1	**Title**	**PC Construction and Repair**
2	**Code**	
3	**Level**	**2**
4	**Value**	**1**
5	**Purpose**	This module is intended to enable the student to construct, maintain, repair and upgrade personal computers. This is an elective module designed to combine with **Computer Architecture and Systems** for the **National Vocational Certificate Information Technology Level 2 Award**
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**	***This module aims to enable the student to:***
	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	