

Cambridge **TECHNICALS LEVEL 3**

IT

Cambridge
TECHNICALS
2016

Unit 10

Business computing

F/507/5011

Guided learning hours: 60

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Guided learning hours: 60

Essential resources required for this unit: none

This unit is internally assessed and externally moderated by OCR.

UNIT AIM

Businesses and organisations are driven by the information that they gather, process and provide. Often, this involves computers, networks and databases. In this unit, you will gain an understanding of how information technology and computer-based systems facilitate the needs of business and how businesses use information. You will learn about the skills and attributes needed by people working in data analysis and will gain practical experience of editing and manipulating a variety of different forms of information before applying these skills to solve a specific problem.

This unit is in the Data Analyst specialist pathway due to its relevance to a business and data analytical environment. The unit supports the development of skills, knowledge and understanding relevant to a data analyst role, and can be used as a starting point to further develop their understanding of working with and analysing data, regardless of size and complexity.

TEACHING CONTENT

The teaching content in every unit states what has to be taught to ensure that learners are able to access the highest grades.

Anything which follows an i.e. details what must be taught as part of that area of content. Anything which follows an e.g. is illustrative, it should be noted that where e.g. is used, learners must know and be able to apply relevant examples in their work, although these do not need to be the same ones specified in the unit content.

For internally assessed units you need to ensure that any assignments you create, or any modifications you make to an assignment, do not expect the learner to do more than they have been taught, but must enable them to access the full range of grades as described in the grading criteria.

Learning outcomes	Teaching content
The Learner will:	Learners must be taught:
1. Know the attributes required for data analyst job roles	<p>1.1 Data analyst jobs, e.g.:</p> <ul style="list-style-type: none"> • retail marketing data analyst • software licensing data analyst • banking reference data analyst • DBA data analyst • technical business analyst • systems analyst • business data analyst • SQL developer • financial data analyst • HR data analyst • senior data analyst • voice data analyst • gaming data analyst <p>1.2 Personal attributes for employment in data analyst roles, e.g. interpersonal skills and team-working</p> <ul style="list-style-type: none"> • time management • mathematical ability • written communication • spoken communication • IT skills • accuracy and attention to detail • determination • adaptability • decision-making skills • problem-solving skills • commercial awareness <p>1.3 Qualifications</p>

Learning outcomes	Teaching content
The Learner will:	Learners must be taught:
2. Be able to capture and store data for analysis	<p>2.1 Data suitability, e.g.:</p> <ul style="list-style-type: none"> • relevance • availability • timeliness • reliability • accuracy • appropriate format • suitability for processing <p>2.2 Data capture techniques, e.g.:</p> <ul style="list-style-type: none"> • web data capture form • video recording • audio recording • sensors and data logs • website visitor tracking • mobile and wearable technology • image and document scanning • machine-readable media and codes • legacy data import • optical character recognition • hand-writing recognition <p>2.3 Automation of data capture, e.g.:</p> <ul style="list-style-type: none"> • spreadsheet forms auto-linked to data sheets, e.g. use of macros or Google forms • web forms and server-side processing on form submission • macros for download of web data that frequently updates • automated download of sensor data • event-triggered capture, e.g. motion or noise triggered • web analytic tools • data virtualisation <p>2.4 Storage considerations, e.g.:</p> <ul style="list-style-type: none"> • data volumes • data access requirements • local, networked and cloud storage
3. Be able to use tools to edit and analyse data	<p>3.1 Types of data, i.e.:</p> <ul style="list-style-type: none"> • text • numbers • video • audio • images/graphics <p>3.2 Applications for manipulating data, e.g.:</p> <ul style="list-style-type: none"> • desktop publishing and text manipulation software • spreadsheets, financial packages, statistical analysis software • video analysis and editing applications • audio analysis and editing applications • photo editing software • graphics packages

Learning outcomes	Teaching content
The Learner will:	Learners must be taught:
	<p>3.3 Data compatibility and transformation including data format, data output for compatibility with other applications or platforms and data import</p> <p>3.4 Techniques in selected software applications to correct errors in captured data, e.g.:</p> <ul style="list-style-type: none"> • numbers stored as text, empty fields, commas in text fields of CSV files • colour correction, perspective, distortion, retouching, image noise reduction • audio noise reduction, removal of unwanted sounds <p>3.5 Core functions of automated processing tools, e.g.:</p> <ul style="list-style-type: none"> • natural language processing • speech synthesis and analysis • video image processing (e.g. Prozone, Google car pedestrian recognition) • song recognition (e.g. Shazam, Soundhound) • face recognition • fingerprint analysis • functions, formulae • environmental sensors (e.g. heat, light, humidity) <p>3.6 Basic processing and manipulation techniques used in applications</p> <p>3.7 Advanced processing and manipulation techniques used in applications</p> <p>3.8 Combining techniques and applications to process data</p> <p>3.9 Analysis of processed data, i.e.:</p> <ul style="list-style-type: none"> • key question(s) for analysis • data selection • identification of patterns and trends • limitations of data and impact on outcomes from analysis
<p>4. Be able to present data analysis outcomes</p>	<p>4.1 Presentation content, e.g.:</p> <ul style="list-style-type: none"> • what was the problem? • what information or data were required to address it? • how were these captured? • what processing was necessary? • what are the outcomes from processing of information? • how does it meet the client's needs? • how might it be used by the client? • why is this useful? • what makes it effective? <p>4.2 Effective presentation delivery, e.g.:</p> <ul style="list-style-type: none"> • courtesy and integrity • speaking clearly and concisely • awareness of body language • accurate spelling, punctuation and grammar

Learning outcomes	Teaching content
The Learner will:	Learners must be taught:
	<ul style="list-style-type: none">• use of appropriate specialist vocabulary• engaging the audience• positive attitude and language• providing clarification as necessary <p>4.3 Laws applying to collection, storage, processing and use of data and information, i.e.:</p> <ul style="list-style-type: none">• Data Protection Act 1998• Computer Misuse Act 1998• Freedom of Information Act 2000• Copyright, Designs and Patents Act 1988 <p>4.4 Organisation procedures for compliance</p>

GRADING CRITERIA

LO	Pass	Merit	Distinction
	The assessment criteria are the Pass requirements for this unit.	To achieve a Merit the evidence must show that, in addition to the pass criteria, the candidate is able to:	To achieve a Distinction the evidence must show that, in addition to the pass and merit criteria, the candidate is able to:
1. Know the attributes required for data analyst job roles	P1: Describe the knowledge, skills and qualifications required for data analyst job roles		
2. Be able to capture and store data for analysis	P2*: Plan and capture data for an identified purpose <i>(*Synoptic assessment from Unit 1 Fundamentals of IT, Unit 2 Global information and Unit 3 Cyber security)</i>	M1: Explain storage considerations required for storing captured data for an identified purpose	
3. Be able to use tools to edit and analyse data	P3: Use IT tools to correct errors and transform data for processing		D1: Use core functions to automate the processing of captured information, justifying choices made
	P4: Process data for the identified purpose	M2: Analyse the processed data for the identified purpose	D2: Justify decisions in the processing of information for the identified purpose
4. Be able to present data analysis outcomes	P5: Present results of data analysis to a specified audience	M3: Explain the legal issues associated with the presentation and use of processed information	

SYNOPTIC ASSESSMENT

When learners are taking an assessment task, or series of tasks, for this unit they will have opportunities to draw on relevant, appropriate knowledge, understanding and skills that they will have developed through other units. We've identified those opportunities in the grading criteria (shown with an asterisk). Learners should be encouraged to consider for themselves which skills/knowledge/understanding are most relevant to apply where we have placed an asterisk.

ASSESSMENT GUIDANCE

LO1 Know the attributes required for data analyst job roles

P1: Learners should make it clear how the knowledge, skills or qualifications that are required for a data analyst job role are related to the role itself and the tasks it may involve. The evidence could be in the form of a report based on learners' research into different data analyst job roles advertised by employers online or in newspapers, but could be demonstrated by learners creating job advertisements for specified data analyst roles.

LO2 Be able to capture and store data for analysis

P2: Learners must show that they understand what outputs are required for a given scenario, what information will be required and how this could be captured in a suitable format for later processing. The evidence will be plans for capturing the data and the actual data captured.

M1: Learners are required to explain storage considerations required for storing captured data for an identified purpose. The explanations should include a brief description of the different storage considerations they have made and how these would meet the identified purpose. The evidence could be in the form of a report or presentation with detailed speaker notes or a technical guide. It could also be an extension of the evidence for P2.

LO3 Be able to use tools to edit and analyse data

P3: Learners must use a wide range of tools to manipulate types of data, at least one of which must be numerical. The use of tools must be purposeful and should be realistic data processing tasks. Learners must provide evidence of transforming data for subsequent processing. They should provide evidence of how errors can be identified in provided or imported data and how they have corrected these errors.

D1: Learners must use core functions to automate the processing of data. The evidence will be the core functions selected and the resultant processing of the transformed data from P3. Learners must justify the choices made for the core functions.

P4: The assessment evidence is the outcome from the processing of data. Learners must provide evidence of processing the data and the outcomes from that processing, together with any necessary annotation. The processing should include basic techniques in relevant applications or using a combination of applications in order to provide the necessary processing.

M2: Learners should present their findings from analysing their processed data, making specific reference to the evidence as appropriate. Evidence could be in the form of a formal report, or may be a presentation with detailed speaker notes. If learners support the analysis with graphs and/or charts they should be labelled correctly.

D2: Learners must justify the choices that they made in the processing of the data for the identified purpose. For each aspect they should explain the reasons for each of their decisions. They should include consideration of the constraints on their solution, what was feasible and how the solution could be addressed more effectively with fewer constraints.

LO4 Be able to present data analysis outcomes

P5: Learners are required to present outcomes from their data analysis. The presentation may take the form of a formal presentation that is video recorded or has detailed speaker notes, or may be a formal report. The audience will be defined within the scenario given.

M3: Learners must describe the laws relevant to the collection, storage, processing and use of processed information. They could also describe the actions that an organisation could take or the policies they could put in place in order to comply with each law. They could explain how these actions or policies fulfil the legal requirements and outline what is required of employees as part of this. They must describe the consequences of failing to meet legal requirements, both for organisations and individuals. The evidence could be a presentation for the appropriate audience that could include the client (or tutor in that role) and should be fit for purpose. The presentation may be face-to-face, but could be in another format such as video conferencing, video presentation, or written format.

Feedback to learners: you can discuss work-in-progress towards summative assessment with learners to make sure it's being done in a planned and timely manner. It also provides an opportunity for you to check the authenticity of the work. You must intervene if you feel there's a health and safety risk.

Learners should use their own words when producing evidence of their knowledge and understanding. When learners use their own words it reduces the possibility of learners' work being identified as plagiarised. If a learner does use someone else's words and ideas in their work, they must acknowledge it, and this is done through referencing. Just quoting and referencing someone else's work will not show that the learner knows or understands it. It has to be clear in the work how the learner is using the material they have referenced **to inform their** thoughts, ideas or conclusions.

For more information about internal assessment, including feedback, authentication and plagiarism, see the centre handbook. Information about how to reference is in the *OCR Guide to Referencing* available on our website: <http://www.ocr.org.uk/i-want-to/skills-guides/>.

EMPLOYABILITY SKILLS

Employability skills	Learning outcome
Communication	P1, P2, P5, M1, M2, M3, D1, D2
Problem solving	P2, P3, P4, P5, M2
Time management	P2, P3, P4, P5, M2
Critical thinking	M1, M2, D1, D2
Decision making	P2, P3, P4, P5, M2, D2

MEANINGFUL EMPLOYER INVOLVEMENT - a requirement for the Diploma (Tech Level) qualifications

The 'Diploma' qualifications have been designed to be recognised as Tech Levels in performance tables in England. It is a requirement of these qualifications for centres to secure for every learner employer involvement through delivery and/or assessment of these qualifications.

The minimum amount of employer involvement must relate to at least one or more of the elements of the mandatory units.

Eligible activities and suggestions/ideas that may help you in securing meaningful employer involvement for this unit are given in the table below.

Please refer to the *Qualification Handbook* for further information including a list of activities that are not considered to meet this requirement.

Meaningful employer involvement	Suggestion/ideas for centres when delivering this unit
1. Learners undertake structured work-experience or work-placements that develop skills and knowledge relevant to the qualification.	Learners could see this unit in context though a work placement in a team that process and manage data.
2. Learners undertake project(s), exercises(s) and/or assessments/examination(s) set with input from industry practitioner(s).	For the processing of data, industry practitioners could provide a scenario for investigation or develop a scenario with you which will enable the learners to use the skills and techniques expected in the working environment.
3. Learners take one or more units delivered or co-delivered by an industry practitioner(s). This could take the form of master classes or guest lectures.	Industry practitioners could provide sessions on the nature of data analysts' work, techniques used to process information in selected applications and how to remove errors from erroneous data.
4. Industry practitioners operating as 'expert witnesses' that contribute to the assessment of a learner's work or practice, operating within a specified assessment framework. This may be a specific project(s), exercise(s) or examination(s), or all assessments for a qualification.	Industry practitioners could review the evidence produced by learners as a result of a scenario which they developed with the centre. The industry practitioner could provide feedback on how the learners' evidence meets industry standards and reflects the requirements and standards expected in a working environment.

To find out more

ocr.org.uk/it

or call our Customer Contact Centre on **02476 851509**

Alternatively, you can email us on **vocational.qualifications@ocr.org.uk**



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