NEW ZEALAND INSTITUTES OF TECHNOLOGY AND POLYTECHNIC QUALIFICATIONS IN INFORMATION & COMMUNICATIONS TECHNOLOGY

PRESCRIPTION: HM600 PC Hardware Maintenance

AIM OF MODULE:	To provide students with the knowledge and skills required for diagnosing faults and repairing IBM compatible PCs and other computer-related hardware devices
RESTRICTIONS:	As this module has content that overlaps with the content of HS600 students completing this module cannot be awarded a credit for HS600
CREDITS:	7
KNOWLEDGE ASSUMED FROM:	AE600, EL500 and DE600, or similar
STUDENT LEARNING HOURS:	70
CONTENT REVISED:	2004
PRESCRIPTION EXPIRY DATE:	Nov 2011

Level and Assessment Schedule

TOPICS	Highest Skill Level R	C	A	P	Suggested Assessment Percentage
1. Safe Working Practices		*			5
2. Problem Solving		*			25
3. Fault Finding			*		30
4. Diagnostics and Repair				*	40
					100

LEARNING OUTCOMES

The student will:

C 1 Describe the requirements that ensure safe working practices.

C 2 Explain the problem solving processes involved in faultfinding PC hardware and other computing devices.

A 3 Identify faults at module/card level on PC hardware and other computing devices, demonstrating safe working practices.

P 4 Diagnose faults at component level using appropriate diagnostic procedures and benchmark standards and replace or repair components, demonstrating safe working practices.

CONTENT

1 Safe Working Practices

- Describe the requirements for ensuring safe electrical practices
- Explain the processes involved in identifying and minimising electrical hazards
- Describe the requirement for ensuring that correct antistatic precautions are observed

2 Problem Solving

- Explain the problem solving processes involved when fault finding on computer hardware and related equipment

3 Fault Finding

- Demonstrate proficient faultfinding techniques for PC hardware and related devices that includes:
    - Initial performance checks
    - Identification of the probable causes of the fault
    - Application of an appropriate faultfinding methodology
    - Correlating fault symptoms with typical (known) faults
    - Given a range of faults, demonstrate fault finding to block schematic level

4 Diagnostics and Repair

- Identify electrical hazards and demonstrate safe working practices
- Use a Test Bench or Benchmark to establish a reference standard
- Use relevant diagnostic procedures, including appropriate test equipment and/or software
- Given a faulty card/module fault find to component level, where appropriate
- Plan the appropriate repairs including the acquisition of the necessary replacement components
- Conduct repairs
- Demonstrate the application of performance checks after repair

NOTES TO TUTORS

- Students should have knowledge of standard performance parameters of the equipment before they begin to fault find, such as:
    - The effect on performance of cache being disabled
    - Full range of CMOS settings
    - Correct orientation of IDE and FDD cables
    - Correct orientation of power cables
- Test Equipment – it is expected that students will have access to an appropriate range of test equipment that will enable them to fulfil the module aims, such as:
    - Beep Code Tables
    - Full Tool Kit (tutor specified)
    - Multimeter
    - Test Rigs (for module interchange)
    - PCs with IDE auto detection on CMOS
    - Norton's Diagnostics
    - TuffTest or similar Diagnostic Software

LEARNING RESOURCES

- Suggested textbooks:

  - Mueller, Scott. Upgrading and Repairing PCs (13th Ed): QUE Publishing
  - Gilster, Ron. PC Technician Black Book: Cariolis Publishing