Richmond College
Advanced Education

Qualification Specification for :

Level 4 Diploma in Information Technology
603/4781/8

Level 5 Diploma in Information Technology
603/4791/0

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QUALIFI
SUCCESS THROUGH LEARNING
RECOGNISED WORLDWIDE

Contents

About QUALIFI

QUALIFI is recognised and regulated by Ofqual (Office of Qualifications and Examinations Regulator). Our Ofqual reference number is RN5160. Ofqual regulates qualifications, examinations, and assessments in England.

As an Ofqual recognised Awarding Organisation, QUALIFI is required to carry out external quality assurance to ensure that centres approved for the delivery and assessment of QUALIFI's qualifications meet the required standards.

Why Choose QUALIFI Qualifications?

QUALIFI qualifications aim to support learners to develop the necessary knowledge, skills and understanding to support their professional development within their chosen career and or to provide opportunities for progression to further study.

Our qualifications provide opportunities for learners to:

- apply analytical and evaluative thinking skills
- develop and encourage problem solving and creativity to tackle problems and challenges
- exercise judgement and take responsibility for decisions and actions
- develop the ability to recognise and reflect on personal learning and improve their personal, social, and other transferable skills.

Employer Support for the Qualification Development

During the development of this qualification QUALIFI consults with a range of employers, providers, and existing centres where applicable, to ensure rigor, validity, and demand for the qualification and to ensure that the development considers the potential learner audience for the qualification and assessment methods.

Equality and Diversity

QUALIFI's qualifications are developed to be accessible to all learners who are capable of attaining the required standard. QUALIFI promotes equality and diversity across aspects of the qualification process and centres are required to implement the same standards of equal opportunities and ensure teaching and learning are free from any barriers that may restrict access and progression.

Learners with any specific learning need should discuss this in the first instance with their approved centre who will refer to QUALIFI's Reasonable Adjustment and Special Consideration Policy.

Qualification Title and Accreditation Number

This qualification has been accredited to the Regulated Qualification Framework (RQF) and has its own unique Qualification Accreditation Number (QAN). This number will appear on the learner's final certification document. Each unit with the qualification has its own RQF code. The QAN for this range of qualification are as follows:

QUALIFI Level 4 Diploma in Information Technology (603/4781/8)

QUALIFI Level 5 Diploma in Information Technology (603/4791/0)

Qualification Aims and Learning Outcomes

Aims of the QUALIFI Level 4 Diplomas

The aim of the Level 4 qualifications is to provide learners with the technical skills and knowledge needed to work in the information technology (IT) industry.

The qualifications provide the opportunity for individuals to forge a career in IT by seeking a greater knowledge and understanding of the industry, and to support the individual's development into technical positions. Overall aims include:

1. To enable learners to apply analytical and evaluative techniques to business in private and public sectors
2. To enhance analytical and evaluative skills relating to business across a number of industries
3. To develop the learner's ability to recognise and reflect on the process of personal learning and development, which facilitates the enhancement of key personal, sociable and other transferable skills
4. To encourage the learner's self-reflection, analytical, intellectual and transferable skills.

Learning Outcomes of the Level 4 Diplomas

The overall learning outcomes for all IT -related programmes are:

1. To understand and apply the principles of IT in a range of business environments
2. To understand and apply the principles in a specific environment
3. To improve the employability of learners by allowing them to explore the relationship between management theories and their practical application in the IT world.
4. Analyse problem solving techniques specific to business and industry
5. Select, collate, review and analyse information form a wide range of sources
6. Effectively use verbal and communication skills
7. Work independently and as part of a team
8. Manage one's own personal development and growth.

These are the overall learning outcomes in line with Level 4 equivalences. The learning outcomes for each unit are identified in Appendix 1 within the unit descriptors.

Aims of the QUALIFI Level 5 Diplomas

The aim for the Level 5 qualifications is to provide a career path for learners who wish to develop a broad base of knowledge and skills that will enable them to work in a variety of roles in the IT industry, notably in .NET programming, system administration and network security.

Learners will learn about entrepreneurship in a techno environment. The qualifications are flexible in that it offers elective choices of networking, web design or e-commerce – the latter being much in demand in modern business.

The technical skills and knowledge delivered through the successful achievement of the qualification are required and recognised internationally covering:

- technopreneurship
- network security
- C#.NET programming
- system administration
- network routing and switching
- network design and administration
- content management systems
- web design
- business to business (B2B) e-commerce
- business to consumer (B2C) e-commerce

The qualifications will also provide a career path for learners who wish to develop their management and entrepreneurial capabilities within the business sector. The outcomes of the Diplomas, which are all recognised UK Qualifications, are for learners to develop the skills required by organisations globally.

Learning Outcomes of the Level 5 Diplomas

The qualifications at Level 5 provide the opportunity for individuals to forge a career in IT by seeking a greater knowledge and understanding of the industry, and to support the individual's development into technical positions. Overall aims include:

1. To enable learners to apply analytical and evaluative techniques to business in private and public sectors
2. To enhance analytical and evaluative skills relating to business across a number of industries
3. To develop the learner's ability to recognise and reflect on the process of personal learning and development, which facilitates the enhancement of key personal, sociable and other transferable skills
4. To encourage the learner's self-reflection, analytical, intellectual and transferable skills.

These are the overall learning outcomes in line with Level 5 equivalences. The learning outcomes for each unit are identified in Appendix 1 within the unit descriptors.

Delivering the Qualifications

External Quality Assurance Arrangements

All centres are required to complete an approval process to be recognised as an approved centre. Centres must have the ability to support learners Centres must commit to working with QUALIFI and its team of External Quality Assurers (EQAs). Approved Centres are required to have in place qualified and experienced tutors, all tutors are required to undertake regular continued professional development (CPD).

Approved centres will be monitored by QUALIFI External Quality Assurers (EQAs) to ensure compliance with QUALIFI requirements and to ensure that learners are provided with appropriate learning opportunities, guidance, and formative assessment.

QUALIFI's guidance relating to invigilation, preventing plagiarism and collusion will apply to centres.

QUALIFI, unless otherwise agreed:

- sets all assessments;
- moderates' assessments prior to certification;
- awards the final mark and issues certificates.

Learner Induction and Registration

Approved Centres should ensure all learners receive a full induction to their study programme and the requirements of the qualification and its assessment.

All learners should expect to be issued with the course handbook, a timetable and meet with their personal tutor and fellow learners. Centres should assess learners carefully to ensure that they are able to meet the requirements qualification and that if applicable appropriate pathways or optional units are selected to meet the learner's progression requirements.

Centres should check the qualification structures and unit combinations carefully when advising learners. Centres will need to ensure that learners have access to a full range of information, advice, and guidance to support them in making the necessary qualification and unit choices. During recruitment, approved centres need to provide learners with accurate information on the title and focus of the qualification for which they are studying.

All learners must be registered with QUALIFI within the deadlines outlined in the QUALIFI Registration, Results and Certification Policy and Procedure.

Entry Criteria

Approved Centres are responsible for reviewing and making decisions as to the applicant's ability to complete the learning programme successfully and meet the demands of the qualification. The initial assessment by the centre, will need to consider the support that is readily available or can be made available to meet individual learner needs as appropriate.

The qualification has been designed to be accessible without artificial barriers that restrict access, for this qualification applicants must be aged 18 or over.

In the case of applicants whose first language is not English, then IELTS 6 (or equivalent) is required. International qualifications will be checked for appropriate enrolment to UK higher education postgraduate programmes where applicable. The applicants are normally required to produce two supporting references, at least one of which should preferably be academic.

Recognition of Prior Learning

Recognition of Prior Learning (RPL) is a method of assessment (leading to the award of credit) that considers whether learners can demonstrate that they can meet the assessment requirements for a unit through knowledge, understanding or skills they already possess, and so do not need to develop through a course of learning.

QUALIFI encourages centres to recognise learners' previous achievements and experiences whether at work, home or at leisure, as well as in the classroom. RPL provides a route for the recognition of the achievements resulting from continuous learning. RPL enables recognition of achievement from a range of activities using any valid assessment methodology. Provided that the assessment requirements of a given unit or qualification have been met, the use of RPL is acceptable for accrediting a unit, units, or a whole qualification.

Evidence of learning must be valid and reliable. For full guidance on RPL please refer to QUALIFI's *Recognition of Prior Learning Policy*.

Data Protection

All personal information obtained from learners and other sources in connection with studies will be held securely and will be used during the course and after they leave the course for a variety of purposes and may be made available to our regulators. These should be all explained during the enrolment process at the commencement of learner studies. If learners or centres would like a more detailed explanation of the partner and QUALIFI policies on the use and disclosure of personal information, please contact QUALIFI via email support@QUALIFI-international.com

Learner Voice

Learners can play an important part in improving the quality through the feedback they give. In addition to the on-going discussion with the course team throughout the year, centres will have a range of mechanisms for learners to feed back about their experience of teaching and learning.

Professional Development and Training for Centres

QUALIFI support its approved centres with training related to our qualifications. This support is available through a choice of training options offered through publications or through customised training at your centre.

The support we offer focuses on a range of issues including:

- planning for the delivery of a new programme
- planning for assessment and grading
- developing effective assignments
- building your team and teamwork skills
- developing learner-centred learning and teaching approaches
- building in effective and efficient quality assurance systems.

Please contact us for further information.

Progression and Links to other QUALIFI Programmes

Completing the **QUALIFI Level 4 Diplomas in all IT related qualifications** will enable learners to progress to:

- QUALIFI Level 5 Diplomas in IT.
- QUALIFI Level 5 Diploma in related area.
- Employment in an associated profession.

Completing the **QUALIFI Level 5 Diploma in all IT related qualifications** will enable learners to progress to:

- QUALIFI Level 6 Diploma in related area.
- Final year of a HE qualification/degree in related area (subject to acceptance by the awarding institution).
- Employment in an associated profession.

University exemptions

QUALIFI has exemptions for learners to progress to a final year of an Honours degree at a number of universities after completing 240 credits.

Please contact us for further information.

Qualification Structure and Requirements

Credits and Total Qualification Time (TQT)

The QUALIFI Level 4 Diplomas in IT consist of 120 credits which equates to 1200 hours of TQT.

The QUALIFI Level 5 Diplomas in IT consist of 120 credits which equates to 1200 hours of TQT.

Total Qualification Time (TQT) is an estimate of the total amount of time that could reasonably be expected to be required for a learner to achieve and demonstrate the achievement of the level of attainment necessary for the award of a qualification.

Examples of activities that can contribute to Total Qualification Time 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 prerecorded podcast or webinar, unsupervised work-based learning.

Guided Learning Hours (GLH) are defined as the time when a tutor is present to give specific guidance towards the learning aim being studied on a programme. This definition includes lectures, tutorials, and supervised study in, for example, open learning centres and learning workshops, live webinars, telephone tutorials or other forms of e-learning supervised by a tutor in real time. Guided learning includes any supervised assessment activity; this includes invigilated examination and observed assessment and observed work-based practice.

Rules of Combination for QUALIFI Level 4 Diploma in Information Technology (603/4781/8)

Learners must complete all four core units and any two elective units* for a total of 120 credits.

Unit Reference	Mandatory Units	Level	TQT	Credit	GLH
L/617/6692	Information Technology and IT Ethics	4	200	20	100
R/617/6693	Mathematics and Statistics for IT	4	200	20	100
Y/617/6694	PC Maintenance and Operating Systems	4	200	20	100
D/617/6695	Computer Graphics Editing and Database Concepts	4	200	20	100
Unit Reference	**Optional Units**	**Level**	**TQT**	**Credit**	**GLH**
H/617/6696	Logical IT Networking	4	200	20	100
K/617/6697	Physical IT Networking	4	200	20	100
M/617/6698	Web Design 1	4	200	20	100
T/617/6699	Web Programming	4	200	20	100
D/617/6700	Graphical User Interface (GUI)	4	200	20	100
H/617/6701	Programming Concepts and Java for Android Programming	4	200	20	100

* Learners taking this qualification cannot choose the combination of electives that lead to a specialise qualifications in Networking, Web design or E Commerce. Therefore, the following combinations are not allowed – H/617/6696 and K/617/6697, M/617/6698 and T/617/6699, D/617/6700 and H/617/6701as the 2 electives.

Achievement Requirements

Learners must demonstrate they have met all assessment criteria for all units to achieve the Level 4 qualifications. QUALIFI will issue certificates to all successful learners via their registered centres.

Rules of Combination for QUALIFI Level 5 Diploma in Information Technology (603/4791/0)

Learners must complete all four core units and any two elective units* for a total of 120 credits.

Unit Reference	Mandatory Units	Level	TQT	Credit	GLH
F/617/6740	Technopreneurship	5	200	20	100
J/617/6741	Network Security	5	200	20	100
L/617/6742	C#.NET Programming	5	200	20	100
R/617/6743	System Administration	5	200	20	100
Unit Reference	**Optional Units**	**Level**	**TQT**	**Credit**	**GLH**
Y/617/6744	Network Routing and Switching	5	200	20	100
D/617/6745	Network Design and Administration	5	200	20	100
H/617/6746	Content Management Systems	5	200	20	100
M/617/6748	Web Design 2	5	200	20	100
T/617/6749	Business to Business (B2B) E-commerce	5	200	20	100
K/617/6750	Business to Consumer (B2C) E-commerce	5	200	20	100

* For this qualification, learners cannot choose Y/617/6744 and D/617/6745, H/617/6746 and M/617/6748, T/617/6749 and K/617/6750 as their 2 electives.

Achievement Requirements

Learners must demonstrate they have met all assessment criteria for all units to achieve the Level 5 qualifications. QUALIFI will issue certificates to all successful learners via their registered centres.

Awarding Classification/Grading

All unit grading is shown on the qualification transcript.

Fail - 0-39%

Pass - 40%-59%

Merit - 60% - 69%

Distinction 70%+

All units will be internally assessed through written assignment, internally marked by the QUALIFI approved centre and subject to external quality assurance by QUALIFI.

Assessment Strategy and Methods

QUALIFI will provide written assessment tasks for each Unit of this qualification. These tasks will address all Learning Outcomes and related Assessment Criteria, all of which must be demonstrated/passed in order to achieve the qualification.

The tasks will enable learners to draw on 'work-related' information and/or examples wherever possible. Some assessment tasks will contain a practical assignment which will require observation by an assessor, see Assessment Guidance for further information.

The assessment tasks will require learners to draw on real organisational information or case studies to illustrate their answers. To support this activity during the programme of learning, centres are required to make sure that they include case studies of relevant organisations and, wherever possible, encourage learners to draw on work-place opportunities to undertake research and investigation to support their learning.

QUALIFI provide a Candidate Workbook for each unit that Learners should use to record their answers and/or cross-reference any supporting evidence relating to a practical task. Approved centres should request a copy of the assessment workbook.

Learner assessments will be internally marked by the Approved Centre and will be subject to external moderation by QUALIFI prior to certification.

Unit Specifications

Unit DIT401: Information Technology and Related Ethics

Unit code: L/617/6692

RQF Level: 4

Unit Aims

This unit aims to develop learners' knowledge and use of information technology including the use of standard office applications to prepare documents and presentations. This includes computer software and hardware, basic computer operations, application software, operating systems, information systems and IT-related issues in computing.

The unit also seeks to provide learners with an awareness of ethical issues essential to an IT professional. This includes ethics in the cyberspace, intellectual property, privacy, the issue of security and reliability, how computing affects our health, professional code of ethics and how IT changes our daily lives.

Learning Outcomes and Assessment Criteria

Learning Outcomes: To achieve this unit, the learner must be able to:	**Assessment Criteria: Assessment of these outcomes demonstrates the learner can:**
1. Understand the applications of information technology.	1.1. Analyse the uses, strengths and limitations of different categories of hardware and software. 1.2. Analyse the applications of artificial intelligence (AI). 1.3. Produce a specification of requirements for an application that meets the brief. 1.4. Create and present presentations that demonstrate an application layout using planning tools.
2 Understand the ethics involved in information technology.	2.1 Analyse the nature of information technology ethics and its application to IT. 2.2 Analyse the analogy that relates ethics, morality and society. 2.3 Assess how and why information technology gives rise to ethical dilemmas not present in other

	technologies. 2.4 Evaluate the issues relating to IT ethics, justifying their conclusions.

Indicative Content

- Today ‘s technologies: computers, devices, and the web
- Connecting and communicating online: The Internet, websites, and media
- Microsoft Office Word
- Computers and mobile devices: evaluating options for home and work
- Programs and apps: productivity, graphics, security, and other tools
- Digital security, ethics, and privacy: threats, issues, and defences
- Computing components: processors, memory, the cloud,
- Microsoft Office PowerPoint
- Input and output extending capabilities of computers and mobile devices
- Digital storage preserving content locally and on the cloud
- Operating system managing, coordinating, and monitoring resources
- Microsoft Office Excel
- Communicating digital content wired and wireless networks and devices
- Building solutions database, system, and application development tools
- Catalysts for change
- Introduction to ethics
- Networked communications
- Intellectual property
- Information privacy
- Privacy and the government
- Computer and network security
- Computer reliability
- Professional ethics
- Work and wealth

Recommended Text

Shelly, Cashman and Vermaat (2016) Discovering Computers 2016 – A Gateway to Information, Thomson Course Technology.

Quinn MJ (2016) Ethics for the Information Age, 7th edition, Pearson Education.

Breaux T (2015) Introduction to IT Privacy: A Handbook for Technologists, IAPP Publication.

Unit DIT402: Mathematics and Statistics for IT

Unit code: R/617/6693

RQF Level: 4

Unit Aims

This unit aims to provide an opportunity to learn mathematics and statistics and equip learners with the mathematical skills to analyse and solve problems that will enable them to work within the field of IT. The unit covers number systems, logic, relations, functions, quadratic equations, quadratic functions, simultaneous equations, polynomial equations, exponential functions, logarithmic functions, coordinate geometry and matrices.

The unit provides an opportunity to learn statistics and equip learners with the descriptive and analytical methods for dealing with variability in observed data. It covers graphical presentation of data, descriptive statistics, index numbers, correlation and regression, time series, probability and statistical inference.

Learning Outcomes and Assessment Criteria

Learning Outcomes: To achieve this unit, the learner must be able to:	**Assessment Criteria: Assessment of these outcomes demonstrates the learner can:**
1 Understand the mathematics underpinning information technology.	1.1 Explain the nature of the roots of quadratic equations, the rules of exponents and logarithms and a function. 1.2 Explain the relationship between a domain, range and function. 1.3 Rewrite an exponential equation in logarithmic form and a logarithmic equation in exponential form. 1.4 Compute maximum and minimum values of quadratic functions, composite functions, inverse functions, the area of a polygon, the equation of a straight line, locus, measures of central tendency and measures of dispersion and probability. 1.5 Analyse the impact of quadratic

			inequalities, polynomial equations, exponential equations, logarithmic equations and simultaneous equations on hardware design.
2	Understand the statistics underpinning information technology.	2.1 2.2 2.3 2.4	Calculate summary measures correctly. Define and interpret probability models. Evaluate methods of estimation and hypothesis testing Analyse the concepts of statistical methodologies.

Indicative Content

- Functions
- Quadratic equations
- Simultaneous equations
- Indices and logarithms
- Exponential and logarithmic equations
- Coordinate geometry
- Equation of straight line and locus
- Measures of central tendency
- Measures of dispersion
- Permutations and combinations
- Probability
- Probability distribution
- Descriptive and inferential statistics, variables, data types and collection, sampling
- Frequency distribution and presentation of data
- Measures of location
- Measures of dispersion, skewness and coefficient of variation
- Index
- Time series
- Probability
- Discrete probability distribution
- Normal distribution
- Confidence intervals
- Hypothesis testing
- Testing the difference between two means, two proportion
- Correlation and regression
- Chi-squared tests and quality control

Recommended Text

Lan Foo Huat, Yong Kien Cheng (2017) Essential SPM Additional Mathematics, Sasbadi

Wong Pek Wei, Dr. Wong Sin Mong (2016) Success Additional Mathematics SPM, Oxford Fajar

J.S. Ratti, Marcus S. McWaters (2015) College Algebra and Trigonometry, 3rd Edition, Addison Wesley

Judith A. Beecher, Judith A. Penna, Marvin L. Bittinger, (2016) Algebra and Trigonometry, 5th Edition, Addison Wesley

Allan G. Bluman (2015) Elementary Statistics A Step by Step Approach, 9th Edition, McGraw Hill

Prem S. Mann (2017) Introductory Statistics, 9th Edition, John Wiley & Sons

Allan G. Bluman (2017) Elementary Statistics A Step by Step Approach, 10th Edition, McGraw Hill

Unit DIT403: PC Maintenance and Operating Systems

Unit code: Y/617/6694

RQF Level: 4

Unit Aims

This unit aims to provide knowledge of personal computer hardware. Successful completion of this unit will enable learners to install a computer system unit and operating system and conduct troubleshooting. The unit provides the essential knowledge of computer hardware, the software needed to make a hardware work, the components of the hardware and the technologies and principles that support the components. In addition to this knowledge, learners will be able to assemble computer hardware to build a full set PC, understand how to install the operation system and how to conduct troubleshooting in faulty hardware.

This unit also aims to provide the basic concepts about operating systems and to be able to install, configure and operate two commonly used operating systems. It includes an overview of Windows and Linux operating systems, the installation and configuration of these systems; the use of proper file systems; managing groups and users; installing and uninstalling applications on these two operating systems; operating basic command-line environment; manipulating simple files and printer-sharing.

Learning Outcomes and Assessment Criteria

Learning Outcomes: To achieve this unit, the learner must be able to:	**Assessment Criteria: Assessment of these outcomes demonstrates the learner can:**
1. Understand a range of operating systems.	1.1. Analyse the functionalities of PC hardware. 1.2. Install and commission a working personal computer to the required standard. 1.3. Optimize the operating system environment to the required standard. 1.4. Conduct troubleshooting to identify and solve common PC problems

2. Understand Windows and Linux operating systems.	2.5 Analyse the usage and role of an operating system. 2.6 Establish a disc operating environment that is appropriate to the required functionality. 2.7 Configure the Windows and Linux operating systems to the required standard. 2.8 Use common utilities and programs in the Windows and Linux operating systems correctly to configure file systems and to manage users and groups.

Indicative Content

- PC hardware components and software requirements
- The operating system
- PC repair
- Form factors and power supplies
- Processor and chipsets
- Motherboard
- Memory
- Hard drives v fixed drives
- Input/output devices
- Multimedia devices and mass storage
- Installing and maintaining operation systems (Windows)
- Supporting and troubleshooting operation systems
- Functions, types and features of operating systems
- Microsoft Windows
- File and printer sharing
- Distribution, strengths and weaknesses of Linux, open sources and GPL
- Installation of Linux
- Operation of Linus
- Using applications in Linux
- Types of shell and fundamental shell command

Recommended Text

Wilson K (2018), Computer Hardware: The Illustrated Guide to Understanding Computer Hardware (Computer Fundamentals), Illuminated Press

Tanenbaum AS (2016), Modern Operating Systems, Pearson, India

Mueller S (2015) Upgrading and repairing PCs, 22nd Edition, Pearson India

Unit DIT404: Computer Graphics Editing and Database Concepts

Unit code: D/617/6695

RQF Level: 4

Unit Aims

This unit aims to explain the concepts of photo editing. This will enable learners to insert photos into documents such as user manuals and the IT structure of an organization. The photos may need to be touched up before they are ready for use. This mainly involves using Adobe Photoshop and Adobe Illustrator for photo/image editing and designing. The unit delivers skills in photo retouching and digital drawing to address the issues of digital image design. It emphasizes exploration, techniques, media, ideas development and production techniques.

This unit also provides the fundamental concepts of a database system through Database Management System (DBMS), relational databases, entity relationship modelling and normalization. Learners are also required to create database systems using the database language of Structured Query Language (SQL).

Learning Outcomes and Assessment Criteria

Learning Outcomes: To achieve this unit, the learner must be able to:	**Assessment Criteria: Assessment of these outcomes demonstrates the learner can:**
1. Use computer graphic editing techniques to edit photos and create illustrations.	1.1. Apply photo editing, retouching and repairing techniques correctly. 1.2. Use Photoshop correctly to create the required effects. 1.3. Create illustrations using illustration software tools to the required standard. 1.4. Analyse techniques to create movement in a graphical environment
3 Create a database system.	3.1 Define the concept of a relational database. 3.2 Build an entity-relationship diagram, deriving relations and validating relations using normalisation. 3.3 Create a database using Data

	Definition Language (DDL) and manipulate a database using Data Manipulation Language (DML) that meets the specification.

Indicative Content

- The work area, tools, options bar, other panels, customizing documents and workspace
- Working with selections
- Photoshop
- Photo corrections
- Layers
- Mask and channels
- Typographic design
- Selecting and aligning in Adobe Illustrator
- Creating and editing shapes including techniques to create movement in a graphical environment
- Transforming objects
- Drawing with pen and pencil tools
- Colour and painting
- Working with type
- Blending colours and shapes
- Preparing files for the web
- Data, information, database management, DMS and DAP
- Relational database
- Database Management System (DBMS)
- Structured Query Language (SQL) – Data Manipulation Language (DML)
- SQL – Data Definition Language (DDL)
- Entity relationship modelling
- Deriving ER Diagrams
- Normalization

Recommended Text

Adobe Team (2016), Adobe Photoshop CC Classroom in a book, Adobe Press.

Adobe Team (2017), Adobe Illustrator CC Classroom in a book, Adobe Press.

Thomas M. Connolly and Carolyn E. Begg (2015) Database Systems: A Practical Approach to Design, Implementation and Management, Edition: 6, Addison-Wesley.

Unit DIT405: Logical IT Networking

Unit code: H/617/6696

RQF Level: 4

Unit Aims

This unit aims to provide learners with knowledge of logical networking. It covers Transmission Control Protocol (TCP) / Internet Protocol (IP), Local Area Networks (LAN) and Wide Area Networking (WAN), including IP address and subnetting.

Learning Outcomes and Assessment Criteria

Learning Outcomes: To achieve this unit, the learner must be able to:	**Assessment Criteria: Assessment of these outcomes demonstrates the learner can:**
1. Understand logical networking.	1.5. Analyse the nature and features of a logical network. 1.6. Analyse the differences between network architectures. 1.7. Analyse the functionality of each layer in an OSI network model. 1.8. Define correctly an IP address and subnet masks.
1. Understand the components and interfaces between different logical networking attributes.	3.4 Analyse the rules of network protocols and communications. 3.5 Analyse the differences within the physical layer. 3.6 Analyse the requirements of WAN and LAN topologies and a data link protocol. 3.7 Analyse the differences within the network layer and transport layer. 3.8 Establish network design considerations.
2. Understand the security requirements of a logical network.	3.9 Analyse the security requirements of a network. 3.10 Identify the threats to a network. 3.11 Develop security protocols for a logical network that respond to the

	threats identified.

Indicative Content

- Exploring the network
- Network protocols and communications
- Network access
- Network layer
- Transport layer
- IP addressing
- Subnetting IP network
- Network design and consideration
- Device factors
- Designing network
- Scaling network
- Security threat
- Physical threat
- Primary vulnerabilities
- Network attacks
- Mitigating network attacks
- SSH configuration
- Backup and restore configuration

Recommended Text

Lowe D (2018), Networking All-in-One for Dummies 7th Edition, John Wiley & Sons, New Jersey

Cisco e-Learning portal (http://cisco.netacad.net).

Petzold C (2000), The Hidden Language of Computer Hardware, Microsoft Press, Washington

Unit DIT406: Physical IT Networking

Unit code: K/617/6697

RQF Level: 4

Unit Aims

This unit aims to provide learners with knowledge of physical networking and basic network administration skills. It covers knowledge of computer networks.

Learning Outcomes and Assessment Criteria

Learning Outcomes: To achieve this unit, the learner must be able to:	Assessment Criteria: Assessment of these outcomes demonstrates the learner can:
1. Apply the components of physical networking.	1.1 Analyse the nature and requirements of a physical network. 1.2 Analyse the requirements of different networking standards. 1.3 Set up and configure LAN network devices to the required configuration.
2. Understand the components and interfaces between different physical networking attributes.	2.1 Analyse the requirements for the on-going maintenance of a physical network operating system. 2.2 Assess the implications of different connectivity considerations. 2.3 Analyse the purpose and implications of different protocols of the application layer.
3. Install security protocols in a physical network.	3.1 Install and configure a firewall to the required standar. 3.2 Document actions taken in response to threats to security to the required standard. 3.3 Determine the source and nature of threats to a network. 3.4 Take action to mitigate identified risks that is appropriate to the nature and scale of the risk.

Indicative Content

- Cabling and hardware standards
- Configuring a network operating system
- Ethernet
- Application layer

Recommended Text

Lowe D (2018), Networking All-in-One for Dummies 7th Edition, John Wiley & Sons, New Jersey

Cisco e-Learning portal (http://cisco.netacad.net).

McNab C (2016) Network Security Assessment: Know Your Network, 3rd Edition, O'REilly

Unit DIT407: Web Design 1

Unit code: M/617/6698

RQF Level: 4

Unit Aims

This unit aims to provide learners with skills in website design and development. This includes techniques for writing web pages with Hypertext Markup (HTML) and Cascading Style Sheets (CSS).

Learning Outcomes and Assessment Criteria

Learning Outcomes: To achieve this unit, the learner must be able to:	Assessment Criteria: Assessment of these outcomes demonstrates the learner can:
1. Understand the principles of website design.	1.1 Analyse the requirements and stages of website design. 1.2 Analyse the nature of the business for which a website is needed. 1.3 Analyse the purpose and use of meta tags in website design. 1.4 Analyse the techniques used in website design including those for attractiveness and ease of navigation. 1.5 Analyse the requirement for testing using different platforms/browsers. 1.6 Analyse the use of different content management systems.
2. Design a website.	2.1 Produce web pages using Hypertext Markup (HTML) and Cascading Style Sheet (CSS). 2.2 Produce a website design that is attractive and easy to navigate. 2.3 Employ an interface between the website and corporate databases that is appropriate to the structure of a database and website. 2.4 Analyse the payment and security requirements of a website.

	2.5 Select a payment system that is appropriate to the nature of a website. 2.6 Ensure the website design works across different platforms/browsers. 2.7 Respond creatively and practically to problems in website design to meet the brief.

Indicative Content

- Domain names, URLs, TLD, markup languages, the website design and development process
- Hypertext Markup (HTML)
- Cascading Style Sheets (CSS)
- Visual elements and graphics
- Page layout
- Tables
- Forms
- Responsive web design
- Payment platforms and security requirements including SSL certification
- Content management systems
- Web promotion

Recommended Text

Terry Felke-Morris (2018) Web Development and Design Foundations with HTML5, Edition: 9, Pearson

Duckett J (2014), Web Design with HTML, CSS, JavaScript and jQuery Set, John Wiley & Sons, New Jersey

De Soto D (2014) Know Your Onions Web Design, bispublishers.nl

Unit DIT408: Web Programming

Unit code: T/617/6699

RQF Level: 4

Unit Aims

This unit aims to provide learners with web programming knowledge and skills including advanced technologies to upload content onto the internet. Key components of the unit include the application of Personal Home Page (PHP) (Hypertext Pre-processor) and the integration of PHP with My Structured Query Language (MySQL) database.

Learning Outcomes and Assessment Criteria

Learning Outcomes: To achieve this unit, the learner must be able to:	**Assessment Criteria: Assessment of these outcomes demonstrates the learner can:**
1. Understand the concepts, tools and techniques underpinning web programming.	1.1 Define the concept of server-side programming. 1.2 Analyse the use of form elements in web programming. 1.3 Analyse the use of modular programming. 1.4 Analyse the stages of the database system development lifecycle.
2. Carry out web programming.	2.1 Install and configure Apache, PHP and MySQL to the required standard. 2.2 Create web pages using PHP programming language that meet the specification. 2.3 Produce dynamic web pages using PHP and MySQL that meet the specification. 2.4 Build an interactive web-based application that meets the specification. 2.5 Pass variables between pages in response to the specification.

Indicative Content

- Stages of database system development lifecycle and the installation and configuration of AMP
- PHP syntax
- Passing variables between pages
- Connecting to MySQL server
- Using tables to display data
- Form elements
- Letting users edit the databases
- Regular expression
- Access control and personalization

Recommended Text

Gilmore, WJ, Kromann, F (2017) Beginning PHP 5 and MySQL 5 from Novice to Professional, Edition: 5, Apres

PHP Manual http://www.php.net/doc.php

Lockhart J (2015) Modern PHP: new features and good practices, Edition: 1, O' Reilly Media

Unit DIT409: Graphical User Interface (GUI)

Unit code: D/617/6700

RQF Level: 4

Unit Aims

This unit aims to provide learners with Graphical User Interface (GUI) programming skills. This includes objects, methods and instance variables, problem solving concepts, programming languages and GUI programming. The main focus is on the design principles of GUIs, events handling, classes and interfaces, the use of layout managers, buttons, labels, lists, text fields and panels creation and manipulation, colours and font manipulation.

Learning Outcomes and Assessment Criteria

Learning Outcomes: To achieve this unit, the learner must be able to:	**Assessment Criteria: Assessment of these outcomes demonstrates the learner can:**
1. Understand the concepts, tools and techniques underpinning Graphical User Interface (GUI).	1.1 Define the concept of object-oriented programming. 1.2 Analyse the characteristics of classes, methods, arguments, values and variables in object-oriented programming. 1.3 Analyse the use and creation of an array.
2. Create a GUI application using Java.	2.1 Explain how to apply the syntactical rules of Java to create a GUI. 2.2 Implement the GUI component classes. 2.3 Write a GUI application that meets the brief. 2.4 Test the effectiveness of the GUI against the requirements of the brief.

Indicative Content

- Methods, arguments, values and method overloading
- Classes and objects
- Arrays
- GUI programming
- Layout managers
- NetBeans IDE using GUI Builder
- GUI components
- Graphics
- Mouse event and key event handling
- Advanced GUI applications

Recommended Text

Gaddis & Muganda (2018) Starting Out with Java: From Control Structures through Data Structures, 2 edition, Addison-Wesley

Lee Zhi Eng (2016) Qt C++ GUI Programming Cookbook: Design and build a functional, appealing and user-friendly graphical user-friendly graphical user interface, Packt Publishing, Birmingham, UK

Spolsky J and Winer D (2001) User Interface Design for Programmers, Apress, Berkeley, USA

Unit DIT410: Programming Concepts and Java for Android Programming

Unit code: H/617/6701

RQF Level: 4

Unit Aims

This unit aims to develop programming skills. This unit includes variables, control and decision (if and switch) as well as loops and program control (for, while, do-while).

This unit also enables learners to develop software for Android telephones using Java development tools. The emphasis is on developing applications as a community that run on the Android platform. Successful completion of this unit will give learners an insight into today's common procedures for getting their mobile application work published.

Learning Outcomes and Assessment Criteria

Learning Outcomes: To achieve this unit, the learner must be able to:	**Assessment Criteria: Assessment of these outcomes demonstrates the learner can:**
1. Create a computer program.	1.1 Define conditions, loops and program control. 1.2 Use different kinds of control structures to create a program. 1.3 Apply a range of techniques (data and expressions, classes and objects, conditions and decisions, loops and program controls and arrays) to create a computer program that meets the specification.
2. Create an Android program.	2.1 Create a responsive and touch-friendly user interface through the use of mobile user interface design techniques and standards. 2.2 Apply a range of techniques (activities and layout, components, intent, toast, broadcast mechanism, service and storage) to create an Android program that meets the specification. 2.3 Analyse the application of a range of development tools.

Indicative Content

- Programming language, Java, program development and the Java Development Toolkit
- Java Development Tool, creating a Java application using console output and using GUI output
- Data and expressions
- Using classes and objects
- Condition and decision
- Loops and program control
- Method declaration, calling method, and passing parameters to method
- Arrays
- Types of Android API, development tools, Android Studio installation and configuration and update SDK
- Program structure
- Activities and layouts
- UI components and layout
- Intent and Intent filter
- Themes and styles
- Toast, notification and dialogbox
- Broadcast receiver
- Service
- Persistence storage (file and SQLite)
- Content providers
- Multimedia
- Sensors
- Publishing Android applications

Recommended Text

Gaddis & Muganda (2018) Starting Out with Java: From Control Structures through Data Structures, 4th Edition, Pearson

Bill Phillips, Chris Stewart, Kristin Marsicano (2017), Android Programming: The Big Nerd Ranch Guide (3rd Edition), Big Nerd Ranch Guides

Abazi B (2017) Android Development with Java: Step by step guide to build applications, learn2earn.academy

Unit DIT401: Technopreneurship

Unit code: F/617/6740

RQF Level: 5

Unit Aims

This unit aims to provide learners with the knowledge and skills needed to establish a new techno business. It includes understanding the characteristics of entrepreneurs, planning, marketing and finance.

Learning Outcomes and Assessment Criteria

Learning Outcomes: To achieve this unit, the learner must be able to:	Assessment Criteria: Assessment of these outcomes demonstrates the learner can:
1. Assess the nature of technological entrepreneurship.	1.1 Evaluate the characteristics of techno entrepreneurs and the techno entrepreneurial process. 1.2 Evaluate trends and opportunities within technological entrepreneurship. 1.3 Analyse the features and application of the five pillars of technological entrepreneurship.
2. Establish a new techno business.	2.1 Evaluate the potential for new products or services and new potential markets for them. 2.2 Take action to protect intellectual property that is appropriate to the nature of the business. 2.3 Structure the business in a way that optimises assets, investment and ownership. 2.4 Prepare a business and marketing for a new techno business that sets SMART objectives and optimizes available resources. 2.5 Market the business in accordance with the marketing plan.

3. Evaluate the rationale for businesses' creation, delivery and capture of value.	3.1 Evaluate the uses, strengths and weaknesses against the Business Model Canvas. 3.2 Evaluate the suitability of different methods of exit from the business.

Indicative Content

- Technology Entrepreneurship: trends and opportunities
- Five pillars of technology entrepreneurship
- Technology venture idea generation
- Markets and product of service development
- Protecting intellectual property
- Legal structures and equity distribution
- Developing and implementing the technology business plan
- Capital and capital sources
- Launching the venture
- Marketing and selling products
- Contracts
- Venture management and leadership
- Valuing and closing the venture (exit)
- Exit strategies and valuations

Recommended Text

Duening TN, Hisrich RA, Lechter MA (2014) Technology Entrepreneurship: Taking Innovation to the Marketplace, 2nd Edition, Academic Press

Therin F (editor) (2014) Handbook of Research on Techno-Entrepreneurship: How Technology and Entrepreneurship are Shaping the Development of Industries and Companies (Research Handbooks in Business and Management Series), 2nd Edition, Edward Elgar Publishing, Glos, UK

Nassar J (2018) Technopreneurship Financing and Startups Ecosystem: How Malaysia is Creating Another Success Story

Unit DIT502: Network Security

Unit code: J/617/6741

RQF Level: 5

Unit Aims

This unit aims to provide learners with knowledge of network security issues in a networked environment and the process of preventing and detection common security incidents. The unit covers authentication; attacks and malicious codes; the security of remote access; email and web security; the security of directory and file transfer services; storage media; network security; intrusion detection; physical and security and disaster recovery.

Learning Outcomes and Assessment Criteria

Learning Outcomes: To achieve this unit, the learner must be able to:	**Assessment Criteria: Assessment of these outcomes demonstrates the learner can:**
1. Understand computer network security.	1.1 Analyse the factors that affect network and computer security. 1.2 Identify common security issues in a networked environment. 1.3 Analyse the role that artificial intelligence (AI) could have in defending networks.
2. Understand methods of maintaining computer security.	2.1 Analyse the strengths and weaknesses of different methods of authentication. 2.2 Analyse the nature of different types of attack and malicious codes. 2.3 Select the security tool that is appropriate to the nature of the security issue. 2.4 Evaluate practices that prevent common attacks from intruders (networks, remote access, email, web security, wireless and instant messaging). 2.5 Analyse the differences between network and host intrusion detection systems.

Indicative Content

- Network security (understanding security threats, creating a secure network & Windows server access control
- Authentication
- Attacks and malicious codes
- Remote access
- Email
- Web security
- The use of AI in the defence of networks
- Directory and file transfer services
- Wireless and instant messaging
- Network devices
- Transmission and storage media
- Network security topologies
- Intrusion detection
- Physical security
- Disaster recovery and business continuity

Recommended Text

McNab C (2016) Network Security Assessment: Know Your Network, 3rd edition O'Reilly Media Inc.

Stallings W (2011) Network Security Essentials: Application and Standard, 4th edition, Prentice Hall

Forshaw J (2017) Attacking Network Protocols, William Pollock, USA

Unit DIT503: C#.NET Programming

Unit code: L/617/6742

RQF Level: 5

Unit Aims

This unit aims to provide learners with the basic concepts and principles of ASP.NET programming using C#. This will enable learners to understand how to create dynamic web pages using server-side programming techniques. The unit covers component-based programming and how to access records in relational databases. Successful achievement of this unit will enable learners to create their own web applications and make them available on the internet.

Learning Outcomes and Assessment Criteria

Learning Outcomes: To achieve this unit, the learner must be able to:	**Assessment Criteria: Assessment of these outcomes demonstrates the learner can:**
1. Understand the use of ASP.NET.	1.1 Analyse the components / structure of ASP.NET. 1.2 Evaluate the advantages and disadvantages of using ASP.NET compared with other web development models. 1.3 Analyse the advantages of using validators.
2. Design web applications using ASP.NET and ADO.NET.	2.1 Use styles, themes and master pages to create an attractive and easily navigable web applications. 2.2 Display dynamic data from a relational database by using ADO.NET and data binding through different languages including C#. 2.3 Create a web page that uses client side navigation, client side browser redirect, cross page posting and server side transfer that meets the brief.

Indicative Content

- Evolution of web development, HTML, ASP.NET, the .NET framework the C# language
- Visual studio
- Web form fundamental
- Web controls
- Validation
- Styles, themes and master pages
- Website navigation using ASP.NET
- ADO.NET

Recommended Text

Nagel C (2018): Professional C# 7 and .NET Core 2.0, Wrox

Price MJ (2017) C# 7.1 and .NET Core 2.0 – Modern Cross-Platform Development, 3rd Edition, Packt Publishing

Fagerberg J (2016) ASP.NET MVC 5 – Building a Website with Visual Studio 2015 and C Sharp: The Tactical Guidebook, csharpschool.com

Unit DIT504: System Administration

Unit code: R/617/6743

RQF Level: 5

Unit Aims

This unit aims to provide the knowledge needed to administer a system in Linux and Windows. Topics covered include user and group management; file system management; task automation; shell scripting; Dynamic Host Configuration Protocol (DHCP) servers; mail servers; domain name servers; files and printers sharing; basic utilities and tools; application management; registry; local and group policies; backup policies; restore policies and performance tuning.

Learning Outcomes and Assessment Criteria

Learning Outcomes: To achieve this unit, the learner must be able to:	**Assessment Criteria: Assessment of these outcomes demonstrates the learner can:**
1. Understand system administration.	1.1 Analyse the role of the system administrator. 1.2 Analyse the elements within system administration. 1.3 Analyse the history of the active directory and Lightweight Directory Access Protocol (LDAP). 1.4 Analyse the difference between snapshots and backups. 1.5 Analyse the differences between local and group policies on Windows and Linux 1.6 Analyse the role and requirements of backup and restore policies. 1.7 Analyse the requirements of managing applications.
2. Perform user management and file system management.	2.1 Write shell scripts that enable administration tasks to be performed on Linux and Windows systems: Get Help; Check Services; List Users and ping a list of servers.

	2.2 Set up and configure users and groups to the agreed standard. 2.3 Install and configure file and printer sharing to agreed standards. 2.4 Write shell scripts to perform snapshots on Linux and Windows servers to agreed standards. 2.5 Tune performance through the application of a range of utilities and tools to agreed standards.

Indicative Content

- System administrators: duties, related fields; professional certification
- Managing users and groups
- Managing file systems
- Automating tasks, processes and Daemon
- Shell scripting
- PowerShell
- NFS, NIS servers and WINS servers
- File and printer sharing
- Application management
- Customizing with Registry
- Local and group policies
- Backup and restore policies
- Performance tuning

Recommended Text

Nemeth E, Snyder G, Hein TR, Whaley B, Mackin D (2017): UNIX and Linux System Administration Handbook (5th edition), Addison-Wesley Professional

Frisch A (2002) Essential System Administration: Tools and Techniques for Linux and Unix Administration, 3rd Edition, O'Reilly Media, Sebastopol, CA, USA

Nickel J (2019) Mastering Identity and Access Management with Microsoft Azure: Empower users by managing and protecting identities and data, 2nd Edition, Packt Publishing

Unit DIT505: Network Routing and Switching

Unit code: Y/617/6744

RQF Level: 5

Unit Aims

This unit aims to deliver the knowledge needed to carry out switching and the knowledge and skills needed to carry out routing – how to set up and configure a router and switches to interconnect a multi area network. The unit covers computer networks routing and switching including Router Information Protocol (RIP); Enhanced Interior Gateway Routing Protocol (EIGRP) and Open Shortest Path First (OSPF).

Learning Outcomes and Assessment Criteria

Learning Outcomes: To achieve this unit, the learner must be able to:	**Assessment Criteria: Assessment of these outcomes demonstrates the learner can:**
1. Understand switching.	1.1 Evaluate the considerations to be taken into account in the purchase of a switch. 1.2 Analyse switching techniques and protocols. 1.3 Analyse the features in managed switches. 1.4 Analyse the differences between circuit switching and packet switching.
2. Perform routing.	2.1 Evaluate the considerations to be taken into account in making static and inter-VLAN routing decisions. 2.2 Analyse routing techniques and protocols. 2.3 Evaluate the considerations to be taken into account in dynamic routing. 2.4 Evaluate the considerations to be taken into account in a single and multi area OSPF. 2.5 Set up and configure a single area OSPF to agreed standards. 2.6 Configure a multi area OSPF to agreed standards. 2.7 Configure a multi area EIGRP to agreed

	standards.

Indicative Content

- Switched networks
- Switching concepts and configuration
- Routing
- Inter-VLAN routing
- Static routing
- Routing dynamically
- Frame relay
- Single area OSPF and multi area OSPF
- EIGRP configuration and troubleshooting
- Networking access control lists

Recommended Text

Diaz L (2018): CCNA Routing and Switching 200-125 Certification Guide, Packt Publishing

Cisco Networking Academy (2016) Routing and Switching Essentials v6 Companion Guide, Cisco Press, Indianapolis, USA

Emspon S (2016) CCNA Routing and Switching Portable Command Guide (ICND1 100-105, ICND2 200-105 and CCNA 200-125)

Unit DIT506: Network Design and Administration

Unit code: D/617/6745

RQF Level: 5

Unit Aims

This unit aims to provide the knowledge and skills needed to enable learners to design a network i.e. how to scale and connect different networks to form an effective inter-connecting network. It covers hierarchical network design; gathering network requirements; identifying network performance issues.

Learning Outcomes and Assessment Criteria

Learning Outcomes: To achieve this unit, the learner must be able to:	Assessment Criteria: Assessment of these outcomes demonstrates the learner can:
1. Understand network design.	1.1 Analyse the requirements of users. 1.2 Analyse the different layers in hierarchical network design. 1.3 Analyse competing protocols in link aggregation.
2. Configure a local area network and a VLAN.	2.1 Set up and configure a VLAN to agreed standards. 2.2 Analyse the requirements of connectivity and scaling. 2.3 Analyse the types and methods used in Network Address Translation (NAT). 2.4 Configure remote connections on Linux and Windows systems to agreed standards.
2. Administer a network.	3.1 Diagnose and resolve faults in the system. 3.2 Configure a network backbone using link aggregation that demonstrates a speed increase. 3.3 Analyse the history of the spanning tree. protocol and its role in network redundancy 3.4 Analyse the role of a network administrator. 3.5 Evaluate the technologies and applications available for network

	administration.

Indicative Content

- Scaling networks including bandwidth, availability resilience, class of service, quality of service and price)
- LAN redundancy
- Link aggregation
- Wireless LANS
- Hierarchical network design
- Connecting to the WAN
- Point-to-point connection
- Securing site-to-site connectivity
- Monitoring and troubleshooting the network
- DHCP
- Network address translation for IPv4
- Network utilities and tools
- DHCP servers
- DNS servers
- Web servers
- Mail servers
- Proxy servers
- SSH servers
- Directory service
- AAA servers
- GUI-based configuration for Linux servers
- Network Attached Storage (NAS)
- Virtualization
- Cloud computing
- Network management and design

Recommended Text

Thomatis M (2017): Network Design Cookbook: 2nd edition, lulu.com

Dauti B (2017) Windows Server 2016 Administration Fundamentals: Deploy, set up and deliver network services with Windows Server while preparing for the MTA 98-365 exam and pass it with ease, Packt Publishing

Piper B (2017) Learn Cisco Network Administration in a Month of Lunches, Manning Publications

Unit DIT507: Content Management Systems

Unit code: H/617/6746

RQF Level: 5

Unit Aims

This unit aims to provide learners with the knowledge and skills needed to use content management systems (CMS) as a tool for the creation of digital content. Successful achievement of this unit will enable learners to understand CMS roles, content modelling, content aggregation, publication management and content migration.

Learning Outcomes and Assessment Criteria

Learning Outcomes: To achieve this unit, the learner must be able to:	**Assessment Criteria: Assessment of these outcomes demonstrates the learner can:**
1. Understand content management systems (CMS).	1.1 Define the purpose of using CMS for digital content development and publication management. 1.2 Evaluate the functional roles in a CMS. 1.3 Evaluate the considerations to be taken into account in the acquisition of a CMS. 1.4 Evaluate the considerations to be taken into account in content modelling. 1.5 Evaluate the considerations to be taken into account in content aggregation.
2. Operate a CMS.	2.1 Select and use a range of CMS tools to create digital content that meet the brief. 2.2 Model content in accordance with the brief. 2.3 Edit content in accordance with the brief. 2.4 Aggregate content in accordance with the brief. 2.5 Migrate content across different CMS systems in accordance with the brief. 2.6 Publish content to a server side .application and a client side application in accordance with the brief.

Indicative Content

- Types of CMS
- Points of comparison
- CMS feature analysis and acquiring a CMS
- Functional roles within CMS
- Content modelling
- Content aggregation
- Editorial tools and workflow
- Output and publication management
- Multiple Language Handling, language rules, form building and URL management
- Content migration

Recommended Text

Barker D (2016): Web Content Management: Systems, Features and Best Practice, O'Reilly Media

Boiko B (2004) Content Management Bible, 2nd Edition, Wiley Publishing, Indianapolis, USA

Kleppmann M (2016) Designing Data-Intensive Applications: The Big Ideas Behind Reliable, Scalable and Maintainable Systems, O'Reilly Media

Unit DIT508: Web Design 2

Unit code: M/617/6748

RQF Level: 5

Unit Aims

This unit aims to provide learners with the skills and knowledge of client side programming and how to create a dynamic web pages using JavaScript (JS) programming language and Adobe Dreamweaver. The unit covers the creation of dynamic web pages that use form validation, validate user input, process user input at client side, dynamic navigation menu and a web client application.

Learning Outcomes and Assessment Criteria

Learning Outcomes: To achieve this unit, the learner must be able to:	**Assessment Criteria: Assessment of these outcomes demonstrates the learner can:**
1. Understand web design.	1.1 Differentiate between client-side and server-side programming. 1.2 Analyse the history of Document Object Modelling (DOM). 1.3 Analyse the similarities and differences between XML and JSON. 1.4 Evaluate the extent to which the benefits of using events outweigh the problems. 1.5 Analyse the advantages and disadvantages of and differences between desktop and web applications. 1.6 Analyse the problems associated with multimedia objects in browsers and recommend practicable solutions.
2. Create dynamic web pages.	2.1 Create a data model through the application of XML and JSON that meets the brief. 2.2 Use JS to validate a form so that it meets the brief. 2.3 Use JS to validate user input so that it meets the brief. 2.4 Use JS to process user input at client side so that it meets the brief.

	2.5 Use JS to create a dynamic navigation menu that meets the brief. 2.6 Use Dreamweaver to create a dynamic web page that uses Cascading Style Sheets (CSS) that meets the brief.

Indicative Content

- Adobe Dreamweaver
- JavaScript, variables and data type definition
- Arithmetic operator, condition and iteration statements
- Arrays and objects
- Function
- Browser Object Model (BOM) and Document Object Model (DOM)
- Form validation and regular expression
- Events handling
- Mouse and keyboard events
- JQuery and styles sheets
- Multimedia objects
- Canvas
- SML and JSON
- AJAX

Recommended Text

Ruvalcaba Z, Delamater M (2017): Murach's JavaScript and jQuery (3rd edition), Mike Murach & Associates

Duckett J (2014) Web Design with HTML, CSS, JavaScript and jQuery Set, J Wiley & Sons Publishing

Frain B (2015) Responsive Web Design with HTML5 and CSS3: Build responsive and future-proof websites to meet the demands of modern web users, , 2nd Edition, Packt Publishing

Unit DIT509: Business to Business (B2B) E-commerce

Unit code: T/617/6749

RQF Level: 5

Unit Aims

This unit aims to provide learners with knowledge of Business to business (B2B) e-commerce. This includes Electronic Data Interchange (EDI), Electronic Funds Transfer (EFT), online transaction processing, inventory management systems and supply chain management.

Learning Outcomes and Assessment Criteria

Learning Outcomes: To achieve this unit, the learner must be able to:	**Assessment Criteria: Assessment of these outcomes demonstrates the learner can:**
1. Understand Electronic Data Interchange (EDI).	1.1 Analyse the history and standards of EDI. 1.2 Analyse the role of EDI within a corporate environment. 1.3 Assess the implications of peer-to-peer versus value added networks.
2. Understand Electronic Funds Transfer (EFT.	2.1 Analyse the differences between online banking, instant payment and contactless payment systems. 2.2 Analyse the suitability of different payment systems for different types of transaction. 2.3 Assess the implications of crypto-currencies from economic and political perspectives.
3. Understand online transaction processing (OLTP).	3.1 Analyse the requirements, uses and challenges of online transaction processing. 3.2 Analyse the differences between OLTP and online analytical processing (OLAP). 3.3 Evaluate the advantages and disadvantages of centralized versus decentralized systems.

	3.4 Analyse the requirements of an OLTP system design.
4 Understand inventory management systems.	4.1 Analyse the scope of operations of inventory management software. 4.2 Analyse the advantages and disadvantages of Enterprise Resource Planning (ERP) and cloud inventory management software. 4.3 Analyse the interface between an inventory management system and the supply chain. 4.4 Analyse the challenges of inventory management system design.
5 Understand supply chain management.	5.1 Analyse the historical development of supply chain management. 5.2 Evaluate processes within the supply chain. 5.3 Analyse the uses of just-in-time (JIT), material requirements planning (MRP) and total quality management (TQM) within supply chain management.

Indicative Content

- Early Electronic Data Interchange (EDI) implementation
- Standards in EDI including transmission protocols
- Direct and VAN EDIs
- Types of Electronic Funds Transfer (EFT) systems including online banking, instant payment and contactless payment
- Online transaction processing including concurrency, atomicity, system design
- Inventory management including tracking systems, ERP and the cloud
- Supply chain management
- Just-in-time (JIT)
- Material requirements planning (MRP)
- Total quality management (TQM)

Recommended Text

Thomas C (2017) B2B eCommerce MasterPlan: how to make wholesale ecommerce a key part of your business to business sales growth, Kernu Publishing, Truro, UK

Raisch W (2001) the eMarketplace – strategies for success in B2B ecommerce, McGraw-Hill, USA

Hanly L (2016) Content that Converts: How to Build a Profitable and Predictable B2B Content Marketing Strategy, Hanly Creative

Unit DIT510: Business to Consumer (B2C) E-commerce

Unit code: K/617/6750

RQF Level: 5

Unit Aims

This unit aims to provide learners with knowledge of business to consumer e-commerce. This includes the concepts and techniques used in mobile e-commerce and ticketing, the psychology of marketing, artificial intelligence (AI) in image recognition and social commerce.

Learning Outcomes and Assessment Criteria

Learning Outcomes: To achieve this unit, the learner must be able to:	Assessment Criteria: Assessment of these outcomes demonstrates the learner can:
1. Understand the concepts and techniques used in mobile e-commerce and ticketing.	1.1 Create designs for mobile screens that demonstrate good practice in the use of fonts and graphics. 1.2 Analyse the use of location-based services in mobile e-commerce. 1.3 Create a mobile ticketing application that uses unique ticket verification.
2. Understand the psychology of marketing.	2.1 Analyse the factors affecting a buyer's purchasing decisions. 2.2 Analyse the purchasing decision process. 2.3 Analyse the impact of internal and external influences on the buying decision. 2.4 Analyse the use of eye-tracking technologies in commerce.
3. Understand the use of artificial intelligence (AI) in image recognition.	3.1 Analyse the use of image classification in e-commerce. 3.2 Analyse the benefits of augmented reality versus virtual reality in e-commerce. 3.3 Assess the implications of using image recognition as a tool to find inappropriate content. 3.4 Analyse the way in which image recognition can help eliminate counterfeit

	products.
4. Understand social commerce.	4.1 Evaluate the elements and features of social commerce. 4.2 Assess the impact of Pinterest, micro-influencers and in-app purchasing in social commerce. 4.3 Analyse the features of different categories of social commerce. 4.4 Analyse the distinctions between Soldsie, eBay, Groupon, The Fancy and Kickstarter social commerce applications.

Indicative Content

- Concepts and techniques used in mobile e-commerce and ticketing
- Good practice in the use of fonts and graphics
- Psychology of marketing and the buying process
- Internal and external influences on purchasing decisions
- Eye-tracking technologies
- Artificial intelligence (AI) in image classification
- AI to manage inappropriate content
- Virtual Reality and Augmented Reality AI
- AI tools to identify Opinion SPAM
- Elements of social commerce: community, reciprocity, authority, scarcity, liking, social proof
- Features of social commerce: content, community, commerce, context, connection, conversation
- Categories of social commerce: onsite versus offsite

Recommended Text

Mangalam JM (2017): Turbocharge your B2C marketing performance: how to leverage analytics and data science in business-to-consumer marketing, Amazon Digital Services LLC

Kappler D 2018): B2B & B2C Lead generation: make your sales great again

Hughes T, Reynolds M 2016) Social Selling: Techniques to Influence Buyers and Changemakers, Kogan Page