



Unit title:	e-Commerce technologies
Unit number:	12
Level:	4
Credit value:	15
Guided learning hours:	60
Unit reference number:	K/601/1975

UNIT AIM AND PURPOSE

To enable learners to design e-Commerce technology solutions and to provide learners with a clear understanding of legislation relating to e-Commerce technology.

LEARNING OUTCOMES AND ASSESSMENT CRITERIA

A pass grade is achieved by meeting **all** the requirements in the assessment criteria.

Learning Outcome (LO)	Pass
The Learner will:	The Learner can:
LO1 Understand the functionality of commercial transactional websites	1.1 evaluate the effectiveness of a commercial transactional website suggesting areas for improvement 1.2 show diagrammatically the chain of events and the flow of information that are triggered by an online purchase
LO2 Understand the technologies involved in setting up commercial websites	2.1 analyse a commercial transactional website detailing the technologies implemented by the site 2.2 explain how to evaluate web server performance
LO3 Know how to address e-Commerce security issues	3.1 discuss how the security of data exchanged through an e-Commerce service can be managed 3.2 describe current legislation related to online purchasing and protection of customer data
LO4 Be able to design e-Commerce technology solutions	4.1 design an e-Commerce technology solution for a small to medium e-Commerce organisation 4.2 discuss the differences between an in-house hosted solution against a sub-contracted hosted solution

GRADING CRITERIA

A merit grade is achieved by meeting **all** the requirements in the pass criteria **and** the merit descriptors.

A distinction grade is achieved by meeting **all** the requirements in the pass criteria **and** the merit descriptors **and** the distinction descriptors.

Merit Criteria (M1, M2, M3)	Distinction Criteria (D1, D2, D3)
(M1, M2, and M3 are mandatory to achieve a merit grade. Each must be achieved at least once per unit to achieve a merit grade.)	(D1, D2, and D3 are mandatory to achieve a distinction grade. Each must be achieved at least once per unit to achieve a distinction grade.) (In order to achieve a distinction grade, all merit criteria must also have been achieved.)
MANDATORY TO ACHIEVE A MERIT GRADE	MANDATORY TO ACHIEVE A DISTINCTION GRADE
M1 Analyse concepts, theories or principles to formulate own responses to situations.	D1 Evaluate approaches to develop strategies in response to actual or anticipated situations.
M2 Analyse own knowledge, understanding and skills to define areas for development.	D2 Evaluate and apply strategies to develop own knowledge, understanding and skills.
M3 Exercise autonomy and judgement when implementing established courses of action.	D3 Determine, direct and communicate new courses of action.

TEACHING CONTENT

The Teaching Content describes what has to be taught to cover **all** Learning Outcomes.

Learners must be able to apply relevant examples to their work although these do not have to be the same as the examples specified.

LO1 Understand the functionality of commercial transactional websites	
Types of transactional websites	Products or services, business to customer, business to business, customer to customer
Website functionality evaluation	e.g. author, audience, reputation, accuracy of product information, ease of navigation, accessibility, overt and covert customer data gathering methods, customer authentication methods, security features, response times, customer engagement/retention
Back office	e.g. stock control, despatch and delivery, order tracking, identification and authorisation routines, virtual shopping cart management, payment processing, real time monitoring of customer activity
Services	e.g. range of goods/services, set up and running costs, internet specific goods/services, 24/7 web presence
Diagramming techniques	Data flow diagrams, information flow diagrams, UML Communication Diagram
LO2 Understand the technologies involved in setting up commercial websites	
Technology	Hardware e.g. web server, database server, Ethernet, backup server software, e.g. shopping cart, catalogue display, browsers, payment software, security software, database software, banner software, web design software, web maintenance tools, web logs
Network technology	e.g. ports and protocols, TCP/IP addresses, domain names and registrations, server directory structures, access configuration, security, mobile networks
Communications Data transmission	e.g. speed of download/upload, transfer rates, bandwidth for specific applications (e.g. text based, animation, speech, graphics)
Database	e.g. form and report design, data capture from forms, performing dynamic queries, web page generation, database-driven webpages, connections to database, query result displays

Analysis	e.g. start-up costs, maintenance costs, scalability, server reliability, security, customer feedback, speed of access, ease of navigation
Evaluation	Web load testing, e.g. requests per second, simultaneous connections, data throughput, number of confirming connections.
LO3 Know how to address e-Commerce security issues	
Physical security of data	e.g. access codes, security personnel, biometrics, back up servers, business continuity plans
System security	e.g. user names, user passwords, access rights, firewalls, virus protection, unauthorised modification of content detection, security audits, limiting software updates, encrypting data, HTTPS enabling, Secure Electronic Transactions (SET)
Customer information management	e.g. managing threats (e.g. fraud, identify theft), accuracy, personal data security
Certification	Public-private keys, digital certificates, digital signatures, message integrity, certificate chains
Legislation related to purchasing and protection of customer data	Those relevant to organisations, individuals (e.g. Data Protection, equality, customer protection legislation, international law, international agreements).
LO4 Be able to design e-Commerce technology solutions	
e-Commerce organisation	Small, medium, national, international business
Structure of solution	e.g. customer interface, ease of use, range of products, data entry, payment handling, delivery, shipping, order tracking, colour schemes, font sizes
Hardware and software	e.g. expected number of hits, peak number of hits, bandwidth and servers
Costs	e.g. hardware, software, additional staff, staff training, set up, maintenance, security, marketing, delivery system, leasing, 24/7 maintenance or customer service
Database	e.g. schema design, file systems, query processing, availability, transaction processing, interface and report design
Connectivity	e.g. webserver/internet/database (e.g. SQL, Microsoft ASP (Active Server Pages)), JDBC (Java Database Connectivity) ODBC (Object Database Connectivity).

Advantages of a subcontracted host solution	e.g. expert knowledge for a given period, timeliness, marketing support, customer service
Disadvantages	e.g. affordability, quality of service, fit of requirements to what will be delivered, availability
Advantages of in-house host solution	e.g. control of activity and quality may be less expensive.
Disadvantages	e.g. cost of hiring expertise, costs of removing expertise when no longer required, possible lack of control time and/or costs

GUIDANCE

<p>Delivery guidance</p> <p>It will be beneficial to deliver this unit in a way that uses actual events, industry forecasts or sector specific contexts which offer the learner the opportunity to explore, develop and apply the fundamental principles of the sector or subject area. Development of an e-Commerce technical solution for a real project provided by a small or medium local business or a case study or scenario for a small business which would be used as the basis for the assessment.</p> <p>Learners will benefit from being encouraged to exercise autonomy and judgement to review and investigate a real life commercial transactional website. They should also design a new e-Commerce technology solution. This should demonstrate understanding and application of relevant skills gained through the study of this unit.</p> <p>Learners would benefit from being presented with subject/sector-relevant problems from a variety of perspectives and from being given the opportunity to explore them using a variety of approaches and schools of thought. For example, comparing the claims made by hosting and e-commerce website developers and the feedback and reports from companies who have taken the outsourcing route.</p>

<p>Assessment evidence guidance</p> <p>Evidence must be produced to show how a learner has met each of the Learning Outcomes. This evidence could take the form of assignments, project-portfolios, presentations or where appropriate reflective accounts.</p> <p>Where group work/activities contribute to assessment evidence the individual contribution of each learner must be clearly identified.</p> <p>All evidence must be available for the visiting moderator to review. Where learners are able to use real situations or observations from work placement, care should be taken to ensure that the record of observation accurately reflects the learner's performance. This should be signed, dated, and included in the evidence. It is best practice to record another individual's perspective of how a practical activity was carried out. Centres may wish to use a witness statement as a record of observation. This should be signed and dated and included in the evidence.</p>
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RESOURCES

Books

Porter Scobey and Pawan Lingras, *Web Programming and Internet Technologies: an E-commerce Approach*, Jones and Bartlett Publishers, Inc. 2012. ISBN13: 9780763773878

V. Rajaraman *Essentials of E-commerce Technology*, PHI Learning, 2010. ISBN-13: 978-8120339378

Laudon K. and Traver C., *E-Commerce*, Pearson Education (8th Ed), 2012. ISBN-10 0272761293

Mohapatra, Sanjay, *E-Commerce Strategy*, Springer, 2013. ISBN 978-1-14614-4142-7

Korper, S. and Ellis, J., *The E-Commerce Book Building the E-Empire*, 2nd Edition, Elsevier, ISBN: 9780080518800

Hedley S. and Aplin T., *Blackstone's Statutes on IT and e-Commerce*, Fourth Edition, OUP, 978-0-19-923821-7

Reynolds Jonathan, *E-Business: A Management Perspective*, OUP, 2009. ISBN 10 0199216487

Journals

International Journal of Electronic Commerce
E-commerce Business Journals

Websites

www.microsoft.com/business/en-us/resources/technology/ecommerce/

www.ecommerce-guide.com/

Electronic Commerce Research and Applications, Elsevier

Some useful sites include :-

http://export.gov/sellingonline/eg_main_020795.asp

<http://www.digsmith.com/ecommerce-definition.html>

<http://www.uml-diagrams.org/communication-diagrams-examples.html>