

IT2020

A+ Computer Maintenance Program

Instructor's Management Guide

Issue: ME1459/B

About this Instructor's Management Guide

This *Instructor's Management Guide* contains information on setting up and running an IT2020 A+ Computer Maintenance Program. It contains an introduction to the A+ program, guidance on structuring the course, and how the individual modules should be used.

This guide should be used in conjunction with the Instructor's Guides supplied with the individual modules, which will contain specific instructions for installing and using the modules.

Information on setting up and running the *ClassAct* computer managed learning system is contained in the *ClassAct* Laboratory Management Instructor's Guide ST520, supplied with the *ClassAct* software. This contains tutorials on the facilities available in the *ClassAct* system and should be referred to for information on using *ClassAct* with the A+ program.

This *Instructor's Management Guide* is only compatible with the ISS1 and ISS3 modules that were released in September 2001. These modules can be identified by examining the installation CD for each module, which will have the following CD part numbers:

ISS1 Computer Maintenance and Upgrade – 30 Hour	CD326
ISS3 Investigating Computers – 30 Hours	CD327

If you have earlier versions of these modules, please contact LJ Technical Systems for the correct *Instructor's Management Guide*.

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A+ Certification

An Introduction

A+ Certification is an industry-recognized credential that certifies the competency of PC service technicians. The Computing Technology Industry Association (CompTIA) sponsors the exam and over 50 major computer hardware and software manufacturers, vendors, distributors, resellers and publishers, back the program. A+ Certification provides a wealth of benefits to any person seeking a job in the computer industry with many computer companies making A+ Certification a requirement of employment.

To obtain A+ Certification the student must pass two exams – the A+ Core Hardware exam and the A+ Operating System Technologies exam. No specific requirements are necessary to take the exams other than payment of an examination fee.

More information on A+ Certification can be found on the CompTIA website <http://www.comptia.org>

The IT2020 A+ Computer Maintenance Program has been developed to meet the requirements of A+ Certification.

Using the A+ Modules in a Rotational Program

The IT2020 A+ Computer Maintenance Program consists of the following modules:

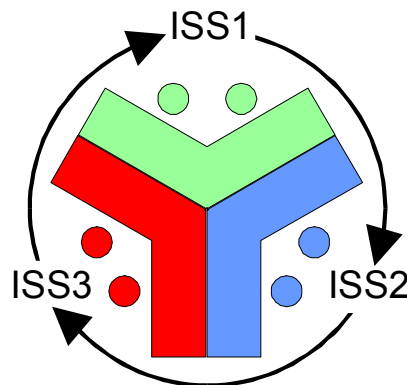
- ISS1 Computer Maintenance and Upgrade
- ISS2 Computer Troubleshooting
- ISS3 Investigating Computers
- ITC9 A+ Certification Test Preparation

The three ISS modules in the program each contain a 10-hour **introductory phase** and a 30-hour **specialization phase**. The *introductory phase* provides a series of 10 assignments that provide a general introduction to the module topic, with the emphasis being placed on giving the student a broad exposure to the key elements of that topic. The specialization phase of each module provides 20 assignments that are more in-depth and provide the student with the knowledge and practical skills needed by today's computer maintenance technician.

The Training System has been designed so that three student groups (individuals or pairs) can rotate around three workstations containing ISS1, ISS2 and ISS3. This arrangement of three workstations is known as an A+ Pod.

The flexible design of the A+ training pod allows it to be used in a number of configurations. This enables the program to be run in a way that best fits the specific requirements of the teaching establishment. For example, students can rotate around the modules in the pod after completing just one assignment, after completing five assignments, or after completing a whole module.

- Students working at the ISS1 workstation will rotate to the ISS2 workstation.
- Students working at the ISS2 workstation will rotate to the ISS3 workstation.
- Students working at the ISS3 workstation will rotate to the ISS1 workstation.



After completing all of the work in these three modules, all student groups may then work on the ITC9 A+ Certification Test Preparation module. No rotation occurs during this module and it is therefore required at each of the three workstations in the pod.

Recommended Rotational Program

This section outlines the recommended rotational system for the IT2020 A+ Computer Maintenance Program.

Students should first complete the introductory phase of each module in the program. These 10-hour modules have been designed to be used in 2 Levels, each containing 5 hours of work. Student groups should complete all the work in a Level before rotating to the next module. This should be continued until the introductory phase of each module has been completed. It is recommended that students complete the introductory phase of all modules before starting the specialization phase.

Student groups can then start on the specialization phase. These 30-hour modules have been designed to be used in 2 Levels, each containing 15 hours of work. Each 15 hour Level is further divided into 3 additional Sub-Levels, lettered A, B, and C, each containing 5 hours of work. Student groups should complete all the work in a Sub-Level before rotating to the next module.

A table showing the complete rotational sequence for the three student groups is shown on the following pages.

Introductory Phase

Rotation Step	Level	Student Group A	Student Group B	Student Group C
1 (5 hours)	1	ISS1 Pre-Test Quiz Assignment 1 Assignment 2 Assignment 3 Assignment 4 Assignment 5 Post Test Quiz	ISS2 Pre-Test Quiz Assignment 1 Assignment 2 Assignment 3 Assignment 4 Assignment 5 Post Test Quiz	ISS3 Pre-Test Quiz Assignment 1 Assignment 2 Assignment 3 Assignment 4 Assignment 5 Post Test Quiz
2 (5 hours)	1	ISS2 Pre-Test Quiz Assignment 1 Assignment 2 Assignment 3 Assignment 4 Assignment 5 Post Test Quiz	ISS3 Pre-Test Quiz Assignment 1 Assignment 2 Assignment 3 Assignment 4 Assignment 5 Post Test Quiz	ISS1 Pre-Test Quiz Assignment 1 Assignment 2 Assignment 3 Assignment 4 Assignment 5 Post Test Quiz
3 (5 hours)	1	ISS3 Pre-Test Quiz Assignment 1 Assignment 2 Assignment 3 Assignment 4 Assignment 5 Post Test Quiz	ISS1 Pre-Test Quiz Assignment 1 Assignment 2 Assignment 3 Assignment 4 Assignment 5 Post Test Quiz	ISS2 Pre-Test Quiz Assignment 1 Assignment 2 Assignment 3 Assignment 4 Assignment 5 Post Test Quiz
4 (5 hours)	2	ISS1 Pre-Test Quiz Assignment 6 Assignment 7 Assignment 8 Assignment 9 Assignment 10 Post Test Quiz	ISS2 Pre-Test Quiz Assignment 6 Assignment 7 Assignment 8 Assignment 9 Assignment 10 Post Test Quiz	ISS3 Pre-Test Quiz Assignment 6 Assignment 7 Assignment 8 Assignment 9 Assignment 10 Post Test Quiz
5 (5 hours)	2	ISS2 Pre-Test Quiz Assignment 6 Assignment 7 Assignment 8 Assignment 9 Assignment 10 Post Test Quiz	ISS3 Pre-Test Quiz Assignment 6 Assignment 7 Assignment 8 Assignment 9 Assignment 10 Post Test Quiz	ISS1 Pre-Test Quiz Assignment 6 Assignment 7 Assignment 8 Assignment 9 Assignment 10 Post Test Quiz
6 (5 hours)	2	ISS3 Pre-Test Quiz Assignment 6 Assignment 7 Assignment 8 Assignment 9 Assignment 10 Post Test Quiz	ISS1 Pre-Test Quiz Assignment 6 Assignment 7 Assignment 8 Assignment 9 Assignment 10 Post Test Quiz	ISS2 Pre-Test Quiz Assignment 6 Assignment 7 Assignment 8 Assignment 9 Assignment 10 Post Test Quiz

Specialization Phase

Rotation Step	Level	Student Group A	Student Group B	Student Group C
7 (5 hours)	3A	ISS1 Pre-Test Quiz Assignment 1 Assignment 2 Assignment 3	ISS2 Pre-Test Quiz Assignment 1 Assignment 2 Assignment 3	ISS3 Pre-Test Quiz Assignment 1 Assignment 2 Assignment 3
8 (5 hours)	3A	ISS2 Pre-Test Quiz Assignment 1 Assignment 2 Assignment 3	ISS3 Pre-Test Quiz Assignment 1 Assignment 2 Assignment 3	ISS1 Pre-Test Quiz Assignment 1 Assignment 2 Assignment 3
9 (5 hours)	3A	ISS3 Pre-Test Quiz Assignment 1 Assignment 2 Assignment 3	ISS1 Pre-Test Quiz Assignment 1 Assignment 2 Assignment 3	ISS2 Pre-Test Quiz Assignment 1 Assignment 2 Assignment 3
10 (5 hours)	3B	ISS1 Assignment 4 Assignment 5 Assignment 6	ISS2 Assignment 4 Assignment 5 Assignment 6	ISS3 Assignment 4 Assignment 5 Assignment 6
11 (5 hours)	3B	ISS2 Assignment 4 Assignment 5 Assignment 6	ISS3 Assignment 4 Assignment 5 Assignment 6	ISS1 Assignment 4 Assignment 5 Assignment 6
12 (5 hours)	3B	ISS3 Assignment 4 Assignment 5 Assignment 6	ISS1 Assignment 4 Assignment 5 Assignment 6	ISS2 Assignment 4 Assignment 5 Assignment 6
13 (5 hours)	3C	ISS1 Assignment 7 Assignment 8 Assignment 9 Assignment 10	ISS2 Assignment 7 Assignment 8 Assignment 9 Assignment 10	ISS3 Assignment 7 Assignment 8 Assignment 9 Assignment 10
14 (5 hours)	3C	ISS2 Assignment 7 Assignment 8 Assignment 9 Assignment 10	ISS3 Assignment 7 Assignment 8 Assignment 9 Assignment 10	ISS1 Assignment 7 Assignment 8 Assignment 9 Assignment 10
15 (5 hours)	3C	ISS3 Assignment 7 Assignment 8 Assignment 9 Assignment 10	ISS1 Assignment 7 Assignment 8 Assignment 9 Assignment 10	ISS2 Assignment 7 Assignment 8 Assignment 9 Assignment 10

Rotation Step	Level	Student Group A	Student Group B	Student Group C
16 (5 hours)	4A	ISS1 Assignment 11 Assignment 12 Assignment 13 Assignment 14	ISS2 Assignment 11 Assignment 12 Assignment 13 Assignment 14	ISS3 Assignment 11 Assignment 12 Assignment 13 Assignment 14
17 (5 hours)	4A	ISS2 Assignment 11 Assignment 12 Assignment 13 Assignment 14	ISS3 Assignment 11 Assignment 12 Assignment 13 Assignment 14	ISS1 Assignment 11 Assignment 12 Assignment 13 Assignment 14
18 (5 hours)	4A	ISS3 Assignment 11 Assignment 12 Assignment 13 Assignment 14	ISS1 Assignment 11 Assignment 12 Assignment 13 Assignment 14	ISS2 Assignment 11 Assignment 12 Assignment 13 Assignment 14
19 (5 hours)	4B	ISS1 Assignment 15 Assignment 16 Assignment 17	ISS2 Assignment 15 Assignment 16 Assignment 17	ISS3 Assignment 15 Assignment 16 Assignment 17
20 (5 hours)	4B	ISS2 Assignment 15 Assignment 16 Assignment 17	ISS3 Assignment 15 Assignment 16 Assignment 17	ISS1 Assignment 15 Assignment 16 Assignment 17
21 (5 hours)	4B	ISS3 Assignment 15 Assignment 16 Assignment 17	ISS1 Assignment 15 Assignment 16 Assignment 17	ISS2 Assignment 15 Assignment 16 Assignment 17
22 (5 hours)	4C	ISS1 Assignment 18 Assignment 19 Assignment 20 Post Test	ISS2 Assignment 18 Assignment 19 Assignment 20 Post Test	ISS3 Assignment 18 Assignment 19 Assignment 20 Post Test
23 (5 hours)	4C	ISS2 Assignment 18 Assignment 19 Assignment 20 Post Test	ISS3 Assignment 18 Assignment 19 Assignment 20 Post Test	ISS1 Assignment 18 Assignment 19 Assignment 20 Post Test
24 (5 hours)	4C	ISS3 Assignment 18 Assignment 19 Assignment 20 Post Test	ISS1 Assignment 18 Assignment 19 Assignment 20 Post Test	ISS2 Assignment 18 Assignment 19 Assignment 20 Post Test

Exam Preparation

Rotation Step	Level	Student Group A	Student Group B	Student Group C
*25 (6 hours)	-	ITC9 Assignment 1 Assignment 2 Assignment 3 Assignment 4	ITC9 Assignment 1 Assignment 2 Assignment 3 Assignment 4	ITC9 Assignment 1 Assignment 2 Assignment 3 Assignment 4

* No rotation occurs during this module.

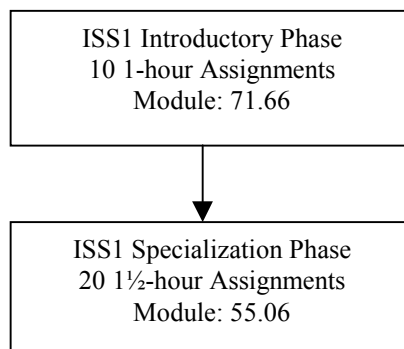
ISS1 Computer Maintenance and Upgrade

This 40-hour module provides the student with the hands-on skills needed to maintain and upgrade a personal computer.

The module contains a 10-hour introductory phase and a 30-hour specialization phase.

The 10-hour introductory phase uses the *ST660/10 Computer Maintenance and Upgrade* module.

The 30-hour specialization phase uses the *Computer Maintenance and Upgrade – 30 Hours* module.



ISS1 Introductory Phase

In the 10-hour introductory phase the student works through an on-screen manual that provides an introduction to computer maintenance and upgrading techniques.

Each 1-hour Assignment contains theory information and simulations on computer maintenance topics.

The workstation will require a student workstation PC on which to run the on-screen assignments and answer questions.

ISS1 Introductory Phase Assignments

- 1 Computer Basics**
- 2 Main Board Components**
- 3 Disk Drives**
- 4 System Expansion**
- 5 External Devices**
- 6 Image Capture**
- 7 Printers**
- 8 Multimedia and Entertainment**
- 9 Alternative Storage Devices**
- 10 Problem Solving: Selecting Computer Components**

ISS1 Specialization Phase

In the 30-hour specialization phase students are guided through each assignment by a CARA on-screen manual that gives details of the work to be completed and presents questions for the student to answer.

Each 90-minute assignment contains directed study of relevant supporting theory, an on-screen theory test and hands-on practical work.

In the theory section of an assignment, students research questions using a computer-based training CD-ROM package, or the textbook 'A+ Exam Prep'. The student is first presented with the question. A hint is available for each question giving an indication of where to look to research the answer.

In the practical section of an assignment, students carry out hands-on exercises on the real PC provided with the module. Practical activities include setting up an Electrostatic Discharge workstation, installing the Windows operating system, setting up the motherboard, using hard drive software tools, performing maintenance procedures, installing a modem, webcam, scanner, software application, printer, additional memory and hard drive. Students also examine the basic devices and connectors in the computer such as the power supply, keyboard, and floppy drive. Students explore the Windows operating system, and examine how to make changes to the computer setup using the Windows Control Panel.

Each assignment has an optional Enrichment Activity, in which guidance on further reading is given using the Textbook 'A+ Exam Prep'.

The workstation will require a student workstation PC on which to run the on-screen assignments and answer the questions.

ISS1 Specialization Phase Assignment Content

- 1 Hazards to the Computer**
 - Theory Computer development, and functions and features of a computer system.
 - Practical Identify components in the system unit.

- 2 Assembling a Personal Computer**
 - Theory Key features of a system unit.
 - Practical Find out how to assemble and test a Personal Computer.
Restoring the Hard Drive.

- 3 Installing Windows on the Computer**
 - Theory Microprocessor features and operation.
 - Practical Installation of the Windows operating system.

- 4 Setting Up the Computer**
 - Theory BIOS, CMOS, IRQ lines, DMA channels, and I/O addresses.
 - Practical Installation of drivers for motherboard, video and sound.

- 5 Exploring the Windows Desktop**
 - Practical Windows Desktop features and operation.

- 6 Customizing Windows using the Control Panel**
 - Practical Customizing Windows operating system.

- 7 Peripheral Devices**
 - Theory Mouse, Keyboard, and Monitor features and operation.
 - Practical Connecting the Mouse, Keyboard and Monitor.

- 8 More Peripheral Devices**
 - Theory Ports and connector types.
 - Practical Connecting a USB device.

- 9 Power in the PC**
 - Theory Power supply connections and operation.
 - Practical Verifying and measuring power supply connections.

- 10 Floppy Drives**
 - Theory Floppy drives features and operation.
 - Practical Replacing the Floppy drive and creating disk copies.

- 11 Adding an Additional Hard Drive**
Theory Hard drives and RAID operation, IDE vs. SCSI interface.
Practical Installing, partitioning and formatting a Hard Drive.
- 12 Backing Up Files**
Theory Data storage devices.
Practical Installing MS BackUp, replacing CD-ROM and restoring backed up files.
- 13 Memory Management Using Windows**
Theory Memory components features and operation.
Practical Virtual Memory and additional memory module.
- 14 Imaging**
Theory Network interface, scanner types and operation.
Practical Installing and using a scanner.
- 15 Application Software Installation**
Theory Bus types and technologies.
Practical Installing and using an AntiVirus application.
- 16 Printers**
Theory Printer features and operation.
Practical Connecting a printer and producing a test printout.
- 17 Installing a Fax Modem**
Theory Modem types and operation.
Practical Inserting and testing a Modem card.
Creating an Internet connection.
- 18 Portable Computers**
Theory Portable computer technology.
- 19 PC Maintenance Tools**
Practical Hard drive, CD-ROM drive and Floppy drive maintenance.
- 20 Hard Drive Tools**
Theory Computer disassembly and reassembly.
Practical Defragment, compress and reformat a hard drive.

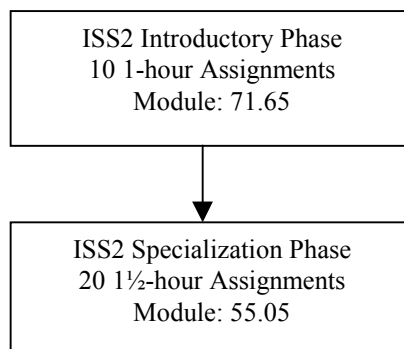
ISS2 Computer Troubleshooting

This 40-hour module provides the student with a sound understanding of how software and hardware work together, and the skills required to approach computer troubleshooting in an efficient, systematic manner.

The module contains a 10-hour introductory phase and a 30-hour specialization phase.

The 10-hour introductory phase uses the *ST650/10 Computer Troubleshooting* module.

The 30-hour specialization phase uses the *Computer Troubleshooting – 30 Hours* module.



ISS2 Introductory Phase

In the 10-hour introductory phase the student works through an on-screen manual that provides an introduction to computer troubleshooting techniques.

Each 1-hour Assignment contains theory information and simulations on computer troubleshooting topics.

The workstation will require a student workstation PC on which to run the on-screen assignments and answer questions.

ISS2 Introductory Phase Assignments

- 1 Troubleshooting Technique**
- 2 Introduction to Fault Finding**
- 3 Preventative Maintenance**
- 4 Software Compatibility**
- 5 Technician's Tools**
- 6 Further Fault Finding**
- 7 Customer Support**
- 8 Records**
- 9 Hardware Compatibility**
- 10 Troubleshooting a Computer**

ISS2 Specialization Phase

In the 30-hour specialization phase the student a 'Virtual' PC to give the student experience of troubleshooting a PC system.

In the module the student works through a series of on-screen simulation exercises, which present the student with problem scenarios ranging from missing program files to a damaged motherboard.

In each simulation, the student is presented, on-screen, with a modern Windows PC. They can switch it on and watch it start up. They can remove the case to look inside, and remove and replace the computer components.

On completing each troubleshooting exercise, the student is asked to complete a service report form, allowing them to build up a portfolio of problems and solutions.

Each 90-minute Assignment contains 2 simulation exercises and relevant supporting theory sections provided in textbooks and on the computer, to build the required knowledge needed to complete the troubleshooting simulations.

The workstation will require a student workstation PC on which to run the on-screen assignments and answer the questions. A printer is required in order to print out service report forms.

ISS2 Specialization Phase Assignment Content

- 1 Troubleshooting Fault 1**
 - Theory Using the screens in this module.
 - Faultfinding Mouse is not detected Windows error message.

- 2 Troubleshooting Fault 2**
 - Theory The startup sequence of a computer.
 - Faultfinding System halts with timer POST error message.

- 3 Troubleshooting Fault 3**
 - Theory The hardware parts of a computer.
 - Faultfinding System appears to be dead.

- 4 Troubleshooting Fault 4**
 - Theory The CPU, Motherboard and Memory.
 - Faultfinding System fails serial port diagnostic test.

- 5 Troubleshooting Fault 5**
 - Theory Storage Devices.
 - Faultfinding System halts with floppy drive POST error message.

- 6 Troubleshooting Fault 6 and 7**
 - Faultfinding Motherboard fault causes parallel port POST error.
 - Faultfinding System halts with keyboard POST error message.

- 7 Troubleshooting Fault 8**
 - Theory Input Devices.
 - Faultfinding Keyboard failed diagnostic test.

- 8 Troubleshooting Fault 9 and 10**
 - Faultfinding System does not startup. Only power LEDs come on.
 - Faultfinding System halts with hard drive POST error.

- 9 Troubleshooting Fault 11**
 - Theory Windows Drivers and Resource Management.
 - Faultfinding CPU fault stops system starting up.

- 10 Troubleshooting Fault 12**
 - Theory Output Devices.
 - Faultfinding Sound device is not working.

- 11 Troubleshooting Fault 13 and 14**
 Faultfinding Monitor power lead is faulty.
 Faultfinding Motherboard fault causes intermittent crash.
- 12 Troubleshooting Fault 15**
 Theory Software Applications.
 Faultfinding Floppy drive cable is faulty.
- 13 Troubleshooting Fault 16**
 Theory Windows Troubleshooting Tools.
 Faultfinding Database software needs reinstalling.
- 14 Troubleshooting Fault 17 and 18**
 Faultfinding Windows display limited to 16 color mode.
 Faultfinding Windows software fault causes intermittent crashes.
- 15 Troubleshooting Fault 19 and 20**
 Faultfinding CD-ROM driver not working properly.
 Faultfinding Database application does not run.
- 16 Troubleshooting Fault 21 and 22**
 Faultfinding Video card is faulty.
 Faultfinding Sound device has a resource conflict.
- 17 Troubleshooting Fault 23 and 24**
 Faultfinding CD-ROM drive power supply incorrect.
 Faultfinding DIMM is faulty.
- 18 Troubleshooting Fault 25 and 26**
 Faultfinding USB port has a memory resource conflict.
 Faultfinding Video card is faulty.
- 19 Troubleshooting Fault 27 and 28**
 Faultfinding DIMM and keyboard are both faulty.
 Faultfinding CD-ROM drive is faulty.
- 20 Troubleshooting Fault 29 and 30**
 Faultfinding Sound device driver is not working properly.
 Faultfinding PSU cannot power all devices.

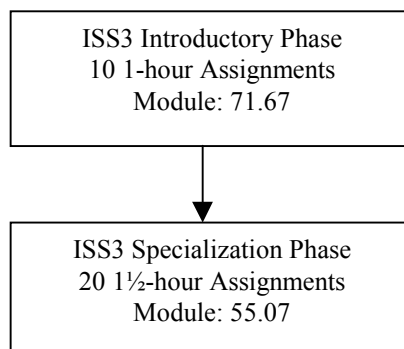
ISS3 Investigating Computers

This 40-hour module provides the student with additional theory support required for the A+ Core and A+ DOS/Windows examinations, focusing primarily on operating systems and networking.

The module contains a 10-hour introductory phase and a 30-hour specialization phase.

The 10-hour introductory phase uses the *ST670/10 Investigating Computers* module.

The 30-hour specialization phase uses the *Investigating Computers – 30 Hours* module.



ISS3 Introductory Phase

In the 10-hour introductory phase the student works through an on-screen manual that provides a broad introduction to computer operating systems.

Each 1-hour Assignment contains theory information and simulations on computer operating system features and operations.

The workstation will require a student workstation PC on which to run the on-screen assignments and answer questions.

ISS3 Introductory Phase Assignments

- 1 What is an Operating System?**
- 2 Windows 98 Desktop Navigation**
- 3 Standard Windows Utilities and Applications**
- 4 Windows Folder and File Structures**
- 5 File Formats and File Extensions**
- 6 Software Installation**
- 7 Windows Boot-up Sequence**
- 8 How Windows Works**
- 9 Windows File Management**
- 10 Problem Solving: Selecting Operating Systems**

ISS3 Specialization Phase

In the 30-hour specialization phase the student uses a set of four training CD-ROMs to research and investigate computers and their operating systems.

The four main topic areas are:

- Troubleshooting and Preventive Maintenance
- Operating System Fundamentals
- Operating System Installation and Configuration
- Network Fundamentals

In each 90-minute assignment, the student is presented with a series of questions relating to a main topic area. Each question includes a hint giving guidance on where to look on the CD-ROMs to research the answer.

The student is guided through each assignment by a CARA on-screen manual. This gives details of the work to be completed and presents the questions for the student to answer.

The workstation requires a student workstation PC on which to run the on-screen assignments and answer the questions.

ISS3 Specialization Phase Assignments

- 1 Troubleshooting Techniques**
- 2 Troubleshooting Hardware Devices**
- 3 The Windows Family of Operating Systems**
- 4 Using the Windows Family of Operating Systems**
- 5 Components of the Windows Operating Systems**
- 6 Memory Settings and the Windows Operating Systems**
- 7 Disk Management and the Windows Operating Systems**
- 8 Installing the Windows 9x Operating System**
- 9 Networking and the Windows Operating Systems**
- 10 Upgrading to the Windows 2000 Operating System**
- 11 Installing the Windows NT Workstation Operating System**
- 12 Windows Operating System Boot Processes**
- 13 Windows 9x Troubleshooting**
- 14 Windows NT and 2000 Troubleshooting**
- 15 Troubleshooting Utilities**
- 16 Networking Topologies**
- 17 Networking Transmission and Cabling**
- 18 Networking Hardware Devices**
- 19 The Internet**
- 20 Using the Internet**

ITC9 A+ Certification Test Preparation

This 6-hour module is aimed at ensuring that students are fully prepared for taking the A+ Certification exam.

The ITC9 module uses the *ITC9 A+ Exam Preparation* module.

ITC9 4 1½ -hour Assignments Module: 55.08

ITC9 Module

The ITC9 module provides 6 hours of guided revision activities. To fully prepare for the A+ Certification exams it is recommended that students carry out further revision in their own time.

In the first two assignments of this module the student completes revision activities to help prepare for the A+ Core Hardware and A+ Operating System Technologies exams. In each of these assignments the student takes a test based on one of these exams. Having completed the test the student receives from the instructor a printed *revision* report. The revision report is referenced to a textbook, supplied with module, which allows the student to target their revision to those areas highlighted in the report as requiring further study. An *objective* report is also available which indicates the student's ability against the A+ Certification exam objectives. This report is optional, and is up to the instructor to decide whether to use it.

In the final two assignments of this module the student takes two simulated exams. These exams, if taken under exam conditions, will provide an indication of how ready the student is take the A+ Certification exams.

Each workstation will require a student workstation PC on which to run the on-screen practice tests and answer the questions set in the question banks. In order to generate the revision reports and optional objective reports used in this module, the instructor will require the ClassAct computer managed learning system.

ITC9 Assignment Content

- 1 A+ Core Hardware Exam Review**
A+ Core Hardware Practice Test and Revision.

- 2 A+ Operating System Technologies Exam Review**
A+ Operating System Technologies Practice Test and Revision.

- 3 Simulated A+ Core Hardware Exam**

- 4 Simulated A+ Operating System Technologies Exam**

Installing the A+ Pod Modules

The ISS1, ISS2, and ISS3 modules should each be set up and installed at a student workstation containing a student workstation PC. The software for the module should be installed and run on these PCs.

A laminated *Inventory / Loading an Assignment* Sheet is provided with the ISS1, ISS2 and ISS3 modules. This sheet, which should be prominently displayed at the student workstation, has two purposes:

- The *Inventory* side of the sheet provides a complete list of the equipment that should be present at that workstation in order for students to use the module.

The *Loading an Assignment* side of the sheet identifies the lesson module and the sequence of assignment numbers that a student must load in order to study at each learning Level. This side of the sheet also shows the student how to load an assignment using the ClassAct student workstation launcher software.

The ISS1 module requires space for the computer provided with the module to be set up alongside the student workstation PC. Sufficient workspace needs to be provided to allow the student to open the system unit case and work inside. Additional peripherals, such as a printer and scanner, will also be attached and again sufficient space needs to be provided to allow these peripherals to be set up alongside the computer.

The computer supplied in ISS1 requires access to 3 electrical power outlets – these are for the system unit, monitor and peripheral devices. The peripheral devices are only used individually during the module, so only one needs to be connected to a power outlet at any one time.

Installation instructions for the modules used in the A+ Pod are given in the Instructor's Guide for each module.

Reporting using ClassAct

Using the *ClassAct* Computer Managed Learning System, the Instructor is able to monitor the progress of a student as they work through the modules of the training program.

Included with each ISS module are reports that the instructor can use to assess the ability of the student before and after they work through each phase of the module.

Also available is an **A+ Competence Report - 220-20x** report profile. This contains two reports that link the ISS modules to the A+ Exam Objectives. These reports can be printed after the ISS1, ISS2, and ISS3 modules have been completed and show how the student has performed against the A+ Exam Objectives. These reports can be installed from the module template disk supplied with the modules.

All questions answered using the *ClassAct* system are linked to competency objectives that describe the skills and knowledge that a student should obtain by completing a module. In a report, grades are awarded for each competence objective, based on the percentage of correct responses for the questions linked to that objective.

Instructions on generating reports are contained in the *ClassAct* Laboratory Management Guide ST520 supplied with the *ClassAct* software. This also gives details of the various settings that can be changed to alter the layout and information included in a report.

On the following pages are examples of the *ClassAct* reports that are available, indicating how to interpret the information contained within them.

The ITC9 exam preparation module includes a set of specially designed reports that are used to indicate areas that require further study. Information on using and interpreting these reports is given in the Instructor's Guide supplied with the ITC9 module.

The Entry Report

A Pre-Test is provided for each phase of each module. This can be used to assess the student's knowledge before starting work on that phase.

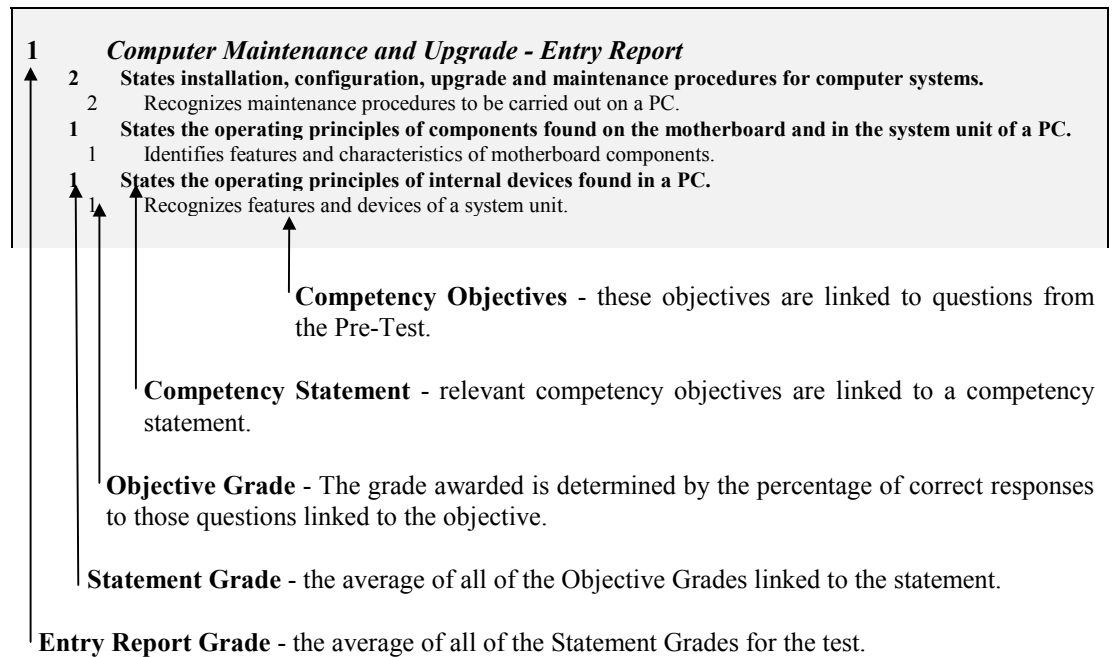
When the student has completed the assignments and the Post Test, the knowledge gained by working through the phase can be assessed by comparing the Post Test result with the Pre-Test result.

The Entry Report is a competence-based report and is graded using the following grade structure:

Grade	Grade Description
3	Can work independently
2	Requires limited instruction
1	Requires close instruction
-	Not worked on

Understanding an Entry Report

An example of an Entry Report, generated using a competence grade structure, is shown below.



In the above example, the student has shown only partial knowledge of the module and requires close instruction.

The Exit Report

When the student has completed all of the Assignments and the Post Test for a phase of a module, the instructor can generate a competence-based Exit Report using the results of the Assignments and the Post Test.

This report will assess the student's knowledge, based on all of the questions that they have answered in the Assignments and the Post Test.

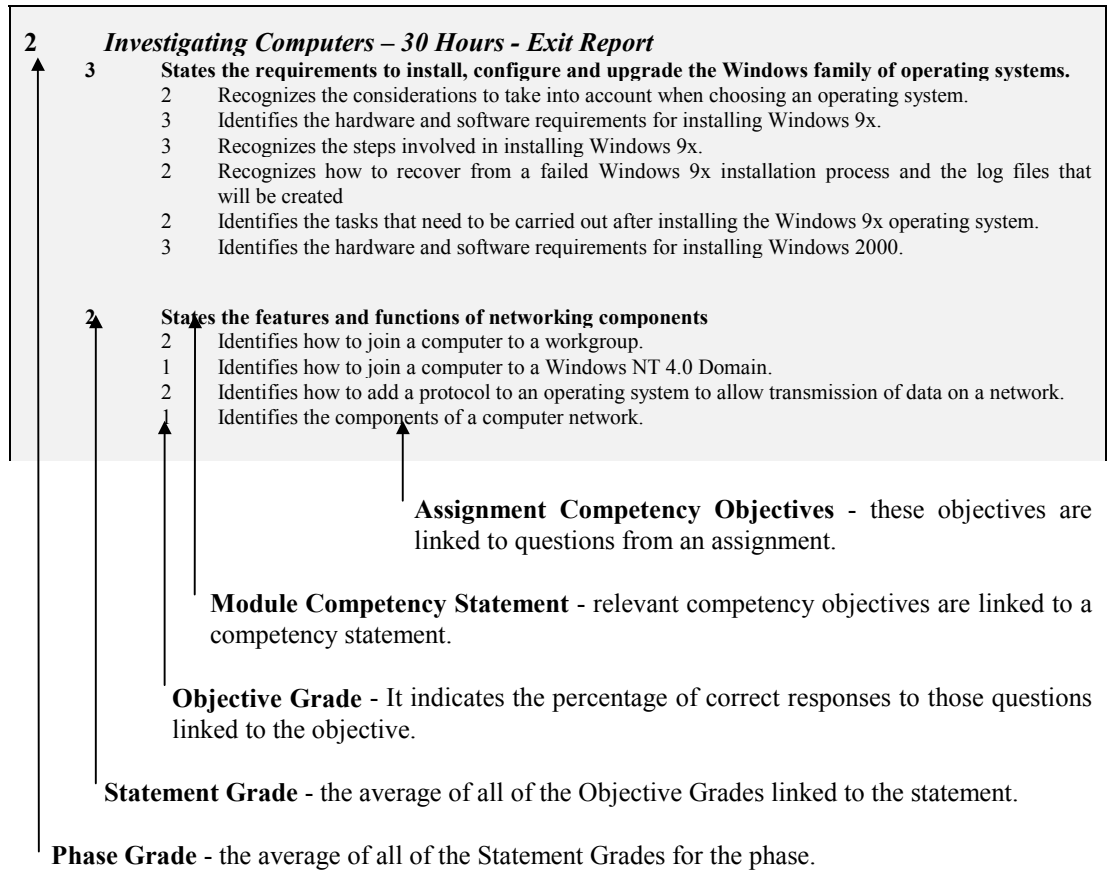
The Exit Report can be used to identify areas where the student still has limited knowledge of the subject. Appropriate remedial work can then be set for the student to complete before continuing.

The Exit Report is a competence-based report and is graded using the following grade structure:

Grade	Grade Description
3	Can work independently
2	Requires limited instruction
1	Requires close instruction
-	Not worked on

Understanding an Exit Report

An example of an Exit Report, generated using a competence grade structure, is shown below.



In the example above it can be seen that the student has a good understanding of the features and operation of the Windows 95 operating system (grades 2 or 3), but they have partial knowledge of the features and operation of the DOS and Windows 3.x operating systems (grades 1 or 2).

A+ Competence Report

When the student has completed all of the Assignments for ISS1, ISS2 and ISS3, the instructor can generate a competence report based on the A+ Exam Objectives.

This report will assess the student's knowledge, based on all of the questions that they have answered in the Assignments of the 30 hour modules of ISS1, ISS2, and ISS3.

The reports can be used to identify areas where the student still has limited knowledge of the subject. Appropriate remedial work can then be set for the student to complete before continuing.

The A+ Competence Reports are competence-based reports and are graded using the following grade structure:

Grade	Grade Description
3	Can work independently
2	Requires limited instruction
1	Requires close instruction
-	Not worked on

Understanding an A+ Competence Report

An example of an A+ Competence Report, generated using a competence grade structure, is shown below.

