautions considered in M1 have taken place. This could be evidenced using a range of annotated photos detailing and explaining the precautions taken.

Assessment and Grading Criteria P4, P5, D1

Learners must demonstrate that they can take the original system and install the hardware components into it and then test the component and system to ensure the system is

working correctly. These criteria should be practically based and could be assessed with tutor observations, witness statements, test plans and records, audio/video recording. The learners must ensure they have covered all the aspects listed in the teaching content for learning outcome 3, Hardware, Preparation, Installation, Testing and Troubleshooting.

For the distinction criterion D1, learners must create a detailed log which clearly identifies the tasks completed and what checks have been made.

Assessment and Grading Criteria P6, M3

Learners must demonstrate that they can follow identified procedures to properly document the installation of the different computer components provided.

For the merit criterion M3, learners must explain the reasons for registering the products, including the benefits the registration gives the users and organisation.

MAPPING WITHIN THE QUALIFICATION TO THE OTHER UNITS

Unit 3: Computer Systems

Unit 5: Installing Computer Software

Unit 6: Setting up an IT Network

Unit 7: IT Support

Unit 8: IT Fault Diagnosis and Remedy

LINKS TO NOS

5.1 Systems Development

5.3 IT/technology Solution Testing



CONTACT US

Staff at the OCR Customer Contact Centre are available to take your call between 8am and 5.30pm, Monday to Friday.

We're always delighted to answer questions and give advice.

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