

ARRANGEMENTS DOCUMENT

G8KD 47 PDA IN DESKTOP SUPPORT

**G8KC 47 PDA IN SYSTEMS
ADMINISTRATION**

**G8KA 48 PDA IN
SYSTEMS ENGINEERING**

Version 2.0

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PDA IN DESKTOP SUPPORT
PDA IN SYSTEMS ADMINISTRATION
PDA IN SYSTEMS ENGINEERING

CONTENTS

Contents	1
Background to the development	1
Demand for computing skills.....	2
Qualification Design Team.....	3
Consultation and market research.....	3
College statistics	4
Sector Information	6
Computer Periodicals/Industry Information.....	7
Microsoft vendor certification	8
Uptake and progression.....	12
Target sector and level of employment.....	12
Target candidates	13
Relationship with other awards	13
Rationale for structure and contents.....	14
General aims	17
Specific aims	17
Prior experience and qualifications	19
Conditions of award.....	21
Content and context	23
Assessment strategy	23
Open learning and distance learning.....	24

Transition arrangements & credit transfer.....24

Guidance for candidates and progression routes..... 26

Unit specifications..... 27

Supporting evidence.....43

RATIONALE

FOR THE DEVELOPMENT OF THE AWARD(S) AND THE PROCESSES OF CONSULTATION AND MARKET RESEARCH CARRIED OUT

This document is the 'Arrangements' for a new suite of Professional Development Awards to supplement and replace the current Professional Development Award's (PDAs) related to the HN Computing and HN Computer Networking frameworks.

There are three PDAs:

- G8KD 47 PDA in Desktop Support
- G8KC 47 PDA in Systems Administration
- G8KA 48 PDA in Systems Engineering

BACKGROUND TO THE DEVELOPMENT

In 2000 SQA began work with Microsoft, a major software vendor to investigate ways in which SQA candidates could benefit from SQA awards and internationally recognised commercial certifications like those run by Microsoft and other vendors including Cisco and CompTIA.

The vendor certifications were aligned with awards within the HN Computing frameworks and units which related to specific vendor awards were designed and incorporated into the frameworks, as stand-alone units and also as Professional Development Awards (PDAs).

Within the design of these units there would be both vendor-neutral and vendor-specific versions of the same units, but the vendor-specific units would be identified with (Microsoft) within the title of the unit.

PDAs and units were designed as follows:

Vendor-Neutral

- G2KM 16 Diploma in Computing is due to lapse on 31/07/05. This PDA currently has only one centre undertaking it with 52 registered candidates for academic year 2004/5.
- G2M2 18 Advanced Diploma in Computing is due to lapse on 31/07/06. This PDA currently has only one college still undertaking it with 5 registered candidates for academic year 2004/5.
- G5J8 17 Advanced Certificate in Computer Networking is due to lapse on 31/07/06. This PDA currently has no take-up from centres and no registered candidates in 2004/05
- G6N7 17 Advanced Certificate in Computer Networking is due to lapse on 31/07/09. This PDA is relatively new and as such has seen no take-up from centres and has no registered candidates for 2004/5

Vendor-Specific

- G5J9 17 Advanced Certificate in Networking (Microsoft NT 4.0) is due to lapse on 31/07/06. This PDA currently has no take-up from centres and has no registered candidates for 2004/5. It should also be noted that this operating system has been superseded by newer versions.
- G5X2 17 Advanced Certificate in Networking (Microsoft Windows 2000). This PDA currently has five centres undertaking it with 75 registered candidates for 2004/5. It should be noted that this operating system has been superseded by a newer version.

There were some obvious drawbacks to the way these PDAs were designed. There was confusion between the vendor-neutral and vendor-specific PDAs, often a centre did not know which one to pick. The vendor-specific PDAs were designed around specific operating systems which have been superseded by newer versions, thus making the PDA redundant.

In 2004 the SQA and Microsoft entered into a more formal Memorandum of Understanding, where both organisations would cooperate on a number of key areas. One of these was to look at the way SQA centres could make use of vendor certifications whilst achieving SQA awards.

It was clear from work done in the design of the HN Computing and HN Computer Networking frameworks that centres desired vendor involvement, but wanted the flexibility of generic units to allow centres to make their own informed choices. Having a variety of vendor specific units/PDAs for several vendors including Microsoft would prove difficult to manage for both the SQA and college administration systems.

Generic units were designed for a variety of topics, but there were clear links to the vendor certification opportunities embedded into the units to allow SQA centres to decide which route they wished to adopt.

DEMAND FOR COMPUTING SKILLS

Since 1995, the field of Computing and Information Technology has seen massive change, both in the technology and in the skills required of computing professionals. In particular two important changes stand out. These are: the immense importance of the Internet to modern society; and a considerable extension of networks and network technology into almost every part of life. Both of these are reflected in the 2004/5 HN frameworks.

This is reflected in the next table which shows an increase every year in the two HN Computing frameworks.

You can also see in the next table that the HND Computing: Technical Support has grown significantly since 2001/2.

Award	code	level	2001/2		2002/3		2003/4		Total	
			Entries	awards	entries	Awards	entries	awards	Entries	awards
HNC Computing	G5VS	15	433	0	850	247	1112	553	2395	800
HND Computing: TS	G5VV	16	89	0	314	29	528	207	631	236
	total		522	0	1164	276	1640	760	3226	1036

TABLE A: NUMBER OF CANDIDATE ENTRIES PER YEAR

QUALIFICATION DESIGN TEAM

The members of Qualification design team for these PDAs have also been part of the design teams for the HN Computer Networking and HN Computing frameworks and have been supported and advised by the relevant supervisory panels for both HN frameworks. There were two principal design members:

- Ted Hastings
- Vanessa Ranaldi

CONSULTATION AND MARKET RESEARCH

SUMMARY OF CONSULTATION

The design team, in consultation with industry representatives, undertook market research into a number of areas:

- The impact of offering specific PDAS' aligned to HN Computing frameworks and vendor products
- The impact of ICT employer requirements in the UK
- The impact of vendor certifications on candidate achievement

SUMMARY OF MARKET RESEARCH

COLLEGE STATISTICS

There are 47 colleges in Scotland. The Heads of Computing in each college were mailed in late October of last year (2004) asking for comments, on proposed PDAs linked to vendor certifications.

Discounting that some colleges were not undertaking any IT provision specialising in specific areas (Food Technology, Nautical Studies, Agriculture etc) a potential of 37 colleges were likely to respond. SQA received responses from approximately 27% (10 colleges). Details were as follows:

Response to PDA structures:

- **PDA in Computing Support based on the CompTIA + concepts series:** The structure was well received colleges felt this was a good introductory course which would allow students to progress to either Desktop Support or Systems Administration. This PDA will be validated later in 2005.
- **PDA in Desktop Support based on Microsoft Desktop Support Technician:** The two units which make up this award were well received and most colleges felt that it was really good to see desktop support skills embedded into the award. Most felt that this PDA had the most value with good progression routes into Systems Administration and Systems Engineering PDAs.
- **PDA in Systems Administration based on Microsoft Certified Systems Administrator:** The structure was well received and the progression routes from Computing Support or Desktop Support PDAs were seen as an advantage.
- **PDA in Network Technology based on the Cisco Network Academy Programme and CCNA:** A larger PDA, this was seen as advantageous to those colleges who were already Cisco academies and that non-academies would find the burden of providing resources to teach this PDA difficult, but not insurmountable. This PDA will be validated later in 2005.
- **PDA in Systems Engineering based on Microsoft Certified Systems Engineer:** This is the largest PDA, however most colleges felt the progression routes outlined from Computer Support or Desktop Support to Systems Administration and onto Systems Engineering were viable.

Colleges were asked the potential volume in the first year, if the PDAs were available in academic year 2005/06.

- 5 colleges indicated they would enrol between 8 and 15 students per PDA.
- 5 colleges gave no estimate of numbers of enrolled students for any PDA

All 10 colleges made comments about the PDAs, being embedded into HN frameworks. This allowed flexibility for students studying part time or on short courses to work towards an HN. This empowered the students to plan their time, resources and funding more flexibly and offered more opportunities for colleges to encourage students to enrol.

All of the PDA units are already in either HN Computer Networks (validated) or HN Computing (validated) frameworks and can assist in preparation towards vendor certification exams and can be covered by vendor courseware.

All colleges in Scotland were contacted about Microsoft IT Academy consortia. Of 47 **colleges** 10 were too specialist (Agricultural, Nautical, Food technology etc) so they saw no benefit in joining as they are NOT delivering IT related courses.

This left 37 **colleges of which 18 colleges have already become IT Academies** –some are both Cisco and Microsoft academies. **A further 12 colleges are in final stages of enrolment** onto to the Microsoft IT Academy program. Within one year it is **expected that there will be 30 colleges within the consortium**. Many are already delivering vendor certifications.

Since the beginning of 2005 a number of colleges (9) have already been delivering a range of Microsoft courses in the following areas (1 unit of courseware relates to one student):

- **Windows 2000 (MCSA) – 261 units**
- **Windows 2003 (individual units) – 16 units**
- **MCDST (2 courses only) – 200 units**
- **Other (Microsoft only) – 144 units**

As part of the consortia, many of the colleges will be undertaking an upskilling of IT lecturing staff to move towards Windows 2003 and Microsoft desktop support certifications to enable re-delivery into the communities. Given the high number of colleges signing up to the IT Academy consortia **30 out of a potential 37**, it indicates there is a demand for vendor engagement and linking of vendor certifications and courses with established methods of study through SQA awards.

In May 2005 a further questionnaire relating to the embedding of vendor certifications in SQA awards was circulated to the colleges who were members of the Cardonald Consortium. Replies were received from 14 colleges: Aberdeen, Angus, Dumfries, Dundee, Falkirk, Glenrothes, Fife, James Watt, Langside, Lauder, Reid Kerr, Stevenson, Stow and Edinburgh Telford. All the colleges who replied were keen to see vendor qualifications embedded and they were also in agreement that candidates who had already acquired vendor certifications should be able to use these to obtain credit transfer towards SQA awards. The following comment was typical:

“The marriage of vendor and academic/vocational programmes I believe is the future for IT courses run at colleges. This can be evidenced in a Foundation Degree I was involved in where Vendor Certification (Cisco/Microsoft) formed part of the qualification. The feedback from students and local companies was positive.

It is becoming more common that industry requires potential employees to have professional qualifications as well as degree, HNC/HND, vocational qualifications. Anything that encourages students to gain dual qualifications is something we should pursue, so if we can offer academic accreditation to already existing qualifications, all the better.”

SECTOR INFORMATION

SFEU

Recent studies and surveys by various sector organisations have highlighted the growth and potential working patterns for students undertaking study leading to employment in the next 2-3 years. The Scottish Funding Education Unit (SFEU) recently surveyed the FE sector in a report to the SFEFC Knowledge Transfer Taskforce (February 2005), called *Initiating, Adopting and Building Knowledge Transfer and Scotland's Colleges* and found that:

CPD – Company focused was the provision of educational and/or training provision for a specific organisation which is self financing, developmental and aims to meet the organisational needs through staff development. The income data recorded was regarded as robust, but figures given were underestimates of the reality. All colleges recorded activity in this category.

Category total revenue received = £948,000 with 3,516 participating students.

Activity included the following areas:

- **IT skills development through bespoke programmes using national qualifications and vendor frameworks**
- Developments of specific functional areas of company operation including specialist IT applications, CNC operation and interview techniques

CPD- Employer focused was the provision of educational and/or training provision for a specific organisation which is self financing, developmental and aimed at sustaining and/or employment-related skills of participants.

Category total revenue received = £2,493,237 with 3937 participating students.

Activity included the following areas:

- A wide range of commercial courses derived from mainstream curriculum areas
- **Continuous professional development in focused areas often related to industry standard qualifications**
- Skills development including vocational qualifications

Full details of the report can be found at: <http://www.sfec.ac.uk/>

E-SKILLS UK

In a recent report (IT Insights Employer Skills Needs) e-skills UK reported that just over four out of ten establishments in Britain (43%) employed IT Professionals. These are people who, plan, manager, support and develop IT hardware/software. The report highlighted there would be moderate growth in this area over the next two-three years, with the biggest shortfalls in staff occurring in the following areas:

- **IT Operations 20%**
- Development and Training 17%
- **Applications and System support 16%**
- Education Training Management and Delivery 14%
- Capacity Management 11%
- Network control 10%

34% of employers were experiencing difficulties in filling IT Professional jobs. Of these hard-to-fill vacancies 30% were for web-support staff and **29% were for technicians/engineers**. Highlighted in the report was a growth of 12% anticipated in Scotland over the next twelve months for IT Professionals.

Scotland has an IT workforce with:

- Over 37,000 employees in the IT industry
- Over 42,000 IT Professionals working in other industries
- A total IT workforce of over 79,000
- 1.6 million IT users in the workforce

The most common IT Professional role in Scotland is that of, “software professional” and it is also the commonest job in the UK as a whole. Whilst there was concentrated demand for web support, IT architects and security specialists, there is an on-going need for networking specialists and increasing demands for systems integration competencies.

Around 41,000 British businesses were seeking to recruit IT Professionals and just over a third were experiencing difficulties in recruitment. This was having a major impact on the operation of the company and in the development of new products and services.

Further research carried out by e-skills UK made comparisons with NVQ/SVQs and vendor certifications. The comparison was made between the Customer Systems Support NVQ/SVQ and the MCSE in Windows 2000. The two strands related to people working in the installation and maintenance of software/hardware platforms.

The Microsoft Certified Engineer proved the knowledge of how to analyse business requirements and design and implement an infrastructure for business solutions around a specific platform with specific software. The MCSE engineer will have considerably more fluency and knowledge than the NVQ/SVQ holder.

The NVQ/SVQ in Customer Support will work successfully as a systems support engineer. The engineer holding this qualification is will not necessarily have the depth of knowledge that an MCSE engineer has, but is likely to have more soft skills and management skills. The NVQ/SVQ holder is likely to have more underpinning of key skills knowledge than the MCSE holder.

By combining both elements in the above qualifications the candidate will gain a broad scope of key skills knowledge with specific skills in the design, implementation and infrastructure for business solutions.

The full report findings can be found at: <http://www.e-skills.com>

COMPUTER PERIODICALS/INDUSTRY INFORMATION

COMPUTER WEEKLY.COM

In a recent article Computer Weekly reported that a number of IT industries are seeking support from a variety of awarding bodies to incorporate vendor certifications into awards, in a vendor-neutral way, thus providing a number of benefits for both industry and potential future employees from the student market. As vendor certifications have world-wide recognition they add to the global credibility of people in the IT industry.

Students who could not previously afford to undertake vendor courses or exams will have the option to sit the vendor related exam within the structure of the award. This combined learning experience gives students a greater starting point in their IT careers.

MICROSCOPE

In an article about the new Skills Framework for the Information Age (SFIA), Microscope highlighted that the skills framework has received backing from the government's central IT Unit for the provision of a common reference model for the identification of jobs that exist in the IT industry and the skills required to perform them. The framework has received support from IBM, EDS and Microsoft.

SKILLS FRAMEWORK FOR THE INFORMATION AGE (SFIA)

Qualification	Awarding Body	Category	Sub category	Level	Technical Skill
HND Computing Support	SQA	5	3	3	Applications and Systems Support
Installing and Supporting IT Systems	NVQ 2 & 3	5	3	3	Applications and Systems Support
Microsoft Certified Desktop Support Technician	Microsoft	Likely to be level 5	TBC	TBC	Applications and Systems Support
Microsoft Certified Professional	Microsoft	5	3	3	Network Administration and Systems Support
Microsoft Certified Systems Administrator	Microsoft	5	3	3	Network Administration and Systems Support
Microsoft Certified Systems Engineer	Microsoft	5	3	3	Network Administration and Systems Support

Extract from SFIA-ICT skills framework

It is clear from the above extract that vendor certifications have been classified at the equivalent levels as NVQs 2 & 3 and HND's and they cover the same level of technical skill.

The full SFIA-ICT skills framework can be found at: <http://www.sfia.org.uk>

MICROSOFT VENDOR CERTIFICATION

Many people regard vendor certifications as professional development and a requirement for employment, after academic awards have been achieved in either FE or HE. In the last two-year period there has been a significant downturn on commercial training, with several large training companies going into liquidation, because of recession cut-backs from major employers. This should have led to a downturn in vendor certifications and the demand for vendor training; however some interesting statistics in relation to Microsoft vendor certifications show that this is not the case in fact.

2004 GLOBAL CERTIFICATION FIGURES

In 2004, globally Microsoft certifications were the fastest growing, with the following being the most popular certification people actively sought:

- World wide in 2004 over 140,000 people became Microsoft Certified Professionals in a variety of subject areas. This is an average of 35,000 certified people per quarter achieving this entry level certification.

- World wide in 2004 over 3,000 people became Microsoft Certified Desktop Support Technician since its launch in early 2004. **Given this certification was only launched in 2004 this averages 750 people per quarter achieving the certification.**
- World wide in 2004 over 76,000 people became Microsoft Certified Systems Administrators. **As a mid-range certification building on MCP and MCDST skills, the number of people averaged 19,000 per quarter.**
- World wide in 2004 over 54,000 people became Microsoft Certified Systems Engineers. These people are highly-regarded in their chosen disciplines and are often employed in senior positions, earning some of the highest salaries. **Over 13,500 people are achieving this certification per quarter.**

2005 GLOBAL CERTIFICATION FIGURES

In early 2005 (January – March), globally Microsoft certifications show no signs of slowing down and give no indication of saturation in the employment marketplace:

- World wide so far in 2005 over 39,000 people became Microsoft Certified Professionals in a variety of subject areas.
- **World wide so far in 2005 over 1,700 people became Microsoft Certified Desktop Support Technician.** This is a potential growth area as it introduces technical support concepts and procedures before going onto one of the other two premium certifications (MCSA and MCSE).
- **World wide so far in 2005 over 14,000 people became Microsoft Certified Systems Administrators.**
- **World wide so far in 2005 over 10, 000 people became Microsoft Certified Systems Engineers.**

2004 UK CERTIFICATION FIGURES

In 2004, Microsoft certifications saw moderate growth, with the following being the most popular certification people actively sought:

- In 2004 over 8,000 people became Microsoft Certified Professionals in a variety of subject areas in the UK. This averages 2,000 people per quarter.
- **In 2004 over 270 people became Microsoft Certified Desktop Support Technician** since its launch in early 2004 in the UK. This averages 67 people per quarter.
- **In 2004 over 4,500 people became Microsoft Certified Systems Administrators in the UK.** This averages 1,125 people per quarter.
- **In 2004 over 3,500 people became Microsoft Certified Systems Engineers in the UK.** This averages 875 people per quarter.

2005 UK CERTIFICATION FIGURES

In 2005, Microsoft certifications continue to grow, early indications that roughly the same number of people in the well established certification paths like MCP, MCSA and MCSE are in line with last year's figures, whilst new certifications like MCDST has seen a 100% increase on people taking the certification:

- In the first 3 months of 2005 nearly 2,000 people became Microsoft Certified Professionals in a variety of subject areas in the UK. This compares with the average of last year of 2,000 per quarter.
- **In the first 3 months of 2005 158 people became Microsoft Certified Desktop Support Technician in the UK.** Compared to last's year average of 67 people per quarter this is over 100% growth in the amount of people doing this certification in just the first quarter of 2005.
- **In the first 3 months of 2005 over 850 people became Microsoft Certified Systems Administrators in the UK.** This average is slightly down on last year.
- **In first 3 months of 2005 over 600 people became Microsoft Certified Systems Engineers in the UK.** This average is slightly down on last year.

MARKET RESEARCH FOR HNC/D COMPUTER NETWORKING

The HNC and HND in Computer Networking were validated in June 2004. Much of the market research relating to these programmes is also of relevance to the PDAs and is quoted below:

THE IT SKILLS GAP

Much has been written about the IT Skills Gap and the inhibiting effect the skills gap has on economic development. In many cases, there is more specific information about networking available.

The IDC report "Europe's Growing IT Skills Crisis" (IDC UK, 2000) concludes that, although the supply of IT professionals will increase between 1999 and 2003, the demand for IT professionals will increase at a more rapid rate and therefore the shortage of IT professionals will continue to grow.

A subsequent IDC report "Networking Skills shortages in EMEA" estimates that the shortage of skilled networking staff in the UK will rise from 169,437 in 1999 to 349,801 in 2004, representing 28% of the available jobs.

A more recent report, 'Despite Weak Economy, Skilled ICT Staff Still Needed in Europe' (IDC, UK 2002) suggests that the IT skills shortage in the UK will increase from 214,456 in 2000 to 293,551 in 2005, an increase of 11%. It also highlights the fact that "The shortage of skilled networking professionals (engineers or consultants specializing in designing, implementing, and supporting networks) will increase by a 19% CAGR (compound Annual Growth Rate), indicating the growth in use of the Internet in European organizations".

Another recent report "e-skills Regional Gap: Scotland" (e-skills UK, July 2003) highlighted Operating Systems and Networking as key skill-shortage area. A UK-wide report, published at the same time, reached similar conclusions.

CONSULTATION WITH EMPLOYERS, COLLEGES AND STUDENTS

All of the Units making up the Advanced Certificate in Systems Administration and the Advanced Diploma in Systems Engineering are drawn from the Computer Networking Framework and it was implicit in the development of the framework that the units would later be used to create a series of PDAs which would parallel vendor awards. (The MCDST award did not exist at this time, but the units relating to it have been added retrospectively to the Computer Networking Framework.)

Because of the intention to produce PDAs, a number of questions relating to vendor awards were included in the questionnaires issued to students and employers. These are discussed below:

The Advisory Panel considered that it was important to consult widely on the content of the awards. Accordingly, the following consultation took place.

- 1. An online discussion forum was set up to discuss the revision of the framework. This attracted 75 members and was a very valuable means of disseminating information and obtaining feedback.*
- 2. Contact was established with all colleges currently offering Networking or Internetworking awards.*
- 3. A total of 15 Scottish IT companies were surveyed. Due to the amount of national and international market research information available on networking skills shortages the Advisory Panel felt that a small sample of local employers was sufficient.*
- 4. A total of 80 current students were surveyed.*
- 5. All Universities in Scotland were contacted.*

The main points of the responses to the questionnaires to employers and students are given below:

- 67% of the employers surveyed took vendor certifications into consideration when recruiting staff.
- 73% of the employers surveyed regarded MCSA as relevant or very relevant.
- 87% of the employers surveyed regarded MCSE as relevant or very relevant.
- 87% of the employers surveyed believed it was a good idea to embed vendor certifications in HNC/D programmes.
- 93% of the employers surveyed believed that students who had already obtained vendor certifications be able to use these to gain credit towards an HNC or HND.
- 79% of the students surveyed regarded MCSA as relevant or very relevant.
- 88% of the students surveyed regarded MCSE as relevant or very relevant.
- 98% of the students surveyed believed it was a good idea to embed vendor certifications in HNC/D programmes.
- 89% of the students surveyed believed that students who had already obtained vendor certifications be able to use these to gain credit towards an HNC or HND.

UPTAKE AND PROGRESSION

The number of students undertaking PDAs has dropped significantly over recent years. This may be due to a number of factors:

- No direct relation or benefit in integrating PDAs into other larger HN frameworks. This may be through ignorance or misunderstanding of how PDAs are related to various HN frameworks.
- Vendor- Specific PDAs have had a finite lifespan because they are based around specific operating systems or architecture, which has changed due to market demand.
- There is a move towards achieving only the vendor qualification, instead of Scottish qualifications which are not easily recognised by employers in all of the UK. Vendor qualifications have international recognition and the content can be measured against industry standards.

PROJECTED UPTAKE

	VENDOR NEUTRAL PDAS	VENDOR SPECIFIC PDAS	NEW PDAS
2004/5	57	75	-
2005/6	0	50	150
2006/7	25	25	200
2007/8	50	25	250

Table 1 – Previous and projected uptake

The growth figures are based around the new PDAs in this document, and figures obtained from colleges already undertaking these industry certifications instead of SQA awards. A steady growth is expected based on the new vendor-generic format adopted in the PDA units in this arrangements document. Some of the vendor-specific PDAs in the current SQA catalogue are due for retirement.

The zero numbers indicated for the vendor-neutral PDAs is in direct relation to the retirement of some of these awards in the SQA catalogue in 2005/6.

TARGET SECTOR AND LEVEL OF EMPLOYMENT

Most employers agree that certifications are much like university degrees - they get your foot in the door, but they do not prove you can do the job. Industry certifications should be backed up with educational awards and experience learnt whilst in employment.

Employers do feel that certifications inspire confidence in the individual holding them because the individual has put forth much time, effort, and expense in getting the certification. This proves commitment. Certifications enforce a broader, general understanding of state-of-the-art ideas and best practices for the industry, a detailed understanding of the mechanics of the technology, and how the technology is supposed to interoperate.

The PDAs will allow students to undertake roles like:

- Junior Support Technicians
- Desktop Support Technicians
- Junior Network Administrators
- Network Administrators
- ICT support technicians for both network and application support

TARGET CANDIDATES

This award is designed to offer candidates academic, technical and professional training leading to the skills necessary to design, implement, support, evaluate or manage IT systems in a vast range of industries. The award is targeted at candidates who have the formal education requirement and –

- Who intend to leave school and further their career path in a college. OR
- Who intend to progress their career after the study of either the NQ in Computing, the NQ in Information Systems. OR
- Who intend to progress their career after the study of the PDA into further study at HN level. OR
- Who leave employment with the intention of changing their career path. OR
- Who are unemployed and wish to study to assist gaining employment. OR
- Who wish to study on a part-time (day or evening) or day-release mode.

At the discretion of a centre, a candidate may be permitted to enter the award by waiving some of the entry requirements - based on their previous experience. Experience has shown that mature candidates often study this award perhaps having also achieved some vendor qualifications.

A candidate may move on to study at a higher level at a college or use the award to articulate to a degree course.

RELATIONSHIP WITH OTHER AWARDS

These PDAs have been formed from discussions with the majority of the FE sector and other associated bodies. They represent an inclusion of vendor related topics, whilst remaining generic in nature. This allows colleges to decide if they wish to utilise the vendor certifications as well as achieving academic recognition.

The units within each PDA have direct links in either mandatory or optional sections of the following two HN frameworks:

- HND Computer Networking
- HND Computing

The PDAs allow students to work towards entry into either of these HN frameworks, whilst allowing the colleges the chance to give students a flexible range of study options.

RATIONALE FOR STRUCTURE AND CONTENTS

The **PDA in Desktop Support is a three-credit PDA** and students are required to achieve two core units:

- Supporting Users and Troubleshooting a Desktop Operating system, covers the installation, maintenance and configuration of a desktop operating system. The student will be expected to understand and implement changes to the operating system to facilitate various users, who might require different languages, different applications and different access to resources.
- Supporting Users and Troubleshooting Desktop Applications, covers the installation, maintenance and configuration of various desktop applications, like word processors, spreadsheets, email programs and Internet browsers. The student will be expected to understand installation problems caused by applications failing to install correctly, faults in applications reported by users and problems associated with upgrading application software or applying service packs.

This PDA covers the knowledge and understanding associated with the Microsoft Certified Desktop Support Technician and would be attractive to students who were looking for an entry-level position as a junior support technician role, or students who wanted to verify their existing skills as a support technician for advancement within an organisation.

Candidates who achieved this PDA can progress to the PDA in Systems Administration.

Candidates who successfully passed this PDA by obtaining the vendor certifications would also gain the vendor certification Microsoft Certified Desktop Support Technician.

The **PDA in Systems Administration is a five-credit PDA** and students are required to achieve all three core units:

- Client Operating System covers the installation, maintenance and configuration of a client operating system. The student will be expected to install and configure various operating system components including those related to networking areas, like protocols, network services and internet browser services. The Student will be expected to install the client operating system using different installation methods including unattended, attended, scripted and networked.
- Network Server Operating system covers the installation of a network server operating system, its configuration, maintenance and interaction with various network resources, including users, domains, applications, services, access rights and permissions and provision of service at all times for users.

- Network Infrastructure 1: Implementation and Management covers the creation of domain and local services, networked resources and networking services. The student will be expected to understand domain principles and design methods, remote and local networked resources, how to set-up and maintain a network and provide users access through access control, group policies and permissions.

This PDA covers the knowledge and understanding associated with the Microsoft Certified System Administrator and would be attractive to students who were looking for an entry-level position as a junior network support technician role, or students who wanted to verify their existing skills as a network support technician for advancement within an organisation.

Candidates are recommended to complete the following PDA (or have equivalent knowledge):

- PDA in Desktop Support

Candidates who achieved this PDA can progress to the PDA in Systems Engineering.

Candidates who successfully passed this PDA **and** successfully passed the recommended entry-level PDA in Desktop Support using the vendor certifications would also gain the vendor certification Microsoft Certified System Administrator.

The **PDA in Systems Engineering is a seven-credit PDA** and students are required to achieve three core units and one optional unit:

Core Units

- Network Infrastructure 2: Implementation and Management covers the implementation, management and maintenance of a network infrastructure. The student will be expected to understand networking services like IP addressing, domain name resolution, network security, remote access and network infrastructures (bandwidth, resources, loading etc).
- Directory Services Infrastructure covers the planning, implementing, maintaining and managing of a directory service infrastructure. The student will be expected to cover setting up a directory service, supporting users, groups and computer strategies including planning and maintaining effective group policies.
- Network Design: Security covers the conceptual, logical and physical design of security for a network infrastructure. The student will be expected to create a conceptual security design, a logical security design and a physical security design. They will also be expected to design an access control strategy for data and create a physical design for client infrastructure security.

Optional Units (choice of one only)

- Network Security: Implementation and Administration covers the planning, implementation and troubleshooting security policies and updates, network communications and public key infrastructure. The student will be expected to plan and troubleshoot security templates and updates. The student will configure and troubleshoot authentication for web users, remote access and virtual private network protocols.
- Network Design: Directory Services and Network Infrastructure covers the analysis, of business and technical requirements to create a conceptual and logical design. The student will be expected to understand and create conceptual and logical design models, for directory services and network infrastructure. The

student will also implement a physical design for directory services and network infrastructure.

- Mail Server Administration covers the installation, configuration and managing of a mail server software. The student will be expected to install and configure mail server software, manage recipients and data and monitor recipients and messaging growth.
- Database Server Administration covers the installation, configuration and monitoring of a database server. The student will be expected to install database server software, configure database software and manage and extract data from the database. The student will also monitor database server security and the databases.
- Database Design and Implementation covers the understanding logical data models, database design and business logic. The student will be expected to understand data models, implement a physical database design and implement a database security plan to retrieve and modify data and optimise data access.
- Security Concepts covers the understanding of network, communications, infrastructure and organisational security. The student will be expected to describe features and general concepts in network communications, infrastructure, organisational and operational security.

This PDA covers the knowledge and understanding associated with the Microsoft Certified Systems Engineer and would be attractive to students who were looking for a position as a network support technician role, or students who wanted to verify their existing skills as a network support technician for advancement to a senior position within an organisation.

Candidates are recommended to complete the following PDA (or have equivalent knowledge):

- PDA in Systems Administration

Candidates who achieved this PDA can progress to the HND Computer Networking.

Candidates who successfully passed this PDA and successfully passed the recommended entry-level PDA in Systems Administration using the vendor certifications would also gain the vendor certification Microsoft Certified System Engineer.

AIMS

OF THE GROUP AWARD(S)

GENERAL AIMS

These Professional Development Awards have a range of broad aims, which are generally applicable to all equivalent Higher Education qualifications. Some of these general aims are:

- To develop the candidate's knowledge and skills such as planning, analyzing and synthesizing
- To develop employment skills and enhance candidates' employment prospects
- To enable progression within the Scottish Credit and Qualifications Framework
- To develop study and research skills
- To develop transferable skills including core skills
- To provide academic stimulus and challenge, and foster an enjoyment of the subject.

SPECIFIC AIMS OF THE PDA IN DESKTOP SUPPORT

The specific aims of the PDA in Desktop Support are:

- To prepare students for entry-level employment in an IT/Computing-related post in a help desk or desktop support role.
- To develop a range of specialist technical support skills and knowledge in the use and support of desktop operating systems and applications programs.
- To prepare students for progression to further study in Computing and Technical Support, for example the PDA in Systems Administration or HNC/D in Computing or Computer Networking.

SPECIFIC AIMS OF THE PDA IN SYSTEMS ADMINISTRATION

The specific aims of the PDA in Systems Administration are:

- To prepare students for employment in an IT/Computing-related post as a network technician or network administrator.
- To develop a range of specialist technical support skills and knowledge in the use and support of networked computer systems and network operating systems.

- To prepare students for progression to further study in Computing and Technical Support, for example the PDA in Systems Administration or HNC/D in Computing or Computer Networking.

SPECIFIC AIMS OF THE PDA IN SYSTEMS ENGINEERING

The specific aims of the PDA in Systems Engineering are:

- To prepare students for employment in a senior IT/Computing-related post as a network designer or network engineer.
- To develop a range of specialist technical support skills and knowledge in the administration and design of complex networked computer systems
- To prepare students for progression to further study in Computing and Technical Support, for example, the HND in Computer Networking.

RECOMMENDED ACCESS

TO THE GROUP AWARD(S)

PRIOR EXPERIENCE AND QUALIFICATIONS

This statement is about access to the Professional Development Awards as a whole. However, in addition to the detail which follows, part of the specification of each and every unit includes recommended access levels. Students should normally be expected to satisfy both sets of access requirements.

As with all SQA qualifications, access will be at the discretion of the Centre and the following recommendations are for guidance only.

Different combinations of relevant National Qualifications, Vocational Qualifications and equivalent qualifications from other awarding bodies may also be acceptable, as would suitable vendor qualifications at an appropriate level.

Mature candidates with suitable work experience may be accepted for entry provided the enrolling Centre believes that the candidate is likely to benefit from undertaking the award.

It would be advisable for all candidates to have some prior knowledge of computing or information technology although formal qualifications may not be necessary if suitable experience had been gained informally or through work experience.

Such work experience may provide inferred or actual evidence of a candidate's skills and knowledge as they apply either to particular units.

Some examples of appropriate formal entry qualifications are specified below. They are not exhaustive or mutually exclusive and may be offered in a variety of combinations.

RECOMMENDED ACCESS TO THE PDA CERTIFICATE IN DESKTOP SUPPORT

Candidates should possess one or more of the following:

- Scottish Group Awards in Computing or Information Technology at Higher Level.
- Any other relevant Scottish Group Award at Higher Level.
- Any two relevant National Courses at Higher together with three Standard Grade passes at level 3 or above.
- An SVQ at level 2 or 3 in Computing, Information Technology or other relevant area.
- Relevant National Units at appropriate levels (e.g. core skills units at Intermediate 1 or 2) combined with any of the above.

RECOMMENDED ACCESS TO THE PDA IN SYSTEMS ADMINISTRATION

Candidates should already have completed the PDA in Computer Support or the PDA in Desktop Support and should possess one or more of the following:

- Scottish Group Awards in Computing or Information Technology at Higher Level.
- Any other relevant Scottish Group Award at Higher Level.
- Any two relevant National Courses at Higher together with three Standard Grade passes at level 3 or above.
- An SVQ at level 2 or 3 in Computing, Information Technology or other relevant area.
- Relevant National Units at appropriate levels (e.g. core skills units at Intermediate 1 or 2) combined with any of the above.

RECOMMENDED ACCESS TO THE PDA IN SYSTEMS ENGINEERING

Candidates should already have completed the PDA in Systems Administration and should possess one or more of the following:

- Scottish Group Awards in Computing or Information Technology at Higher Level.
- Any other relevant Scottish Group Award at Higher Level.
- Any two relevant National Courses at Higher together with three Standard Grade passes at level 3 or above.
- An SVQ at level 2 or 3 in Computing, Information Technology or other relevant area.
- Relevant National Units at appropriate levels (e.g. core skills units at Intermediate 1 or 2) combined with any of the above.

STRUCTURE

OF THE GROUP AWARD(S)

CONDITIONS OF AWARD

PDA IN DESKTOP SUPPORT

In this three credit PDA, students are required to take both mandatory units to achieve the PDA.

MANDATORY UNITS

UNIT TITLE	CODE	CREDIT VALUE	SCQF LEVEL
Supporting Users & Troubleshooting a Desktop Operating System	DM35 34	2	7
Supporting User & Troubleshooting Desktop Applications	DM34 34	1	7

Table 1 – Mandatory units

PDA IN SYSTEMS ADMINISTRATION

In this five credit PDA, students are required to take all three mandatory units to achieve the PDA.

MANDATORY UNITS

UNIT TITLE	CODE	CREDIT VALUE	SCQF LEVEL
Client Operating System	DF9M 34	1.5	7
Network Server Operating System	DF9N 34	1.5	7
Network Infrastructure 1: Implementation and Management	DF9R 35	2	7

Table 1 – Mandatory units

PDA IN SYSTEMS ENGINEERING

In this seven credit PDA, students are required to take three mandatory units from the table below.

MANDATORY UNITS

UNIT TITLE	CODE	CREDIT VALUE	SCQF LEVEL
Network Infrastructure 2: Implementation and Management	DG00 35	2	8
Directory Services Infrastructure	DG01 35	2	8
Network Design: Security	DG0E 36	1	9

Table 1 – Mandatory units

As part of this seven credit PDA, students are required to take one optional unit selected from the table below. It is recommended but not compulsory that students pick units that complement those taken in the mandatory section

OPTIONAL UNITS

UNIT TITLE	CODE	CREDIT VALUE	SCQF LEVEL
Network Security: Implementation and Administration	DG08 35	2	8
Network Design: Directory Services and Network Infrastructure	DG0D 36	2	9
Mail Server Administration	DG07 35	2	8
Database Server Administration	DG0F 35	2	8
Database Design and Implementation	DG0G 35	2	8
Security Concepts	DG02 34	2	7

Table 2 – Optional units

APPROACHES TO DELIVERY & ASSESSMENT

OF THE GROUP AWARD(S)

CONTENT AND CONTEXT

Although conditions will vary between centres in terms of resources, staff and student profiles, timetabling constraints, etc., the assessment context of individual units has been set within a typical assessment loading for a PDA. In the majority of units there will be normally one assessment set within a closed book setting which will test the underpinning knowledge and skills. This methodology ensures that some student work is objectively known to be authentic and sets out to ensure that candidates attain the necessary standard to use units being studied as building blocks which enable them to progress through the particular award they have elected to study.

Some of the evidence requirements for units may be produced using e-assessment. This may take the form of e-testing (for knowledge and understanding) and/or e-portfolios (for practical abilities). This use of an e-portfolio approach to assessment is being encouraged.

ASSESSMENT STRATEGY

Assessment will cover a variety of knowledge and practical skills as well as the more intellectual skills of planning and evaluating which is part of many units. This means that a large number of different methods can be employed to ensure that a student 'can do what s/he is supposed to do' and 'knows what s/he is supposed to know'.

All the units comprising these PDAs are assessed by means of two components: a set of restricted-response (multiple-choice) questions, used to assess the candidate's knowledge and skills and a Logbook, used to assess practical skills and record the practical tasks carried out by the candidate.

Where practical, a holistic approach is encouraged to be taken by centres in assessing across a number of outcomes within units. It would be wise for centres to consider separating out the 'retake' assessments of students who have failed in their first attempt at a composite assessment instrument.

USE OF E-ASSESSMENT

The opportunity/decision for a centre to utilise a VLE/MLE remains within the organisation and management of each centre. However, the use of e-assessment is encouraged and could be managed in a number of ways. In order to encourage and support such innovations, a common phraseology has been used throughout the units and in which such e-assessment seems feasible.

OPEN LEARNING AND DISTANCE LEARNING

These awards may be delivered by open and distance learning methods, provided that adequate preparations are made. There is an intrinsic difficulty if specialised equipment is required, but companies, other agencies and even the student he or she may be able to make suitable equipment available. While learning may often progress well, it is often the case with practical skills assessments that a centralised testing facility is needed - for example the FE College or centres itself. Alternatively, as with on-job assessment in SVQs, an assessor may need to visit the candidate's work location and administer the test, having first had time to check and prepare the local equipment. On some occasions a mix of conventional and innovative assessment may be used. Whichever method is employed, additional planning and resources will be required for candidate support, assessment and reassessment.

Quality assurance procedures must also be sufficiently robust to fully support open and distance learning. Further advice and guidance is contained in the SQA publication '*Assessment and Quality Assurance for Open and Distance Learning – SQA February 2001*'.

TRANSITION ARRANGEMENTS & CREDIT TRANSFER

For those centres who choose to use vendor certifications as proof of assessment the following table will give guidance on the vendor exams associated with each unit within each PDA. All vendor exams are normally held in controlled conditions and evidence generated is an exam score report, supplemented by an examination certificate for each examination passed. Either or both the exam score report, or examination pass certificate must be produced as evidence of assessment for each unit. Examples are enclosed in Appendix 1.

It should be noted that, in general, passing a vendor examination will only give credit transfer for the Knowledge and Skills component of an SQA unit. Candidates will also need to produce evidence to demonstrate that they can also meet the Practical requirement. This can be done by completing the SQA Log Book for the relevant unit, or by producing alternative evidence, such as a course completion certificate. Full details are given in Appendix 2: Credit Transfer.

PDA IN DESKTOP SUPPORT

There are two vendor exams associated with this PDA. Each vendor examination will gain the student the Microsoft Certified Professional (MCP) certificate and if both exams are successfully passed the Microsoft Certified Desktop Support Technician (MCDST) certificate. Either or both MCP or MCDST certificates can be accepted as evidence of meeting the knowledge and understanding component of the relevant units.

Unit Number	Unit Title	Vendor Exam	Credit Value	SCQF Level
DM35 34	Supporting Users & Troubleshooting a Desktop Operating System	70-271	2	7
DM34 34	Supporting User & Troubleshooting Desktop Applications	70-272	1	7

PDA IN SYSTEMS ADMINISTRATION

There are three vendor exams associated with this PDA. Each vendor examination will gain the student the Microsoft Certified Professional (MCP) certificate.

Also if the student has used the progression route from the Desktop Support PDA, it is recommended that a copy of the student's MCDST exam certificate is also accepted as evidence. It is possible for the student to gain the Microsoft Certified System Administrator (MCSA) certificate if they have undertaken this progression route and the associated MCSA certificate will be accepted as evidence that the candidate has completed the knowledge and understanding component of the relevant units.

Unit Number	Unit Title	Vendor Exam	Credit Value	SCQF Level
DF9M 34	Client Operating System	70-270	1.5	7
DF9N 34	Network Server Operating System	70-290	1.5	7
DF9R 35	Network Infrastructure 1: Implementation and Management	70-291	2	7

PDA IN SYSTEMS ENGINEERING

In this seven credit PDA, students are required to take three core units and one optional unit. There are four vendor exams associated with this PDA. Each vendor examination will gain the student the Microsoft Certified Professional (MCP) certificate. MCP certificates will be accepted as evidence that the candidate has completed the knowledge and understanding component of the relevant units.

Also if the student has used the progression route from the Systems Administration PDA it is recommended that a copy of the student's MCP or MCSA exam certificate are also accepted as evidence. It is possible for the student to also gain the Microsoft Certified System Engineer (MCSE) certificate if they have undertaken this progression route and the associated MCSE certificate will be accepted as evidence that the candidate has completed the knowledge and understanding component of the relevant units.

MANDATORY UNITS

Unit Number	Unit Title	Vendor Exam	Credit Value	SCQF Level
DG00 35	Network Infrastructure 2: Implementation and Management	70-293	2	8
DG01 35	Directory Services Infrastructure	70-294	2	8
DG0E 36	Network Design: Security	70-298	1	9

OPTIONAL UNITS (CHOOSE 1)

Unit Number	Unit Title	Vendor Exam	Credit Value	SCQF Level
DG08 35	Network Security: Implementation and Administration	70-299	2	8
DG0D 36	Network Design: Directory Services and Network Infrastructure	70-297	2	9
DG07 35	Mail Server Administration	70-284	2	8
DG0F 35	Database Server Administration	70-228	2	8
DG0G 35	Database Design and Implementation	70-229	2	8
DG02 34	Security Concepts	Security+	2	7

GUIDANCE FOR CANDIDATES AND PROGRESSION ROUTES

It is possible for students who wish to progress to articulate into the HN Computing, or HN Computer Networking award after undertaking one or some of these Professional Development Awards.

Students may also articulate into several vendor certifications, if undertaking multiple Professional Development Awards.

If undertaking the **PDA in Desktop Support**, a student who passes the required Microsoft examinations will gain industry recognition from Microsoft with the Microsoft Certified Desktop Support Technician (**MCDST**) certification, and have completed two optional units from the HN Computing and HN Computer Networking awards.

If undertaking the **PDA in Systems Administration**, a student who passes the required Microsoft examinations will gain industry recognition from Microsoft with three Microsoft Certified Professional certifications and have completed some mandatory/optional units from the HN Computing and HN Computer Networking awards.

If students also use the recommended progression route from Desktop Support to System Administration they will gain both the MCDST and MCSA (Windows 2003) certifications from Microsoft and have completed some mandatory/optional units in both HN Computing and HN Computer Networking awards.

If undertaking the **PDA in Systems Engineering**, a student who passes the required Microsoft examinations will gain industry recognition from Microsoft with four Microsoft Certified Professional (**MCP**) certifications and have completed some mandatory/optional units from the HN Computer Networking award.

If students also use the recommended progression route from Systems Administration to Systems Engineer they will gain both the MCSA (Windows 2003) and MCSE (Windows 2003) certifications from Microsoft and have completed some mandatory/optional units in both HN Computing and HN Computer Network awards.

If students have followed all the progression routes from Desktop Support through Systems Administration and onto to System Engineering, they will have completed MCDST, MCSA (Windows 2003) and MCSE (Windows 2003) certifications from Microsoft and have completed a large number of mandatory/optional units from both the HN Computing and HN Computer Networking awards.

HN UNIT SPECIFICATIONS

UNIT SPECIFICATIONS

Front Page of Unit Specifications Attached

PDA IN DESKTOP SUPPORT

In this three credit PDA, there are two unit descriptors, both approved and validated within the HN frameworks.

MANDATORY UNITS

UNIT TITLE	CODE	CREDIT VALUE	SCQF LEVEL
Supporting Users & Troubleshooting a Desktop Operating System	DM35 34	2	8
Supporting User & Troubleshooting Desktop Applications	DM34 34	1	7

Table 1 – Mandatory units

PDA IN SYSTEMS ADMINISTRATION

In this five credit PDA, there are three unit descriptors, all approved and validated within the HN frameworks.

MANDATORY UNITS

UNIT TITLE	CODE	CREDIT VALUE	SCQF LEVEL
Client Operating System	DF9M 34	1.5	7
Network Server Operating System	DF9N 34	1.5	7
Network Infrastructure 1: Implementation and Management	DF9R 35	2	7

Table 1 – Mandatory units

PDA IN SYSTEMS ENGINEERING

In this seven credit PDA, there are nine unit descriptors all approved and validated within the HN Computer Networks framework.

MANDATORY UNITS

UNIT TITLE	CODE	CREDIT VALUE	SCQF LEVEL
Network Infrastructure 2: Implementation and Management	DG00 35	2	8
Directory Services Infrastructure	DG01 35	2	8
Network Design: Security	DG0E 36	1	9

Table 1 – Mandatory unit

OPTIONAL UNITS

UNIT TITLE	CODE	CREDIT VALUE	SCQF LEVEL
Network Security: Implementation and Administration	DG08 35	2	8
Network Design: Directory Services and Network Infrastructure	DG0D 36	2	9
Mail Server Administration	DG07 35	2	8
Database Server Administration	DG0F 35	2	8
Database Design and Implementation	DG0G 35	2	8
Security Concepts	DG02 34	2	7

Table 2 – Optional units

Higher National Unit Specification

General information for centres

Unit Title: Supporting Users and Troubleshooting Desktop Applications

Unit Code: DM34 34

Unit purpose: This Unit is designed to introduce candidates to the role of a desktop application support technician involved in supporting users and troubleshooting desktop applications on a client operating system. It is intended for candidates undertaking an HN in Computing or a related area who require a broad knowledge of client operating systems. On completion of the Unit the candidate should be able to:

1. Configure And Troubleshoot Applications
2. Resolve Issues Related To Usability And Application Customisation
3. Configure And Troubleshoot Network Connectivity And Security Settings For Applications

Credit points and level: 1 HN Credit at SCQF level 7: (8 SCQF credit points at SCQF level 7)

*SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from Access 1 to Doctorates.

Recommended prior knowledge and skills: Access to this Unit will be at the discretion of the Centre. There are no specific requirements but candidates would benefit from knowledge of computer hardware and software. This may be demonstrated by the possession of units such as *DG0K33 Hardware Concepts* and/or *DF9L33 Operating System Concepts* or *DH33 34 Computer Operating Systems 1* and/or *DM2X 35 Computer Operating Systems 2*. Alternatively, candidates might provide evidence of informal prior learning or experience, or the achievement of commercially recognised qualifications.

Core skills: There may be opportunities to gather evidence towards core skills in this Unit, although there is no automatic certification of core skills or core skills components.

Context for delivery: If this Unit is delivered as part of a group award, it is recommended that it should be taught and assessed within the subject area of the group award to which it contributes. If this Unit is to be used in a vendor based environment, it is recommended that it also be delivered in tandem with the HN Unit DM35 35: Supporting Users and Troubleshooting a Desktop Operating System.

Higher National Unit Specification

General information for centres

Unit Title: Supporting Users and Troubleshooting A Desktop Operating System

Unit Code: DM35 34

Unit purpose: This Unit is designed to introduce candidates to the issues involved in configuring, troubleshooting and maintaining a client operating system. It is intended for candidates undertaking an HN in Computing or a related area, who require a broad knowledge of client operating systems and desktop support. On completion of the Unit the candidate should be able to:

1. Perform An Installation Of A Desktop Operating System Using Different Installation Methods.
2. Configure, Manage And Troubleshoot Access To Resources, Desktop And User Environments.
3. Troubleshoot Network Protocols And Services.

Credit points and level: 2 HN Credits at SCQF level 8: (16 SCQF credit points at SCQF level 8)

*SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from Access 1 to Doctorates.

Recommended prior knowledge and skills: Access to this Unit will be at the discretion of the Centre. There are no specific requirements but candidates would benefit from knowledge of computer hardware and software. This may be demonstrated by the possession of units such as *DG0K 33 Hardware Concepts* and/or *DF9L 33 Operating System Concepts* or *DH33 34 Computer Operating Systems 1* and/or *DM2X 35 Computer Operating Systems 2* and *DM34 34 Supporting Users and Troubleshooting Desktop Applications*. Alternatively, candidates might provide evidence of informal prior learning or experience, or the achievement of commercially recognised qualifications.

Core skills: There may be opportunities to gather evidence towards core skills in this Unit, although there is no automatic certification of core skills or core skills components.

Context for delivery: If this Unit is delivered as part of a group award, it is recommended that it should be taught and assessed within the subject area of the group award to which it contributes. If this unit is to be used in a vendor based environment, it is also recommended it be delivered in tandem with the HN Unit DM34 34: Supporting Users and Troubleshooting Desktop Applications.

Higher National Unit Specification

General information for centres

Unit Title: Client Operating System

Unit Code: DF9M 34

Unit purpose: This Unit is designed to introduce candidates to the issues involved in installing and administering a client operating system. It is intended for candidates undertaking an HND in Computing, Computer Networking or a related area who require a broad knowledge of client operating systems.

On completion of the Unit candidates should be able to:

1. Install A Client Operating System.
2. Implement And Administer Resources.
3. Implement, Manage And Troubleshoot Hardware Devices And Drivers.
4. Monitor And Optimise System Performance And Reliability.
5. Configure And Troubleshoot The Desktop Environment.
6. Implement Network Protocols And Services.
7. Implement, Monitor And Troubleshoot Security.

Credit value: 1.5 HN credits at SCQF level 7: (12 SCQF credit points at SCQF level 7)

**SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from Access 1 to Doctorates.*

Recommended prior knowledge and skills: Access to this Unit will be at the discretion of the Centre. There are no specific requirements but candidates would benefit from knowledge of computer hardware and software. This may be demonstrated by the possession of HN Units such as DG0K 33 Hardware Concepts and DF9L 33 Operating System Concepts.

Core skills: There may be opportunities to gather evidence towards core skills in this Unit, although there is no automatic certification of core skills or core skills components.

Context for delivery: This Unit is included in the framework of a number of HNC and HND group awards. It is recommended that it should be taught and assessed within the context of the particular group award to which it contributes.

Higher National Unit Specification

General information for centres

Unit Title: Network Server Operating System

Unit Code: DF9N 34

Unit purpose: This Unit is designed to introduce candidates to the issues involved in managing and maintaining a network server operating system. It is intended for candidates undertaking an HNC or HND in Computing, Computer Networking or a related area who require a broad knowledge of network servers, including the main theories, concepts and principles in this area.

On completion of the Unit candidates should be able to:

1. Manage and maintain physical and logical devices.
2. Manage users, computers and groups.
3. Manage and maintain access to resources.
4. Manage and maintain a server environment.
5. Manage and implement disaster recovery.

Credit value: 1.5 HN credits at SCQF level 7: (12 SCQF credit points at SCQF level 7)

**SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from Access 1 to Doctorates.*

Recommended prior knowledge and skills: Access to this Unit will be at the discretion of the Centre. There are no specific requirements but candidates would benefit from knowledge of computer networks and operating systems. This may be demonstrated by the possession of HN Units such as DF9P 34 Network Concepts and DF9M 34 Client Operating System.

Core skills: There may be opportunities to gather evidence towards core skills in this Unit, although there is no automatic certification of core skills or core skills components.

Context for delivery: This Unit is included in the framework of a number of HNC and HND group awards. It is recommended that it should be taught and assessed within the context of the particular group award to which it contributes.

Higher National Unit Specification

General information for centres

Unit Title: Network Infrastructure 1: Implementation and Management

Unit Code: DF9R 35

Unit purpose: This Unit is designed to introduce candidates to the issues involved in implementing and managing a network infrastructure. It is intended for candidates undertaking an HNC or HND in Computing, Computer Networking or a related area who require a detailed knowledge of network infrastructure.

On completion of the Unit candidates should be able to:

1. Implement, Manage and Maintain IP Addressing.
2. Implement, Manage and Maintain Name Resolution.
3. Implement, Manage and Maintain Network Security.
4. Implement, Manage and Maintain Remote Access.
5. Maintain A Network Infrastructure.

Credit value: 2 HN credits at SCQF level 8: (16 SCQF credit points at SCQF level 8)

**SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from Access 1 to Doctorates.*

Recommended prior knowledge and skills: Access to this Unit will be at the discretion of the Centre. There are no specific requirements but candidates would benefit from knowledge of personal computers and computer networks. This may be demonstrated by the possession of HN Units such as DF9L 33 Operating System Concepts, DF9P 34 Network Concepts and DF0N 34 Network Server Operating System.

Core skills: There may be opportunities to gather evidence towards core skills in this Unit, although there is no automatic certification of core skills or core skills components.

Context for delivery: This Unit is included in the framework of a number of HNC and HND group awards. It is recommended that it should be taught and assessed within the context of the particular group award to which it contributes.

Higher National Unit Specification

General information for centres

Unit Title: Network Infrastructure 2: Planning and Maintenance

Unit Code: DG00 35

Unit purpose: This Unit is designed to introduce candidates to the issues involved in planning and maintaining a network infrastructure. It is intended for candidates undertaking an HNC or HND in Computing, Computer Networking or a related area who require a detailed knowledge of planning and maintaining a network infrastructure.

On completion of the Unit candidates should be able to:

1. Plan and implement server roles and server security.
2. Plan, implement and maintain a network infrastructure.
3. Plan, implement and maintain routing and remote access.
4. Plan, implement and maintain server availability.
5. Plan and maintain network security.

Credit value: 2 HN credits at SCQF level 8: (16 SCQF credit points at SCQF level 8)

***SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from Access 1 to Doctorates.**

Recommended prior knowledge and skills: Access to this Unit will be at the discretion of the Centre. There are no specific requirements but candidates would benefit from knowledge of computer networks. This may be demonstrated by the possession of HN Units such as DF9P 34 Network Concepts, DF9N 34 Network Server Operating System and DF9R 35 Network Infrastructure 1: Implementation and Management.

Core skills: There may be opportunities to gather evidence towards core skills in this Unit, although there is no automatic certification of core skills or core skills components.

Context for delivery: This Unit is included in the framework of a number of HNC and HND group awards. It is recommended that it should be taught and assessed within the context of the particular group award to which it contributes.

Higher National Unit Specification

General Information For Centres

Unit Title: Directory Services Infrastructure

Unit Code: DG01 35

Unit purpose: This Unit is designed to introduce candidates to the issues involved in planning, implementing and maintaining directory services infrastructure. It is intended for candidates undertaking an HNC or HND in Computing, Computer Networking or a related area who require a detailed understanding of directory services.

On completion of the Unit candidates should be able to:

1. Plan and implement a directory services infrastructure.
2. Manage and maintain a directory services infrastructure.
3. Plan and implement user, computer, and group strategies.
4. Plan and implement group policy.
5. Manage and maintain group policy.

Credit value: 2 HN credits at SCQF level 8: (16 SCQF credit points at SCQF level 8)

*SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from Access 1 to Doctorates.

Recommended prior knowledge and skills: Access to this Unit will be at the discretion of the Centre. There are no specific requirements but candidates would benefit from knowledge of network servers. This may be demonstrated by the possession of HN Units such as DF9N 34 Network Server Operating System, DF9R 35 Network Infrastructure 1 and DG00 35 Network Infrastructure 2.

Core skills: There may be opportunities to gather evidence towards core skills in this Unit, although there is no automatic certification of core skills or core skills components.

Context for delivery: This Unit is included in the framework of a number of HNC and HND group awards. It is recommended that it should be taught and assessed within the context of the particular group award to which it contributes.

Higher National Unit Specification

General information for centres

Unit Title: Network Design: Security

Unit Code: DG0E 36

Unit purpose: This Unit is designed to introduce candidates to the issues involved designing a secure computer network. It is intended for candidates undertaking an HNC or HND in Computing or a related area who require a detailed knowledge of secure network design. On completion of the Unit candidates should be able to:

1. Create the conceptual design for network infrastructure security.
2. Create the logical design for network infrastructure security.
3. Create the physical design for network infrastructure security.
4. Design an access control strategy for data.
5. Create the physical design for client infrastructure security.

Credit value: 1 HN credits at SCQF level 9: (8 SCQF credit points at SCQF level 9)

*SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from Access 1 to Doctorates.

Recommended prior knowledge and skills: Access to this Unit will be at the discretion of the Centre. There are no specific requirements but candidates would benefit from knowledge of operating systems and computer networks. This may be demonstrated by the possession of HN Units such as DF9N 34 Network Server Operating System, DF9R 35 Network Infrastructure 1: Implementation and Management and DG00 35 Network Infrastructure 2: Planning and Maintenance.

Core skills: There may be opportunities to gather evidence towards core skills in this Unit, although there is no automatic certification of core skills or core skills components.

Context for delivery: This Unit is included in the framework of a number of HNC and HND group awards. It is recommended that it should be taught and assessed within the context of the particular group award to which it contributes.

Higher National Unit Specification

General information for centres

Unit Title: Network Security: Implementation and Administration

Unit code: DG08 35

Unit purpose: This Unit is designed to introduce candidates to the issues involved in implementing and administering network security. It is intended for candidates undertaking an HNC or HND in Computing, Computer Networking or a related area who require a detailed knowledge of network security.

On completion of the Unit candidates should be able to:

5. Implement, manage and troubleshoot security policies.
6. Implement, manage and troubleshoot security updates.
7. Implement, manage and troubleshoot security for network communications.
8. Configure, manage and troubleshoot authentication and remote access security
9. Plan, configure and troubleshoot authorisation and Public Key Infrastructure.

Credit value: 2 HN credits at SCQF level 8: (16 SCQF credit points at SCQF level 8)

**SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from Access 1 to Doctorates.*

Recommended prior knowledge and skills: Access to this Unit will be at the discretion of the Centre. There are no specific requirements but candidates would benefit from knowledge of computer networks. This may be demonstrated by the possession of HN Units such as DF9P 34 Network Concepts, DF9N 34 Network Server Operating System and DG02 34 Security Concepts.

Core skills: There may be opportunities to gather evidence towards core skills in this Unit, although there is no automatic certification of core skills or core skills components.

Context for delivery: This Unit is included in the framework of a number of HNC and HND group awards. It is recommended that it should be taught and assessed within the context of the particular group award to which it contributes.

Higher National Unit Specification

General information for centres

Unit Title: Network Design: Directory Services And Network Infrastructure

Unit Code: DG0D 36

Unit purpose: This Unit is designed to introduce candidates to the issues involved designing directory services and network infrastructure. It is intended for candidates undertaking an HNC or HND in Computing or a related area who require a detailed knowledge of directory services and network infrastructure.

On completion of the Unit candidates should be able to:

1. Create the conceptual design by gathering and analysing business and technical requirements.
2. Create the logical design for a directory services infrastructure.
3. Create the logical design for a network services infrastructure.
4. Create the physical design for a directory services and network infrastructure,

Credit value: 2 HN credits at SCQF level 9: (16 SCQF credit points at SCQF level 9)

**SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from Access 1 to Doctorates.*

Recommended prior knowledge and skills: Access to this Unit will be at the discretion of the Centre. There are no specific requirements but candidates would benefit from knowledge of operating systems and computer networks. This may be demonstrated by the possession of HN Units such as DF9N 34 Network Server Operating System, DF9R 35 Network Infrastructure 1: Implementation and Management and DG00 35 Network Infrastructure 2: Planning and Maintenance.

Core skills: There may be opportunities to gather evidence towards core skills in this Unit, although there is no automatic certification of core skills or core skills components.

Context for delivery: This Unit is included in the framework of a number of HNC and HND group awards. It is recommended that it should be taught and assessed within the context of the particular group award to which it contributes.

Higher National Unit Specification

General information for centres

Unit Title: Mail Server Administration

Unit Code: DG07 35

Unit Purpose: This Unit is designed to introduce candidates to the issues involved in installing and administering a mail system for a group of users, both internal and external to the organisation. It is intended for candidates undertaking an HNC or HND in Computing, Computer Networking or a related area who require a detailed knowledge of mail systems. On completion of the Unit the candidate should be able to:

1. Install mail server software.
2. Configure mail server software.
3. Restore system functionality and user data.
4. Manage recipient objects.
5. Monitor and manage messaging connectivity.
6. Manage mail server growth.

Credit value: 2 HN credits at SCQF level 8: (16 SCQF credit points at SCQF level 8)

**SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from Access 1 to Doctorates.*

Recommended prior knowledge and skills: The candidate should have good computer skills and knowledge of computer networks and in particular the TCP/IP protocol, DNS and routing over the Internet. This may be demonstrated by the possession of HN Units such as DF9P 34 Network Concepts and DF9N 34 Network Server Operating System, or by considerable practical experience, including system setup and/or administration in a network environment.

Core skills statement: There may be opportunities to gather evidence towards core skills in this Unit, although there is no automatic certification of core skills or core skills components.

Context for delivery: This Unit is included in the framework of a number of HNC and HND group awards. It is recommended that it should be taught and assessed within the context of the particular group award to which it contributes.

Higher National Unit Specification

General information for centres

Unit Title: Database Server Administration

Unit Code: DG0F 35

Unit Purpose: This Unit is designed to introduce candidates to the issues involved in managing, monitoring and troubleshooting a database server. It is intended for candidates undertaking an HNC/D in Computing, Computer Networking or a related area who require a detailed knowledge of database servers.

On completion of the Unit the candidate should be able to:

1. Install and configure a database server.
2. Create databases on a server.
3. Manage, monitor and troubleshoot databases.
4. Extract and transform data.
5. Manage and monitor database server security.
6. Manage, monitor and troubleshoot a database server.

Credit value: 2 HN credits at SCQF level 8: (16 SCQF credit points at SCQF level 8)

**SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from Access 1 to Doctorates.*

Recommended prior knowledge and skills: Access to this Unit will be at the discretion of the Centre. There are no specific requirements but candidates would benefit from knowledge of computer networks and server operating systems. This may be demonstrated by the possession of HN Unit DF9P 34 Network Concepts and DF9N 34 Network Server Operating System.

Core Skills statement: There may be opportunities to gather evidence towards core skills in this Unit, although there is no automatic certification of core skills or core skills components.

Context for delivery: This Unit is included in the framework of a number of HNC and HND group awards. It is recommended that it should be taught and assessed within the context of the particular group award to which it contributes.

Higher National Unit Specification

General Information For Centres

Unit Title: Database Design and Implementation

Unit Code: DG0G 35

Unit purpose: This Unit is designed to introduce candidates to the issues involved in designing and implementing database solutions using modern database systems. It is intended for candidates undertaking an HNC or HND in Computing, Computer Networking or a related area who require a detailed knowledge of database management systems.

On completion of the Unit candidates should be able to:

1. Develop a logical data model
2. Implement a physical database
3. Retrieve and modify data
4. Program business logic
5. Tune and optimise data access
6. Design a database security plan

Credit value: 2 HN credits at SCQF level 8: (16 SCQF credit points at SCQF level 8)

**SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from Access 1 to Doctorates.*

Recommended prior knowledge and skills: Access to this Unit will be at the discretion of the Centre. There are no specific requirements but candidates would benefit from knowledge of computer networks and server operating systems. This may be demonstrated by the possession of HN Units DF9P 34 Network Concepts and DFN9 34 Network Server Operating System.

Core skills: There may be opportunities to gather evidence towards core skills in this Unit, although there is no automatic certification of core skills or core skills components.

Context for delivery: This Unit may be included in the framework of various HNC/D group awards in Computing, Computer Networking or related areas. It is recommended that it should be taught and assessed within the context of the relevant group award.

Higher National Unit Specification

General Information For Centres

Unit Title: Security Concepts

Unit Code: DG02 34

Unit purpose: This Unit is designed to introduce candidates to the issues involved in designing and constructing secure computer networks. It is intended for candidates undertaking an HNC or HND in Computing, Computer Networking or a related area who require an understanding of network security.

On completion of the Unit candidates should be able to:

1. Describe the general concepts of network security.
2. Describe the features of communication security
3. Describe the features of infrastructure security
4. Describe the basics of cryptography
5. Describe operational and organisational security

Credit value: 2 HN credits at SCQF level 7: (16 SCQF credit points at SCQF level 7)

***SCQF credit points are used to allocate credit to qualifications in the Scottish Credit and Qualifications Framework (SCQF). Each qualification in the Framework is allocated a number of SCQF credit points at an SCQF level. There are 12 SCQF levels, ranging from Access 1 to Doctorates.**

Recommended prior knowledge and skills: Access to this Unit will be at the discretion of the Centre. There are no specific requirements but candidates would benefit from knowledge of computer networks. This may be demonstrated by the possession of HN Units such as DG0K 33 Hardware Concepts, DF9L 33 Operating System Concepts and DF9P 34 Network Concepts.

Core skills: There may be opportunities to gather evidence towards core skills in this Unit, although there is no automatic certification of core skills or core skills components.

Context for delivery: This Unit is included in the framework of a number of HNC and HND group awards. It is recommended that it should be taught and assessed within the context of the particular group award to which it contributes.

APPENDICES

SUPPORTING EVIDENCE

SUPPORTING EVIDENCE

Appendix 1:

Example exam score report and example exam certificate from Microsoft and testing provider.

Appendix 2:

Credit Transfer

APPENDIX 1

SUPPORTING EVIDENCE

Included in this appendix are an exam score report and a **sample range** of different certificates to show the type of evidence that could be accepted as evidence for assessment requirements for the PDA's presented in the validation proposal.

SAMPLE EXAM SCORE REPORT



Microsoft **INFORMATICS**

**Designing Security for a Microsoft® Windows® 2000 Network
Examination Score Report**

CANDIDATE:
CANDIDATE ID:
DATE: August 25, 2003
EXAM NUMBER: 070-220
J72LON50C9
YOUR SCORE: 810
RESULT: Pass

SITE ID: GB22
REGISTRATION:
PASSING SCORE: 675

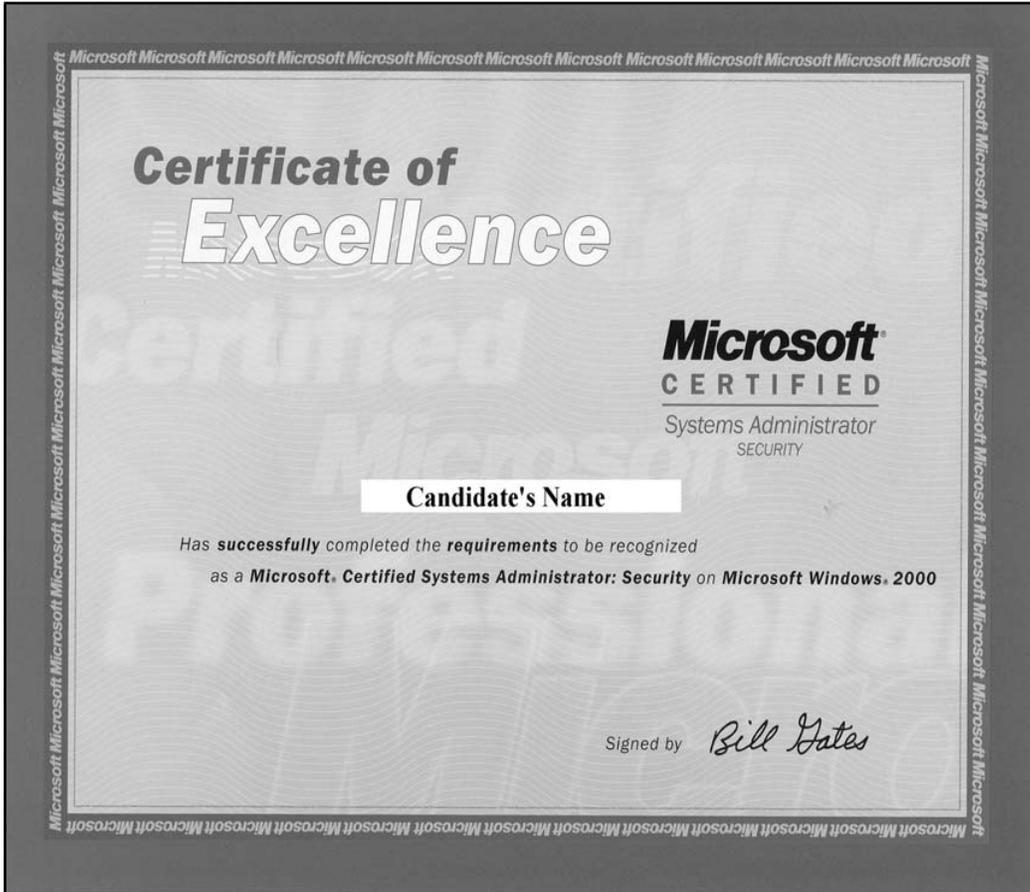
Congratulations! You have passed this Microsoft Certified Professional exam. To learn more about the MCP program and how this exam meets the requirements of a Microsoft certification track, please visit the MCP Web site: <http://microsoft.com/mcp/>



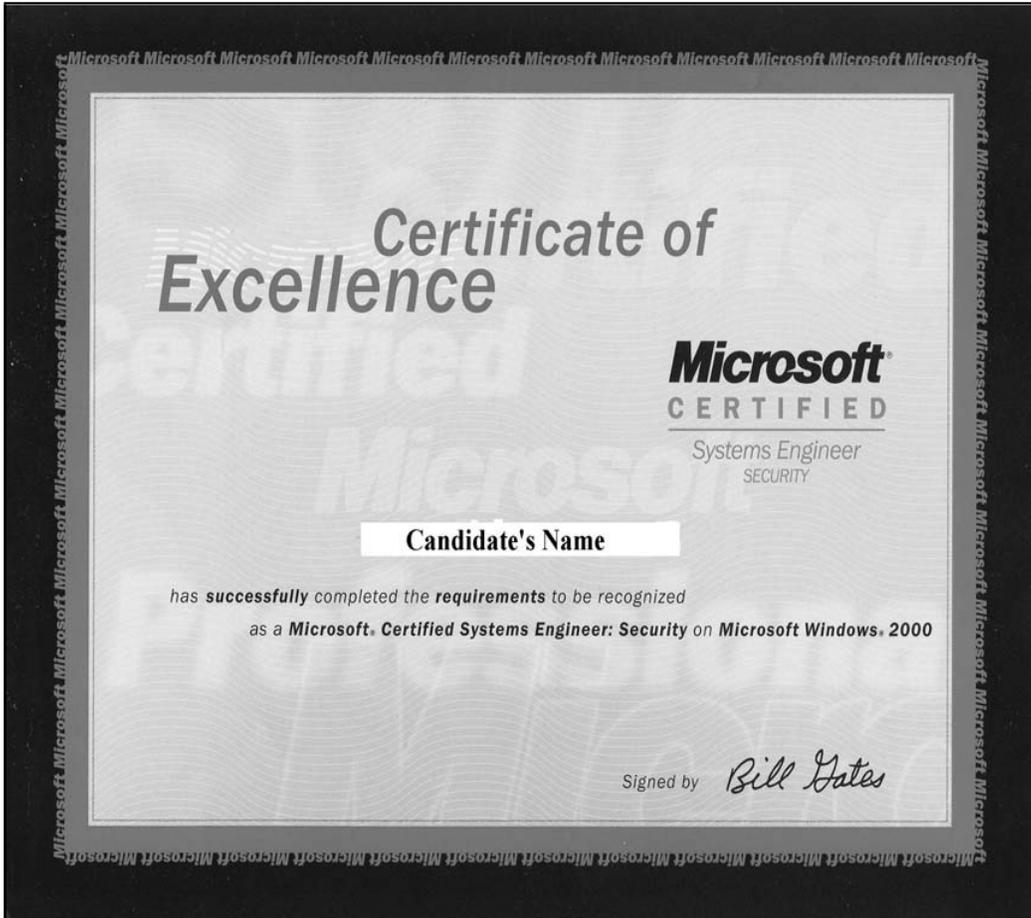
SAMPLE MICROSOFT CERTIFIED PROFESSIONAL CERTIFICATE



SAMPLE MICROSOFT CERTIFIED SYSTEMS ADMINISTRATOR CERTIFICATE



SAMPLE MICROSOFT CERTIFIED SYSTEMS ENGINEER CERTIFICATE



APPENDIX 2

SUPPORTING EVIDENCE

CREDIT TRANSFER FOR VENDOR PROGRAMS AND EXAMINATIONS

1. Introduction

HNC Computer Networking and HND Computer Networking & Internet Technology were validated by SQA in December 2003 and have been available to colleges since March 2004. These qualifications were designed to have a close relationship with major vendor examinations and academic programmes. HNC or HND programmes can assist candidates to prepare for vendor examinations and candidates who already hold vendor certifications can use these to obtain **partial credit transfer** for SQA Higher National Units.

Many of the units initially developed for the HN Computer Networking frameworks have since been incorporated into the HN Computing frameworks and a range of professional development awards (PDAs). The information given in this document applies irrespective of the context in which the Units are delivered.

This document is of an advisory nature. **The final decision on whether or not to grant credit transfer must be made by the centre and is subject to external moderation.** However, external moderators are unlikely to raise objections to any credit transfer based on the advice given here.

SQA provide clear criteria for deciding if two syllabuses are equivalent. All the following criteria must be satisfied if full credit transfer is to be recognised between both syllabuses:

1. *The syllabuses have the same SCQF levels.*
2. *The syllabuses have the similar credit values (or equivalent).*
3. *The syllabuses are equivalent in terms of core skill coverage.*
4. *The syllabuses relate to the same subject area and the main topics are common to both.*
5. *The syllabuses present a similar level of cognitive demand.*
6. *The syllabuses encompass similar skill-sets.*
7. *The syllabuses are contemporary in terms of terminology, techniques and technology.*
8. *Employers, admission officers and other users would perceive both syllabuses as broadly equivalent.*
9. *The assessment demands are similar in terms of candidate activity and performance criteria, or candidates would be equally likely to pass both assessments.*
10. *Special conditions (where they exist) are applicable to both syllabuses.*

Since the units in the Computer Networking frameworks were designed to match closely to vendor examinations, all of the above criteria can be met.

However, vendor examinations only provide evidence of a candidate's knowledge and understanding. As they have no practical component, they cannot provide evidence of a candidate's practical skills. Thus, credit transfer granted to a candidate on the basis of vendor examination passes will normally only cover the knowledge and understanding components of an HN Unit.

Most of the units in the Networking frameworks are assessed by means of two components – (1) a **restricted response test**, which assesses knowledge and understanding; and (2) a **logbook** which records the practical skills demonstrated by the candidate.

Credit transfer for a vendor examination will normally relate only to the restricted response test and candidates will still be required to demonstrate their practical skills by

completing the logbook as described in the unit specification. This should not be an arduous task for any candidate who possesses genuine practical skills in the area under consideration.

In most of the units, both knowledge and understanding and practical skills are assessed in each outcome. However, in a few units there are outcomes which relate only to knowledge and understanding, or only to practical skills. In those instances centres may wish to offer credit transfer on an outcome-by-outcome basis. As always, this will be subject to external moderation.

Candidates who are physically attending a college course will be required to demonstrate their practical skills to the satisfaction of the course tutor, normally by completion of the unit logbook. Candidates undertaking the course on a distance learning basis will be required to demonstrate their skills to the satisfaction of their appointed mentor or assessment supervisor for subsequent moderation by the centre. Again, this will normally be done by completion of the unit logbook. Further advice and guidance is available in the SQA publication *Assessment and Quality Assurance for Open and Distance Learning* – SQA February 2001.

However, some vendors offer academic or commercial training programmes which involve assessment and recording of practical skills in addition to knowledge and understanding. For example:

- candidates who have successfully completed a Microsoft Official Curriculum (MOC) course **delivered by a Microsoft IT Academy or a Microsoft Certified Partner for Learning Solutions (CPLS)** receive a Certificate of Achievement which provides evidence that they have successfully completed the practical aspects of the course. Credit transfer can also be granted where courses have been delivered using the equivalent Microsoft Official Academic Course (MOAC) and a Course Achievement Certificate obtained.
- candidates who complete the **Cisco Network Academy Programme** carry out extensive practical work, assessed by means of skills tests, which demonstrates their practical abilities as well as their knowledge and understanding.

In cases like these, **where there is clear evidence of the practical abilities demonstrated by candidates**, credit transfer can be given for both the knowledge and understanding and practical skills components of a unit.

The following guidance relates to specific vendor certification. Centres are free to consider any form of alternative evidence, and accept this as evidence of competence if they consider that it fully satisfies a unit's requirements. However, centre decisions are subject to external moderation.

2. Credit Transfer for Microsoft Programs and Certifications

2.1 Credit transfer for knowledge and understanding only

Candidates who can produce evidence that they have passed any of the following Microsoft examinations can be granted credit transfer for the knowledge and understanding component of the relevant Unit. They will still be required to demonstrate their practical skills (by completion of a logbook) before they can be awarded the unit.

2.1.1 Windows Server 2003 Track Examinations

Exam Number	Exam Title	Unit Number	Unit Title
70-270	Installing, Configuring, and Administering Microsoft Windows XP Professional	DF9M 34	Client Operating System
70-290	Managing and Maintaining a Microsoft Windows Server 2003 Environment	DF9N 34	Network Server Operating System
70-291	Implementing, Managing, and Maintaining a Microsoft Windows Server 2003 Network Infrastructure	DF9R 35	Network Infrastructure 1: Implementation and Management
70-293	Planning and Maintaining a Microsoft Windows Server 2003 Network Infrastructure	DG00 35	Network Infrastructure 2: Planning and Maintenance
70-294	Planning, Implementing, and Maintaining a Microsoft Windows Server 2003 Active Directory Infrastructure	DG01 35	Directory Services Infrastructure
70-297	Designing a Microsoft Windows Server 2003 Active Directory and Network Infrastructure	DG0D 36 Note1	Network Design: Directory Services and Infrastructure
70-298	Designing Security for a Microsoft Windows Server 2003 Network	DG0E 36 Note1	Network Design: Security
70-284	Implementing and Managing Microsoft Exchange Server 2003	DG07 35	Mail Server Administration
70-228	Installing, Configuring, and Administering Microsoft SQL Server 2000 Enterprise Edition	DG0F 35	Database Server Administration
70-229	Designing and Implementing Databases with Microsoft SQL Server 2000 Enterprise Edition	DG0G 35	Database Design and Implementation
70-299	Implementing and Administering Security in a Microsoft Windows Server 2003 Network	DG08 35	Network Security: Implementation and Administration
70-292	Managing and Maintaining a Microsoft Windows Server 2003 Environment for an MCSA Certified on Windows 2000	DF9N 34 and DF9N 35	Network Server Operating System and Network Infrastructure 1: Implementation and Management
70-296	Planning, Implementing, and Maintaining a Microsoft Windows Server 2003 Environment for an MCSE Certified on Windows 2000	DG00 35 and DG01 35	Network Infrastructure 2: Planning and Maintenance and Directory Services Infrastructure

Notes:

1. These HN units are assessed only by a restricted response test – there is no logbook required. Therefore a pass in the corresponding Microsoft examination can give credit transfer for the entire unit without additional evidence of practical skills.

2.1.2 Windows 2000 to Windows Server 2003 Upgrade Courses and Examinations

70-292	Planning, Implementing, Managing and Maintaining a Microsoft Windows Server 2003 Environment for an MCSE Certified on Windows 2000	DF9N 34 and DF9N 35	Network Server Operating System and Network Infrastructure 1: Implementation and Management
70-296	Planning, Implementing, Managing and Maintaining a Microsoft Windows Server 2003 Environment for an MCSE Certified on Windows 2000	DG00 35 and DG01 35	Network Infrastructure 2: Planning and Maintenance and Directory Services Infrastructure

2.1.3 Windows 2000 Track Examinations

Exam No.	Exam Title	Unit No.	Unit Title
70-210	Installing, Configuring, and Administering Microsoft Windows 2000 Professional	DF9M 34	Client Operating System
70-215 Note 2	Installing, Configuring, and Administering Microsoft Windows 2000 Server	DF9N 34	Network Server Operating System
70-216 Note 2	Implementing and Administering a Microsoft Windows 2000 Network Infrastructure	DF9R 35	Network Infrastructure 1: Implementation and Management
70-218 Note 2	Managing a Microsoft Windows 2000 Network Environment	DG00 35	Network Infrastructure 2: Planning and Maintenance
70-217	Implementing and Administering a Microsoft Windows 2000 Directory Services Infrastructure	DG01 35	Directory Services Infrastructure
70-219 and 70-221 Note 3	Designing a Microsoft Windows 2000 Directory Services Infrastructure Designing a Microsoft Windows 2000 Network Infrastructure	DG0D 36	Network Design: Directory Services and Infrastructure
70-220	Designing Security for a Microsoft Windows 2000 Network	DG0E 36	Network Design: Security
70-224	Installing, Configuring, and Administering Microsoft Exchange 2000 Server	DG07 35	Mail Server Administration
70-228	Installing, Configuring, and Administering Microsoft SQL Server 2000 Enterprise Edition	DG0F 35	Database Server Administration
70-229	Designing and Implementing Databases with Microsoft SQL Server 2000 Enterprise Edition	DG0G 35	Database Design and Implementation
70-214	Implementing and Administering Security in a Microsoft Windows 2000 Network	DG08 35	Network Security: Implementation and Administration

Notes:

2. There is no exact correspondence between the 2000 track exams and the 2003 track exams in this area. However, taken as a group, exams 70-215, 70-216 and 70-218 cover much the same ground as 70-290, 70-292 and 70-293. Candidates who have passed these three examinations could therefore be granted credit transfer for the knowledge and understanding component of units DF9N 34, DF9R 35 and DG00 35, but no credit transfer can be granted on a unit-by-unit basis.
3. In the 2000 track Directory Services Design and Infrastructure Design are distinct exams (70-219 and 70-221). In the 2003 track they are merged into a single exam (70-297).

2.1.4 MCDST Examinations

Exam No.	Exam Title	Unit No.	Unit Title
70-271	Supporting Users and Troubleshooting a Microsoft Windows XP Operating System	DM35 34	Supporting Users & Troubleshooting a Desktop Operating System
70-272	Supporting Users and Troubleshooting Desktop Applications on a Microsoft Windows XP Operating System	DM34 34	Supporting User & Troubleshooting Desktop Applications

Note: these units were not part of the original HN Computer Networking framework, but were added to it after being developed during the HN Computing review.

2.2 Credit transfer for complete units

Candidates who can produce evidence that they have passed any of the following Microsoft examinations and can also produce a Certificate of Achievement showing that they have successfully completed the relevant course at a Microsoft IT Academy or a Microsoft Certified Partner for Learning Solutions (CPLS) can be granted credit transfer for the complete Unit.

2.2.1 Windows Server 2003 Track Courses and Examinations

Exam Number	Course Number	Course Title	Unit No.	Unit Title
70-270	2272	Implementing and Supporting Microsoft Windows XP Professional	DF9M 34	Client Operating System
70-290	2273 or 2274 and 2275	Managing and Maintaining a Microsoft Windows Server 2003 Environment Managing a Microsoft Windows Server 2003 Environment Maintaining a Microsoft Windows Server 2003 Environment	DF9N 34	Network Server Operating System
70-291	2276 and 2277	Implementing a Microsoft Windows Server 2003 Network Infrastructure: Network Hosts Implementing, Managing, and Maintaining a Microsoft Windows Server 2003 Network Infrastructure: Network Services	DF9R 35	Network Infrastructure 1: Implementation and Management
70-293	2278	Planning and Maintaining a Microsoft Windows Server 2003 Network Infrastructure	DG00 35	Network Infrastructure 2: Planning and Maintenance
70-294	2279	Planning, Implementing, and Maintaining a Microsoft Windows Server 2003 Active Directory Infrastructure	DG01 35	Directory Services Infrastructure
70-297	2282	Designing a Microsoft Windows Server 2003 Active Directory and Network Infrastructure	DG0D 36	Network Design: Directory Services and Infrastructure
70-298	2830	Designing Security for Microsoft Networks	DG0E 36	Network Design: Security
70-284	2400	Implementing and Managing Microsoft Exchange Server 2003	DG07 35	Mail Server Administration
70-228	2072	Administering a Microsoft SQL Server 2000 Database	DG0F 35	Database Server Administration

70-229	2073	Programming a Microsoft SQL Server 2000 Database	DG0G 35	Database Design and Implementation
70-299	2823	Implementing and Administering Security in a Microsoft Windows Server 2003 Network	DG08 35	Network Security: Implementation and Administration

2.2.2 Windows 2000 to Windows Server 2003 Upgrade Courses and Examinations

70-292	Workshop 2209	Planning, Implementing, Managing and Maintaining a Microsoft Windows Server 2003 Environment for an MCSE Certified on Windows 2000	DF9N 34 and DF9N 35	Network Server Operating System and Network Infrastructure 1: Implementation and Management
70-296	Workshop 2210	Planning, Implementing, Managing and Maintaining a Microsoft Windows Server 2003 Environment for an MCSE Certified on Windows 2000	DG00 35 and DG01 35	Network Infrastructure 2: Planning and Maintenance and Directory Services Infrastructure

2.2.3 Windows 2000 Track Courses and Examinations

Exam Number	Course Number	Course Title	Unit No.	Unit Title
70-210	2151 and 2152	Microsoft Windows 2000 Network and Operating System Essentials Implementing Microsoft Windows 2000 Professional and Server	DF9M 34	Client Operating System
70-215 Note3	2151 and 2152	Microsoft Windows 2000 Network and Operating System Essentials Implementing Microsoft Windows 2000 Professional and Server	DF9N 34	Network Server Operating System
70-216 Note 3	2153	Implementing a Microsoft Windows 2000 Network Infrastructure	DF9R 35	Network Infrastructure 1: Implementation and Management
70-218 Note 3	2126	Managing a Microsoft Windows 2000 Network Environment	DG00 35	Network Infrastructure 2: Planning and Maintenance
70-217	2154	Implementing and Administering Microsoft Windows 2000 Directory Services	DG01 35	Directory Services Infrastructure
70-219 and 70-221	1561 and 1562	Designing a Microsoft Windows 2000 Directory Services Infrastructure Designing a Microsoft Windows 2000 Networking Services Infrastructure	DG0D 36	Network Design: Directory Services and Infrastructure
70-220	2150	Designing a Security-Enhanced Microsoft Windows 2000 Network	DG0E 36	Network Design: Security
70-224	1572	Implementing and Managing Microsoft Exchange 2000	DG07 35	Mail Server Administration
70-228	2072	Administering a Microsoft SQL Server 2000 Database	DG0F 35	Database Server Administration
70-229	2073	Programming a Microsoft SQL Server 2000 Database	DG0G 35	Database Design and Implementation

70-214	2150 and 2153	Designing a Security-Enhanced Microsoft Windows 2000 Network Implementing a Microsoft Windows 2000 Network Infrastructure	DG08 35	Network Security: Implementation and Administration
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Notes:

1. There no exact correspondence between the 2000 track exams and the 2003 track exams in this area. However, taken as a group, exams 70-215, 70-216 and 70-218 cover much the same ground as 70-290, 70-292 and 70-293. Candidates who have passed these three examinations and successfully completed the corresponding courses could therefore be granted credit transfer for units DF9N 34, DF9R 35 and DG00 35, but no credit transfer can be granted on a unit-by-unit basis.

2.2.4 MCDST Courses and Examinations

Exam No.	Course No.	Exam Title	Unit No.	Unit Title
70-271	2261	Supporting Users and Troubleshooting a Microsoft Windows XP Operating System	DM35 34	Supporting Users & Troubleshooting a Desktop Operating System
70-272	2262	Supporting Users and Troubleshooting Desktop Applications on a Microsoft Windows XP Operating System	DM34 34	Supporting User & Troubleshooting Desktop Applications

Note: these units were not part of the original HN Computer Networking framework, but were added to it after being developed during the HN Computing review.

In the above tables, courses are identified by their Microsoft Official Curriculum (MOC) numbers. Credit transfer can also be granted where courses have been delivered using the equivalent Microsoft Official Academic Course (MOAC) and a Course Achievement Certificate obtained.

If a candidate has attended an unofficial course (ie: other than a course delivered by a Microsoft IT Academy or a Microsoft Certified Partner for Learning Solutions (CPLS)) to prepare for a Microsoft exam, centres can examine any evidence of practical work produced in order to determine whether a candidate is eligible for credit transfer for the practical component, otherwise the candidate must complete the relevant SQA Logbook. The centre's decision will be subject to external moderation

Filename: G8KD47-G8KC47-G8KA48
Directory: \\Sqa3-hanover\web dragon\Web Team Archive\HN\HN
Subjects\HN Computing and IT\Arrangements
Template: C:\Documents and Settings\ellttb3006\Local
Settings\Temporary Internet Files\Content.IE5\A3JMOH33\tp870[1].dot
Title: Elegant Report
Subject:
Author: ellttb3006
Keywords:
Comments:
Creation Date: 10/12/2007 11:40 AM
Change Number: 4
Last Saved On: 10/19/2007 10:11 AM
Last Saved By: bart6289
Total Editing Time: 10 Minutes
Last Printed On: 10/19/2007 10:40 AM
As of Last Complete Printing
Number of Pages: 59
Number of Words: 15,964 (approx.)
Number of Characters: 90,997 (approx.)