OCR
Oxford Cambridge and RSA

Cambridge **TECHNICALS LEVEL 3**

Cambridge
TECHNICALS
2016

IT

Unit 23

Cognitive computing

J/615/1130

Guided learning hours: 30

Version 1: August 2016

LEVEL 3

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J/615/1130

Guided learning hours: 30

Essential resources required for this unit: None

This unit is internally assessed and externally moderated by OCR.

UNIT AIM

Cognitive computing and artificial intelligence are where human thought processes and activities are simulated in a computerised model. This unit will provide you with the opportunity to gain a better understanding of cognitive computing and the role it has to play in current technologies and emerging technologies. Using your knowledge and understanding of cognitive computing you will consider how cognitive computing can be used on a global scale in the future and you will develop a business proposal for its use and implementation.

This unit is optional in both specialist pathways in the Level 3 Extended Diploma.

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 The Learner will:	Teaching content Learners must be taught:
1. Know how cognitive computing is used in business	1.1 Current use of cognitive computing e.g.: • healthcare (e.g. analysing big data, suggesting diagnosis, recommending treatments) • retail (e.g. enhanced customer experience, optimisation of store operations, improved supply chain management, identify potential markets) • human resources (e.g. increase employee productivity, expedite time consuming business processes, recruitment) • procurement (e.g. improve customer services) • travel industry (e.g. personalised travel advice) • facial recognition (e.g. for use by security services, access to security systems) • education (e.g. personalise learning requirements, identify development needs) • manufacturing (e.g. operations management, controlling systems etc) 1.2 Business stakeholders using cognitive computing e.g. • individuals • corporate • SMEs (Small Medium Enterprises) 1.3 Drawbacks of cognitive computing applications i.e. • safeguarding of data (e.g. access to large data will have an impact on security of data) • employment security (e.g. will job roles become redundant?) • transform how we live, work and think

Learning outcomes The Learner will:	Teaching content Learners must be taught:

2. Be able to investigate opportunities for the positive application of cognitive computing	2.1 Investigating cognitive computing opportunities i.e.
	• purpose (e.g. what does the business want to achieve?)
	• how will it achieve its purpose? (e.g. tapping into large volumes of unstructured data or data that was previously ignored)
	• how would cognitive computing help? i.e.
	    o rapidly innovate (e.g. cognitive technology is trained not programmed and therefore improves over time)
	    o make more money with improved insights (e.g. enables businesses and individuals to make better decisions with more in-depth knowledge)
	    o gain a competitive edge (e.g. enabling a business to offer capabilities their competitors cannot)

3. Be able to generate business proposals for an identified application of cognitive computing	3.1 Business proposal i.e.
	• overview of the business
	• target audience
	• problem statement i.e. what are the business needs
	• proposed solution i.e. detail explanation as to how each of the business needs could be addressed
	• technology application
	• risks
	• benefits
	• costs
	• legal and ethical considerations e.g.
	    o replacing humans with machines (cognitive computing can mutually support the work of humans e.g. providing information, delivering training)
	    o malicious human interaction (protecting the data and protecting the technology)
	    o education e.g.
	        ▪ by believing a computer performs a job better that a human can lower attention and standards
	        ▪ care must be taken not lose the human ability to learn
	        ▪ cannot replace the human urge of achieving the unknown
	    o health e.g. improved diagnostic accuracy and speed
	    o justice e.g. cannot replace the legal system in court cases and the law requires interpretation and knowledge to apply to each individual case
	3.2 Minimise risks e.g.
	• combine humans and machines
	• use cognitive computing to support professionals e.g. health care, security, customer support, business intelligence
	• ensure data does not fall into the wrong hands (data protection and security)
	
	3.3 Repurposing (to adapt for use for a different purpose)

GRADING CRITERIA

Learning Outcome (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 how cognitive computing is used in business	P1: Describe the current application of cognitive computing in business *Synoptic with Units 1, 2 and 3	M1: Describe the drawbacks of an identified cognitive computing application	
2. Be able to investigate opportunities for the positive application of cognitive computing	P2: Research opportunities across business sectors where the application of cognitive computing could improve business activities *Synoptic with Units 1, 2 and 3		
3. Be able to generate business proposals for an identified application of cognitive computing	P3: Prepare an outline business proposal for the development of a cognitive computing solution in a given sector *Synoptic with Units 1, 2 and 3	M2: Minimise the social, moral and ethical implications of your proposed solution	D1: Evaluate the potential repurposing of your solution to other business sectors

*SYNOPTIC ASSESSMENT AND LINKS BETWEEN UNITS

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.

Links between this unit and other units

This unit and specific LO	Name of other unit and related LO
LO1: Know how cognitive computing is used in business LO2: Be able to investigate opportunities for the positive application of cognitive computing LO3: Be able to generate business proposals for an identified application of cognitive computing	**Unit 1: Fundamentals of IT** LO1: Understand computer hardware LO2: Understand computer software LO3: Understand business IT systems LO4: Understand ethical and operational issues and threats to computer systems
LO1: Know how cognitive computing is used in business LO2: Be able to investigate opportunities for the positive application of cognitive computing LO3: Be able to generate business proposals for an identified application of cognitive computing	**Unit 2: Global Information** LO1: Understand where information is held globally and how it is transmitted LO2: Understand the styles, classification and the management of global information LO3: Understand the use of global information and the benefits to individuals and organisations LO4: Understand the legal and regulatory framework governing the storage and use of global information LO5: Understand the principles of information security
LO1: Know how cognitive computing is used in business LO2: Be able to investigate opportunities for the positive application of cognitive computing LO3: Be able to generate business proposals for an identified application of cognitive computing	**Unit 3: Cyber Security** LO1: Understand what is meant by cyber security LO2: Understand the issues surrounding cyber security LO3: Understand measures used to protect against cyber security incidents
LO1: Know how cognitive computing is used in business LO2: Be able to investigate opportunities for the positive applications of cognitive computing LO3: Be able to generate business proposals for an identified application of cognitive computing	**Unit 5: Virtual and Augmented Reality** LO1: Understand virtual and augmented reality and how they may be used LO4: Be able to predict future applications for virtual or augmented reality
LO1: Know how cognitive computing is used in business LO2: Be able to investigate opportunities for the positive applications of cognitive computing LO3: Be able to generate business proposals for an identified application of cognitive computing	**Unit 16: Developing a Smarter Planet** LO1: Understand what is meant by a Smarter Planet LO2: Be able to propose ways to extend the scope of the Smarter Planet LO3: Be able to present, refine and evaluate Smarter Planet concepts
LO1: Know how cognitive computing is used in business LO2: Be able to investigate opportunities for the positive applications of cognitive computing LO3: Be able to generate business proposals for an identified application of cognitive computing	**Unit 17: Internet of Everything** LO1: Understand what is meant by the IoE LO2: Be able to repurpose technologies to extend the scope of the IoE LO3: Be able to present concept ideas for repurposed developments

This unit and specific LO	Name of other unit and related LO
LO1: Know how cognitive computing is used in business LO2: Be able to investigate opportunities for the positive applications of cognitive computing LO3: Be able to generate business proposals for an identified application of cognitive computing	**Unit 22: Big Data Analytics** LO1: Understand the scope of big data LO2: Be able to process Big Data for business purposes LO3: Be able to provide information resulting from processing Big Data
LO1: Know how cognitive computing is used in business LO2: Be able to investigate opportunities for the positive applications of cognitive computing LO3: Be able to generate business proposals for an identified application of cognitive computing	**Unit 24: Enterprise Computing** LO1: Understand the concept of enterprise computing systems LO2: Be able to investigate business requirements for an enterprise computer solution LO3: Be able to develop enterprise computing solutions to meet business requirements LO4: Be able to review the enterprise computing solution with stakeholders

ASSESSMENT GUIDANCE

LO1 Know how cognitive computing is used in business

P1: Learners must describe the current application of cognitive computing in business. This can be a report, presentation (with detailed speaker notes), a recorded discussion or information guide.

M1: The learners are required to describe the drawbacks of an identified cognitive computing application. It can be an extension of the evidence used for

LO2 Be able to investigate opportunities for the positive application of cognitive computing

P2: Learners must research opportunities across business sectors where the application of cognitive computing could improve business activities. This can be in the form of a report, a visualisation, diagram, illustrations or animation. The evidence should show that the learner has researched opportunities which can be used for the basis for the business case they will propose in LO3 along with the costing of the business benefits.

LO3 Be able to generate business proposals for an identified application of cognitive computing

P3: Learners must prepare an outline business proposal for the development of a cognitive computing solution in a given sector. The proposal can be in the form of a report or a presentation to potential stakeholders. The presentation can be video or the presentation slides with detailed speaker notes.

M2: Learners are required to show how they could minimise the social, moral and ethical implications of the proposed solution for P3. This can be included as part of the report or presentation produced for P3.

D1: Learners are required to evaluate the potential of repurposing their solution from P3 to other business sectors. The evaluation should show that the learner has made a qualitative judgements taking into account different factors and using available knowledge and evidence. This could be presented as a report, or presentation.

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/Assessment criteria
Communication	P1, P2, P3, M1, D1
Problem solving/decision making	P3, D1
Critical thinking	M1, D1
Analytical skills	P2, P3

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

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. This unit is optional but we encourage you to involve employers where possible.

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 engagement	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 work in a sector where they have the opportunity to analyse how cognitive computing could be implemented into the working environment or if already implemented analyse how it is enhancing business processes and functions etc.
2. Learners undertake a project(s), exercises(s) and/or assessments/examination(s) set with input from industry practitioner(s).	Centres could work with industry practitioners to create business scenarios which could be given to the learners to support their evidence for LO3 - Be able to propose potential uses of cognitive computing to support global business needs.
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.	Businesses who use cognitive computing could deliver sessions on how it is used within their organisation, future considerations for further development within this area and the risks and benefits involved.
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.	If learners are working within an appropriate working environment and are able to collect evidence from the workplace, industry practitioners within the workplace could provide expert witness testimonies to confirm a) the work is that of the learner and b) that their evidence is technically accurate.

You can find further information on employer involvement in the delivery of qualifications in the following documents:

- [Employer involvement in the delivery and assessment of vocational qualifications](#)

- [DfE work experience guidance](#)

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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