Business & Computing Examinations (BCE)
LONDON (UK)

PC Engineering & Structured Cabling Programme Analysis

The development of BCE Programmes include extensive market research from the following sources:
- Data from BCE Centre Annual Reports.
- Enquiries received from different stakeholders.
- Email survey from statutory consultees and stakeholder bodies.
- Questionnaire survey from BCE learners.
- Input received during Approved Centres and Corporate companies training seminar.
- BCE discussions and feedback from potential employers.

BCE learners are 18+, classified as follows:
- Holders of General Certificate of Secondary Education (GCSE) intending to obtain a Programme for employment or further education.
- Those already in employment furthering their knowledge for promotion or to venture into new fields.
- Corporate Companies approaching BCE directly or Approved Centres for in-house training.
- Those looking for career change.
- Mature adults with no formal Programmes.

Guided Learning Hours is the entire notional learning hours representing estimate of total amount of time reasonably required for learners to achieve necessary level of attainment for the award of a Programme.

Activities that contribute to guided learning hours include:
- Guided Learning
- Independent and unsupervised research/learning
- Unsupervised compilation of a portfolio of work experience
- Unsupervised e-learning
- Unsupervised e-assessment
- Unsupervised coursework
- Watching a pre-recorded podcast or webinar
- Unsupervised work-based learning

Activities that contribute to Guided Learning include:
- Classroom-based learning supervised by a Tutor
- Work-based learning supervised by a Tutor
- Live webinar or telephone tutorial with a Tutor in real time
- E-learning supervised by a Tutor in real time
- Forms of assessment

Level 5 Diploma in PC Engineering & Structured Cabling (133 Credits)

With the rapid growth and advancement in the field of computers and information technology, the need for skilled personnel in computer repair, data recovery and structured cabling is rising across all industries.

Why does the Programme exists – This Programme provide learners with a broad view of PC Repair and also focusing on other essential topics like data recovery, system diagnostics, wireless technology, computer security and structured cabling. Every organisation require computers, be it health, tourism, government agencies, education, airline, banking etc. They all need network cabling for computers to be connected, data is likely to crash and computers will fail.

How it fits into the larger programme – Computer engineering, wireless technology, data recovery, system diagnostics, computer security and structured cabling training are essential skills for those interested in working with information systems, desktop support, and improving efficiency over a network or organisation. These skills are rare, hence chances of getting employment are high.

For whom it was designed – The Programme is designed for those who complete the Level 4 Certificate in Networking; Certificate/Diploma in Unix; Diploma in Windows; Diploma in IP Routing or holders of equivalent Programmes interested in pursing vital new networking technology implementation.

How it will benefit learners – Job options and career opportunities for technicians look promising as demand for highly trained professionals in the field is increasing with the growth of new technologies, software programs, and electronic devices, besides; every organisation use computers and sharing of hardware is a necessity. As more companies become technologically advanced, the need for well-trained technicians and professionals is a necessary outcome.

Units:
- PC Engineering
- Data Recovery & System Diagnostics
- Structured Cabling
- Wireless Networking
- Computer Security

PC Engineering – A computer has many parts and sometimes these parts malfunction. Some of the major parts include memory, hard drive, CPU and motherboard. Computer technology changes rapidly, hence PCs are frequently upgraded with newer technology. Learners are taught how to build, repair and troubleshoot PCs.

Data Recovery & System Diagnostics- data recovery is the retrieval of inaccessible or contaminated data from media that has been damaged in some way. There are several causes of data loss: data loss can occur from unexpected incidences including national tragedies such as floods and earthquakes; often power failure can cause loss of data from hard drives. Sudden power surges can also cause a lot of damage to a computer's hard drive; accidentally deleting files or formatting a hard drive or flash disk are common reasons for data loss. Recovering the data involves locating it and transforming it into human readable form, though not all data may be recoverable.

Structured Cabling - is a system that provides a very "structured" approach to the entire cabling system—a single-mixed media network that handles all information traffic like voice, data, video, and even big complex building management systems. In brief, it could be described as a system that comprises a set of transmission products, applied with engineering design rules that connects hardware and signals in a manner that maximizes data rates. Structured cabling divides the entire infrastructure into manageable blocks and then integrates these blocks to produce the high-performance networks that we have now come to rely on.

Wireless Networking - a more modern alternative to wired networking that relies on copper and/or fiber optic cabling between network devices. A wireless network offers advantages and disadvantages compared to a wired network. Advantages of wireless include mobility and elimination of unsightly cables. Disadvantages of wireless include the potential for radio interference due to weather, other wireless devices, or obstructions like walls. Wireless is rapidly gaining in popularity for both home and business networking. Wireless technology continues to improve, and the cost of wireless products continue to decrease. Popular wireless local area networking (WLAN) products conform to the 802.11 "Wi-Fi" standards.

Computer Security – The Certificate in Networking (Network Security) look at Network Security. As we know in life, mostly, perpetrators are closer to home than one might think – making Computer Security an important topic. If one can not secure their computer, where a few people have access; then implementing network security would be impossible.

Unit	Pre-requisite	Core-requisite	Guided Learning Hours ()	Number of Credits
PC Engineering	Knowledge in Windows Operating System.	A pass or better in Certificate in Networking or equivalence.	240	24
Data Recovery & System Diagnostics	Knowledge in Windows Operating System.	A pass or better in Certificate in Networking or equivalence.	220	22
Structured Cabling	Knowledge in Windows Operating System.	A pass or better in Certificate in Networking or equivalence.	240	24
Wireless Networking	Knowledge in Windows Operating System.	A pass or better in Certificate in Networking or equivalence.	200	20

| Computer Security | Knowledge in Windows Operating System. | A pass or better in Certificate in Networking or equivalence. | 220 | 22 |
| Coursework (Project) for all units | | | 210 | 21 |

Rules of combination:	All units are mandatory
Age Group:	18+
Programme Type:	Vendor/Industry

PC Engineering Learning Hours Information Sheet

	Unit Titles	Credits	Guided / Contact Learning	Independent Learning	Research Activities / Group Work	Assessment (self/class)	Coursework	Total
			Notional Learning Hours					
01	PC internal and external connections	2.0	8	6	2	2	2	20
02	PC power supply components	2.0	8	6	2	2	2	20
03	PC motherboard components	2.0	8	6	2	2	2	20
04	CPU architecture and components	2.0	8	6	2	2	2	20
05	PC memory architecture	2.0	8	6	2	2	2	20
06	Computer system bus architecture	2.0	8	6	2	2	2	20
07	Data storage devices	2.0	8	6	2	2	2	20
08	Disk geometry: How data is organised on a hard disk drive	2.0	8	6	2	2	2	20
09	Magnetic disk technology	2.0	8	6	2	2	2	20
10	Input/output ports	2.0	8	6	2	2	2	20
11	Installing and printer configuration	2.0	8	6	2	2	2	20
12	Building a computer system	2.0	8	6	2	2	2	20
		24.0	**96**					**240**

Data Recovery & System Diagnostics Learning Hours Information Sheet

	Unit Titles	Credits	Guided / Contact Learning	Independent Learning	Research Activities / Group Work	Assessment (self/class)	Coursework	Total
			Notional Learning Hours					
01	Causes of data loss and data recovery procedures	2.0	8	6	2	2	2	20
02	Data disk storage organisation	2.0	8	6	2	2	2	20
03	File system management	2.0	8	6	2	2	2	20
04	Redundant Array of Inexpensive Disk (RAID)	2.0	8	6	2	2	2	20
05	Data recovery software	2.0	8	6	2	2	2	20
06	Windows diagnostic utilities	2.0	8	6	2	2	2	20
07	Windows startup-modes	2.0	8	6	2	2	2	20
08	PC system utility applications	2.0	8	6	2	2	2	20
09	System configuration utility	2.0	8	6	2	2	2	20
10	Windows patch management tools	2.0	8	6	2	2	2	20
11	System performance monitoring tools	2.0	8	6	2	2	2	20
		22.0	**88**					**220**

Structured Cabling Learning Hours Information Sheet

	Unit Titles	Credits	Notional Learning Hours					
			Guided / Contact Learning	Independent Learning	Research Activities / Group Work	Assessment (self/class)	Coursework	Total
01	Communication media types	2.0	8	6	2	2	2	20
02	Cabling specifications and standards	2.0	8	6	2	2	2	20
03	Network architecture topologies	2.0	8	6	2	2	2	20
04	Wiring methods	2.0	8	6	2	2	2	20
05	The work area outlet	2.0	8	6	2	2	2	20
06	Cabling accessories and tools	2.0	8	6	2	2	2	20
07	Copper-based cabling infrastructure	2.0	8	6	2	2	2	20
08	Wall-plate installation issues	2.0	8	6	2	2	2	20
09	Connector types	2.0	8	6	2	2	2	20
10	Fibre-optic transmission	2.0	8	6	2	2	2	20
11	LAN and WAN technologies	2.0	8	6	2	2	2	20
12	Documenting the cabling process	2.0	8	6	2	2	2	20
		24.0	**96**					**240**

Wireless Networking Learning Hours Information Sheet

	Unit Titles	Credits	Notional Learning Hours					
			Guided / Contact Learning	Independent Learning	Research Activities / Group Work	Assessment (self/class)	Coursework	Total
01	Wireless networking standards and organisations	2.0	8	6	2	2	2	20
02	Wireless technology	2.0	8	6	2	2	2	20
03	Physical layer specifications	2.0	8	6	2	2	2	20
04	Wireless network hardware	2.0	8	6	2	2	2	20
05	Wireless software requirements	2.0	8	6	2	2	2	20
06	Connecting a wireless network	2.0	8	6	2	2	2	20
07	Wireless routers/gateways	2.0	8	6	2	2	2	20
08	Wireless security	2.0	8	6	2	2	2	20
09	Managing and monitoring wireless network	2.0	8	6	2	2	2	20
10	Wireless network classifications	2.0	8	6	2	2	2	20
		20.0	**80**					**200**

Computing Security Learning Hours Information Sheet

	Unit Titles	Credits	Notional Learning Hours					
			Guided / Contact Learning	Independent Learning	Research Activities / Group Work	Assessment (self/class)	Coursework	Total
01	Security threats, problems and incidents	2.0	8	6	2	2	2	20
02	Security terminology and principles	2.0	8	6	2	2	2	20
03	Organisational security aspects	2.0	8	6	2	2	2	20
04	Web applications vulnerabilities	2.0	8	6	2	2	2	20
05	Public Key Infrastructure (PKI)	2.0	8	6	2	2	2	20
06	Data encryption	2.0	8	6	2	2	2	20
07	Remote access connection	2.0	8	6	2	2	2	20
08	Authentication issues	2.0	8	6	2	2	2	20
09	Intrusion Detection System (IDS) concepts	2.0	8	6	2	2	2	20
10	Baseline security configuration	2.0	8	6	2	2	2	20
11	Computer and network attacks	2.0	8	6	2	2	2	20
		22.0	**88**					**220**