

1	Title	PC Construction and Repair
2	Code	
3	Level	2
4	Value	1
5	Purpose	<p>This module is intended to enable the student to construct, maintain, repair and upgrade personal computers.</p> <p>This is an elective module designed to combine with Computer Architecture and Systems for the National Vocational Certificate Information Technology Level 2 Award</p>
6	Preferred Entry Level	Leaving Certificate or National Vocational Certificate, Level 1 or equivalent.
7	Special Requirements	This module is intended to be taken in conjunction with Computer Architecture and Systems .
8	General Aims	<i>This module aims to enable the student to:</i>
	8.1	design a computer system based upon the expected use of that system.
	8.2	construct the system based upon the design.
	8.3	diagnose common system errors and problems.
	8.4	carry out routine and preventative maintenance.
	8.5	carry out simple upgrades
9	Units	
	Unit 1	Construction
	Unit 2	Maintenance
	Unit 3	Repair

10 Specific Learning Outcomes

Unit 1 Construction

The learner should be able to

- 10.1.1** list the common hardware components in a computer system - CPU, SIMM, DIMM, mainboard, riser board, serial & parallel I/O cards, video card, hard disk controller card, hard disk, PSU, keyboard, pointing device, monitor, chassis, earth cable, cover, CD-ROM drive, sound-card, attachment cables, floppy disk drives, network card, expansion slots, scanner, video capture card, internal modem, heat-sink, cooling fans
- 10.1.2** install any of the components listed at **10.1.1** as required
- 10.1.3** remove any of the components listed at **10.1.1** as required
- 10.1.4** list the necessary software in a computer system - BIOS, firmware, operating system, installation software, device drivers
- 10.1.5** evaluate the relative merits of one component over another of similar type
- 10.1.6** modify system and component behaviour through the use of jumpers
- 10.1.7** evaluate the relative merits of SCSI, IDE, EIDE storage devices
- 10.1.8** enumerate different RAM types
- 10.1.9** identify power and data leads of storage devices
- 10.1.10** identify buses and their components
- 10.1.11** enumerate the properties of buses listed at **10.1.10** and their relative merits
- 10.1.12** demonstrate good anti-static handling measures
- 10.1.13** select an operating system based upon its merits and appropriateness for the expected use of the system

- 10.1.14** install the operating system selected at **10.1.13**
- 10.1.15** test for correct function the operating system installed at **10.1.14**
- 10.1.16** install applications appropriate for the expected use of the system - word-processor, spreadsheet, database, DTP, image editor, payroll, accounting etc
- 10.1.17** test for correct function the applications installed at **10.1.16**
- 10.1.18** install printer and printer drivers
- 10.1.19** test for correct function the printer and printer software installed at **10.1.18**

Unit 2 Maintenance

The learner should be able to:

- 10.2.1** identify substances and materials suitable for cleaning external computer surfaces
- 10.2.2** clean the inside of a mouse
- 10.2.3** clean keyboard keys
- 10.2.4** clean external surfaces
- 10.2.5** clean vents and similar case openings
- 10.2.6** backup configuration files
- 10.2.7** use disk defragmentation tools
- 10.2.8** use disk diagnosis tools
- 10.2.9** reclaim disk space lost due to file system errors
- 10.2.10** remove unused operating software components
- 10.2.11** use tape and CD drive cleaning devices
- 10.2.12** perform print-head cleaning operations on printers
- 10.2.13** change ink cartridges and ribbons

- 10.2.14** perform standard upgrades
- 10.2.15** analyse upgrade options for a given system
- 10.2.16** summarise costs for upgrade options

Unit 3 Repairing

The learner should be able to

- 10.3.1** identify standard components
- 10.3.2** list system components based on POST - CPU, RAM, FDD, HDD, serial/parallel ports
- 10.3.3** access firmware set-up programs
- 10.3.4** operate firmware set-up programs
- 10.3.5** perform un-installation and re-installation of software elements - operating system components, device drivers, applications software
- 10.3.6** diagnose functional status of system components
- 10.3.7** replace faulty components
- 10.3.8** bypass operating system start-up files
- 10.3.9** remove misfed paper from printers
- 10.3.10** remove stuck floppy disks
- 10.3.11** account for parts used in repairs

11 Assessment

Summary	Practical Skills Test	70%
	Written Examination	30%

11.1 Technique Practical Skills Test

Mode	School based with external moderation by the NCVA
Weighting	70%
Components	Students will document designated assignments. 4 practical assignments

11.2 Technique Written Examination

Mode	School based with external moderation by the NCVA
Weighting	30%
Duration	2 Hours
Format	15 questions based on the three units. 10 to be answered.

12 Performance Criteria

12.1 Practical Assignments

12.1.1	Design and assembly of PC based on specification of requirements.
12.1.2	Diagnosis and repair of system fault.
12.1.3	Diagnosis and repair of system fault.
12.1.4	System maintenance tasks. Four or more tasks such as from 10.2

12.2 Written Examination

12.3 Marking Sheet

Task	Marks	Weighting
-------------	--------------	------------------

12.1.1	100	30
12.1.2	100	10
12.1.3	100	10
12.1.4	100	20
12.2	100	30
Total	500	100

13	Grading	Pass	50 - 64%
		Merit	65 - 79%
		Distinction	80 - 100%

Task	Performance Criteria – Design & Construct PC	Mark Range	Student Mark
12.1.1	Requirements Analysis	0-30	
	System Tests	0-10	
	Time/Cost Accounting	0-10	
	Documentation	0-20	
	Successful completion of task	0-30	
	Total Mark	100	

Task	Performance Criteria – Repair	Mark Range	Student Mark
12.1.2,	Initial evaluation of system	0-10	
12.1.3	Final test	0-10	
	Time/Cost Accounting	0-10	
	Documentation	0-20	
	Successful completion of task	0-50	
	Total Mark	100	

Task	Performance Criteria - Maintenance * 4	Mark Range	Student Mark
12.1.4	Student performs task successfully in a methodical, orderly manner within allotted time-span with evidence of understanding the nature of the task.	20 -25	
	Student performs task successfully but either not in a timely fashion or without methodical approach.	16-19	
	Student performs task correctly but without methodical approach and not in a timely fashion.	13-15	
	Student fails to perform the task within the allotted time-span	0-12	
	Total Mark	25	