Qualifi Level 5 Diploma in Information Technology

Qualifi Level 5 Diploma in IT-Networking

Qualifi Level 5 Diploma in IT-Web Design

Qualifi Level 5 Diploma in IT-E-commerce

Specification (For Centres)

June 2019

About QUALIFI

QUALIFI provides academic and vocational qualifications that are globally recognised. QUALIFI's commitment to the creation and awarding of respected qualifications has a rigorous focus on high standards and consistency, beginning with recognition as an Awarding Organisation (AO) in the UK. QUALIFI is approved and regulated by Ofqual (in full). Our Ofqual reference number is RN5160.

Ofqual is responsible for maintaining standards and confidence in a wide range of vocational qualifications. QUALIFI is also a signatory to BIS international commitments of quality.

As an Ofqual recognised Awarding Organisation, QUALIFI has a duty of care to implement quality assurance processes. This is to ensure that centres approved for the delivery and assessment of QUALIFI's qualifications and awards meet the required standards. This also safeguards the outcome of assessments and meets national regulatory requirements.

QUALIFI's qualifications are developed to be accessible to all learners in that they are available to anyone who is 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 learners are free from any barriers that may restrict access and progression.

QUALIFI's policy document for learners with specific requirements or who need special consideration is available for centre reference. Centres are responsible for reviewing the applicant's ability to complete the training programme successfully and ultimately achieve a qualification. The initial assessment by the centre, will need to take into account the support that is readily available or can be made available to meet individual needs as appropriate. The centre must also consider prior learning and qualifications and they must be in a position to make a judgement on the learner's entry requirements.

Supporting Diversity

QUALIFI and its partners recognise and value individual difference and have a public duty to promote equality and remove discrimination in relation to race, gender, disability, religion or belief, sexual orientation and age.

Learner Voice

Learners can play an important part in improving the quality of this course through the feedback they give. In addition to the ongoing discussion with the course team throughout the year, there are a range of mechanisms for learners to feed back about their experience of teaching and learning. This can include questionnaires and surveys to allow both centres and QUALIFI to understand how we can improve the learner experience.

Contents

1 Introduction

1.1 Why Choose QUALIFI Qualifications?

QUALIFI qualifications look to provide a realistic and broad opportunity for learners seeking career and professional development. They will support learners in realising their potential and provide clear objectives.

These objectives are to:

- provide career path support to learners who wish to develop their management skills, enterprise capabilities and opportunities in their chosen sector
- improve learner understanding of any given business environments and organisations and how they are managed and developed
- develop skills and abilities in learners to support their professional development.

Our qualifications provide a rich mix of disciplines and skills development opportunities. Learners will gain insight into the functioning, objectives and processes of organisations, appreciating their diversity and the influences and impact of external forces on them. The fast-changing and complex business environment and different organisational ability to stay resilient and respond positively to change and opportunities will be explored.

Our qualifications will develop learner ability to:

- apply analytical and evaluative techniques and to enhance those skills
- investigate issues and opportunities
- develop their awareness and appreciation of managerial, organisational and environmental issues
- use management techniques and practices in imaginative ways
- make use of relevant information from different sources
- 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.

1.2 Employer Support for the Qualification Development

The development of these qualifications has been initiated and guided by discussions and idea sharing with a range of employers, providers and existing centres demonstrating the rigor, validity and demand for the qualification.

Discussions and feedback have been taken throughout the development of the qualification on content, the potential learner audience for the qualification and assessment methods, ensuring a valuable experience and a recognised set of skills, knowledge and understanding is realised.

1.3 Qualification Title and Codes

The qualification have been accredited to the Regulated Qualification Framework (RQF) and each qualification 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 QANs for these qualifications are as follows:

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

QUALIFI Level 5 Diploma in IT-Networking (603/4792/2)

QUALIFI Level 5 Diploma in IT-Web Design (603/4793/4)

QUALIFI Level 5 Diploma in IT-E-commerce (603/4794/6)

1.4 Awarding Organisation

QUALIFI LTD

2 Qualification Purpose and Rationale

2.1 Purpose for the Qualifications

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

We hope that centres and learners take the opportunity to learn a great deal from this suite of qualifications that will provide relevant new skills and qualities.

It is envisaged that the qualifications will encourage both academic and professional development so that you learners move forward to realise not just their own potential but also that of organisations across a broad range of sectors.

The Diplomas are accredited at Level 5 and has a total equivalence of 120 credits.

2.2 Rationale for the Qualifications

The rationale for the qualification is that it provides 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 n the IT industry, notably in .NET programming, system administration and network security. Learners will also learn about entrepreneurship in a techno environment. The qualification is 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 recognized internationally. It covers:

- 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 rationale for the qualifications is also to 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.

2.3 Aims of the Diplomas

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.

2.4 Learning Outcomes of the Diploma

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 5 equivalences. The learning outcomes for each unit are identified in Appendix 1 within the unit descriptors.

3. Delivering the Qualification

3.1 Quality Assurance Arrangements

All centres go through an approval process to be recognised as an approved centre. Centres must have in place qualified and experienced tutors. The experience of tutors and their ability to support learners will be important. Centres must commit to working with QUALIFI and its team of Quality Reviewers/External Verifiers. Continuing professional development (CPD) for tutors is also required.

Approved centres will be monitored by QUALIFI External Quality Reviewers (EQAs) to ensure that learners are provided with appropriate learning opportunities and guidance. EQAs will ask to see and discuss a centre's formative assessment plans. The suitability of these plans will be agreed with the centre.

QUALIFI's guidance on invigilation, preventing plagiarism and collusion will apply to centres. QUALIFI Quality Reviewers/External Verifiers will monitor centre compliance. For assessment purposes, unless otherwise agreed, QUALIFI:

- appoints assignment setters, markers and moderators
- sets and agrees assignments
- marks and moderates assignments
- agrees the final mark and issues certificates.

QUALIFI's 'Handbook on Guidance and Requirements for Assessment and Marking' will apply to its assignment setters, markers and moderators.

3.2 Access to Study

All learners should be invited to an induction event to be introduced to the programme in detail through presentations and discussions with tutors and the centre support team.

All learners should be issued with the Diploma handbook, a timetable and meet with their personal tutor and fellow learners. Centres should assess learners carefully to ensure that they take the right qualification and the right pathways or optional units, to allow them to progress to the next stage.

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 in order to support them in making the necessary qualification and unit choices. When learners are recruited, centres need to give them accurate information on the title and focus of the qualification for which they are studying.

All learners must be registered with QUALIFI within 30 days of centre registration.

3.3 Entry Criteria

The qualifications have been designed to be accessible without artificial barriers that restrict access and progression. Entry to the qualifications will be through centre interview and learners will be expected to hold the following:

- demonstrated some ability and possess qualifications at Level 4 for example any Qualifi Level 4 or similar vocational awards;
- spent some time in an organisational role and shown they have capability and drive to develop
- seeking further professional development and to gain work related skills and know-how.

In certain circumstances, managers with considerable experience but no formal qualifications may be considered, subject to interview and being able to demonstrate their ability to cope with the demands of the programme.

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 matriculation to UK Higher Education postgraduate programmes. The applicants are normally required to produce two supporting references, at least one of which should preferably be academic.

4 Structure of the Qualification

4.1 Units, Credits and Total Qualification Time (TQT)

The QUALIFI Diplomas in IT are all Level 5 Qualifications made up of 120 credits.

All units are 20 credits in value. These units have been designed from a learning time perspective, and are expressed in terms of **Total Qualification Time (TQT)**. 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. TQT includes undertaking each of the activities of Guided Learning, Directed Learning and Invigilated Assessment. Each 20-credit unit approximates to a TQT of 200 hours incorporating 100 hours of Guided Learning.

Examples of activities which 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 pre-recorded 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. Guided Learning includes any supervised assessment activity; this includes invigilated examination and observed assessment and observed work-based practice.

Some examples of activities which can 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
- all forms of assessment which take place under the immediate guidance or supervision of a tutor or other appropriate provider of education or training, including where the assessment is competence-based and may be turned into a learning opportunity.

4.2 Qualification Structures

There are ten units available Each qualification requites core units to be taken and then elective units to determine which qualification is achieved. All units cover a number of topics relating to learning outcomes. Each unit has the equivalency of 20 credits.

Learners are required to complete 8 units to achieve the 120 credits required to gain any of the Level 5 Diplomas.

Learners will be expected to attend lectures and workshops that will introduce the subject matter. Formative assessments (weighted at 0%) may be used in lectures or tutorials to check knowledge and understanding of specific topics and subject areas.

Qualifi Level 5 Diploma in IT				
Learners must achieve all four core units and any two elective units* i.e. a total of 120 credits.				
Unit no.	**Qualification unit title**	**Level**	**Credits**	**TQT**
Core units				
5IT01	Technopreneurship	5	20	200
5IT02	Network Security	5	20	200
5IT03	C#.NET Programming	5	20	200
5IT04	System Administration	5	20	200
Elective units				
5IT05	Network Routing and Switching	5	20	200
5IT06	Network Design and Administration	5	20	200
5IT07	Content Management Systems	5	20	200
5IT08	Web Design	5	20	200
5IT09	Business to Business (B2B) E-commerce	5	20	200
5IT10	Business to Consumer (B2C) E-commerce	5	20	200

* Learners would like to undertake the “Diploma in IT” 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 – 5IT05 and 5IT06, 5IT07 and 5IT08, 5IT09 and 5IT10 as the 2 electives.

Qualifi Level 5 Diploma in IT-Networking				
Learners must achieve all four core units and any two elective units i.e. a total of 120 credits.				
Unit no.	**Qualification unit title**	**Level**	**Credits**	**TQT**
Core units				
5IT01	Technopreneurship	5	20	200
5IT02	Network Security	5	20	200
5IT03	C#.NET Programming	5	20	200
5IT04	System Administration	5	20	200
Elective units				
5IT05	Network Routing and Switching	5	20	200
5IT06	Network Design and Administration	5	20	200

Qualifi Level 5 Diploma in IT-Web Design				
Learners must achieve all four core units and any two elective units i.e. a total of 120 credits.				
Unit no.	**Qualification unit title**	**Level**	**Credits**	**TQT**
Core units				
5IT01	Technopreneurship	5	20	200
5IT02	Network Security	5	20	200
5IT03	C#.NET Programming	5	20	200
5IT04	System Administration	5	20	200
Elective units				
5IT07	Content Management Systems	5	20	200
5IT08	Web Design	5	20	200

Qualifi Level 5 Diploma in IT-E-commerce				
Learners must achieve all four core units and any two elective units i.e. a total of 120 credits.				
Unit no.	**Qualification unit title**	**Level**	**Credits**	**TQT**
Core units				
5IT01	Technopreneurship	5	20	200
5IT02	Network Security	5	20	200
5IT03	C#.NET Programming	5	20	200
5IT04	System Administration	5	20	200
Elective units				
5IT09	Business to Business (B2B) E-commerce	5	20	200
5IT10	Business to Consumer (B2C) E-commerce	5	20	200

4.3 Progression and Links to other QUALIFI Programmes

Learners completing any of the related **QUALIFI Level 5 Diplomas in IT** can progress to:

- the QUALIFI Level 6 Diplomas or
- the final year of undergraduate study in Information Technology, Computer Science or related ; or
- directly into employment in an associated profession.

4.4 University Exemptions

QUALIFI has exemptions for learners to progress to a number of universities to complete a master's degree. This generally requires completion of a dissertation only.

The pathways are an indication of a learner's progress towards a university degree and are based on the university's review of QUALIFI's learning programmes and outcomes. Further information is available here http://www.QUALIFI.net/learning-pathways/

4.5 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 policy document on RPL.

5 Guidance to Teaching and Learning

To ensure consistency and quality of delivery amongst centres, QUALIFI has outlined a number of policies and procedures required to ensure the very best standards are available to learners. These include:

- expertise of staff
- learning and teaching methods
- study skills
- learning resources
- personal development planning
- career opportunities.

The policies and procedures are available on request to all accredited centres or to those wishing to apply for accreditation to deliver QUALIFI qualifications.

6 Learner Support

Centres should continue to support learners and encourage appropriate behaviour. To ensure consistency and quality of delivery amongst centres QUALIFI, has outlined a number of policies and procedures to ensure the very best standards are available to learners. These include:

- learners with disabilities
- health and safety
- conduct
- progression
- weekly timetable/attendance requirements.

The policies and procedures are available on request to all accredited centres or to those wishing to apply for accreditation to deliver QUALIFI qualifications.

6.1 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. 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

7. Assessment

These qualifications are vocational as they can support a learner's career progression. To meet QUALIFI's aim to provide an appropriate assessment method each unit will be assessed through tasks that will be written in a way to make them realistic 'work-related' tasks wherever possible. Learners will need to demonstrate knowledge, understanding and. Original thought, problem solving and recommendations on actions will also be asked for from learners where appropriate for the unit. Intellectual rigour will be expected appropriate to the level of the qualification.

Assignments will contain a question strand for each of the given unit's learning outcomes. The assignment tasks will address the LO (learning outcome) and AC (assessment criteria) requirements. Within assignments there will always be requirements for learners to engage with important and relevant theory that underpins the subject area.

The assignment questions will require learners to draw on real organisations 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, facilitate in-company opportunities for learners to undertake research and investigation projects and/or support the organisation with various tasks. Mature and part-time learners will ideally be able to draw on their personal work experience too.

Sample assessments and marking scheme are available on request as part of the Qualification Specification supplied to centres.

QUALIFI has an assessment policy and procedure documents that are available to all centres delivering this qualification. QUALIFI's 'Handbook on Guidance and Requirements for Assessment and Marking' covers the following:

- assessment strategy
- assessment arrangements for learners with a disability
- verification
- marking scheme/pass mark
- deferral after valid mitigating circumstances
- referral after failure
- dealing with difficulties in meeting assessment deadlines
- late submissions
- assessment boards
- appeals
- cheating and plagiarism
- referencing
- confidential material
- submission.

8. Course Regulations

8.1 Course Requirements

Learners must complete all units and pass the appropriate mark to receive the full Diploma Award.

QUALIFI will issue certificates to all successful learners through the registered centres.

8.2 Classification of Awards

All Diploma are pass/fail. Where a candidate has achieved an overall average mark of at least 70% from all the units, QUALIFI may award a Distinction, although offering such a grade to individual candidates is at the discretion of QUALIFI and is not normally given after any successful referral attempts.

Decisions about the overall classification of awards are made by QUALIFI through the application of the academic and relevant course regulations. It is based on the Average Percentage Mark (APM) or, at the discretion of QUALIFI, on the basis of your overall profile and performance subject to the minimum requirements.

8.3. Learner Voice

Learners can play an important part in improving the quality of this course through the feedback they give. In addition to the ongoing discussion with the course team throughout the year, there is a range of mechanisms for learners to feed back about their experience of teaching and learning.

8.4 Complaints

QUALIFI recognises that there may be occasions when learners and centres have cause for complaint about the service received. When this happens, the complaints procedure is intended to provide an accessible, fair and straightforward system that ensures as an effective, prompt and appropriate response as possible.

For more information on our formal complaints procedure please contact in the first instance or email: support@QUALIFI-international.com

9 Equality and Diversity

QUALIFI recognises that discrimination and victimisation are unacceptable and that it is in the interests of QUALIFI employees to utilise the skills of the total workforce. It is our aim to ensure that no employee or other representative of QUALIFI receives less favourable facilities or treatment (either directly or indirectly) in recruitment or employment on grounds of age, disability,

gender/gender reassignment, marriage/civil partnership, pregnancy/maternity, race, religion or belief, sex, or sexual orientation (protected characteristics).
Our aim is that our workforce will be truly representative of all sections of society and each employee feels respected and able to give their best. We oppose all forms of unlawful and unfair discrimination or victimisation. To that end the purpose of this policy is to provide equality and fairness for all.

Our staff will not discriminate directly or indirectly, or harass customers or clients because of age, disability, gender reassignment, pregnancy and maternity, race, religion or belief, sex, and sexual orientation in the provision of QUALIFI's goods or services.

This policy and the associated arrangements shall operate in accordance with statutory requirements, particularly the Equality Act 2010 https://www.gov.uk/equality-act-2010-guidance. In addition, full account will be taken of any guidance or codes of practice issued by the Equality and Human Rights Commission, any government departments, and any other statutory bodies.

The policy document will be monitored and reviewed annually and can be downloaded from our website or by making contact with QUALIFI.

10. Further Professional Development and Training

QUALIFI supports UK and international customers 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.

You can request customised training through your registered centre in the first instance. If you need to contact QUALIFI directly:

Our customer service number: +44 (0) 1158882323

Or email: support@QUALIFI-international.com

Website: www.QUALIFI.net www.QUALIFI-international.com

Appendix 1: Unit Descriptors

Unit 5IT01: 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 optimizes 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 5IT02: 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 5IT03: 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 5IT04: 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 5IT05: 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 5IT06: 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
3. 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 5IT07: 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 5IT08: Web Design

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 5IT09: 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 IT10: 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