OCR
Oxford Cambridge and RSA

Cambridge **TECHNICALS LEVEL 3**

IT

Unit 16

Developing a Smarter Planet

Cambridge TECHNICALS 2016

M/507/5019

Guided learning hours: 60

Version 1 September 2015

LEVEL 3

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Guided learning hours: 60

Essential resources required for this unit: Access to research material and the internet

This unit is internally assessed and externally moderated by OCR.

UNIT AIM

Changes in technology over the last century now mean that we live in a Smarter Planet. You will consider how the evolution of technology has impacted on everyday life, and why the Smarter Planet is important for a global society. You will investigate the evolution of the Smarter Planet in a variety of contexts, including the impact it is having on society. You will consider potential Smarter Planet developments and put forward a business proposal for a Smarter Planet concept to potential stakeholders, revising the business proposal as necessary following their feedback.

This unit is optional within the Emerging Digital Technology Practitioner and IT Infrastructure Technician specialist pathways. The technology used within these two pathways can have a major impact on the sustainability of the Smarter Planet.

Knowledge gained in the study of this unit will also help prepare you for relevant industry qualifications such as Cisco IoE.

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. Understand what is meant by a Smarter Planet	1.1 Evolution of a Smarter Planet, i.e.:
	• improvements to original developments e.g.:
	   o radio to DAB
	   o telephones to mobile
	   o manual to automated machinery
	   o greener IT
	• purpose to, e.g.:
	   o speed processes
	   o improve efficiency
	   o reduce waste and inefficiency
	   o harness natural resources
	• human factors, e.g.:
	   o reduce manpower requirements
	   o improve quality of life
	
	1.2 Importance for a global society, i.e.:
	• principles, e.g.:
	   o information
	   o instrumented
	   o interconnected
	• focus/objectives (e.g. why do we need it?)
	• relevance
	
	1.3 Impacts, i.e.:
	• environmental, e.g.:
	   o pollution
	   o food miles
	   o increased energy consumption
	• ethical, e.g.:
	   o health and transplants
	   o the internet
	   o data privacy
	• social, e.g.:
	   o acceptance
	   o communication
	   o exposure to threat
	   o reduced face-to-face communication

Learning outcomes The Learner will:	Teaching content Learners must be taught:
	- individuals, e.g.: - health - labour saving - time saving - flexibility - accessibility - life styles, e.g.: - health - comfort - travel - communication - social 1.4 Business sectors, e.g.: - healthcare - environmental - engineering - manufacturing - IT, retail - electronics - transport 1.5 Sectors with applications of a Smarter Planet, e.g.: - banking - construction - towns and cities - computing and data storage - education - energy - healthcare - infrastructures - oil - products - regulatory bodies - retail - telecoms - transport/traffic - water - e-commerce - environmental
2. Be able to propose ways to extend the scope of the Smarter Planet	2.1 Features for extension to Smarter Planet developments, i.e.: - use of information - instrumented, i.e.: - measure, sense and monitor conditions - interconnected, i.e.: - people, systems and objects can communicate in new ways - intelligent, i.e.: - infuse intelligence into systems and ways of working - models to manage massive amounts of data generated by the end-user devices - sensors

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

	• use of analytics, i.e.:
	   o to translate data into making systems, processes and infrastructures more efficient, more productive and responsive and ultimately, making them smarter
	
	2.2 Feasibility study, i.e.:
	• scope
	• cost/benefit analysis
	• viability
	• technology
	• stakeholder and global impact
	
	2.3 Concept proposal, i.e.:
	• identification of concept, i.e.:
	   o purpose
	   o objectives
	• stakeholders, i.e.:
	   o people involved
	   o companies
	   o manufacturers
	• requirements, i.e.:
	   o technology
	   o sectors
	• deliverables, i.e.:
	   o what is achievable
	   o benefits

3. Be able to present, refine and evaluate Smarter Planet concepts	3.1 Present concept proposal, i.e.: • audio/video • questionnaire • interview • pitch • focus group 3.2 Refining concept proposal, e.g.: • taking account of stakeholder feedback • consider viability of options • reduce costs • extend scope 3.3 Evaluation of concept proposal to sustainability of the Smarter Planet, i.e.: • speed processes • improve efficiency • reduce waste and inefficiency • harness natural resources • reduce manpower requirements • improve quality of life

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. Understand what is meant by a Smarter Planet	P1*: Describe the evolution of the Smarter Planet in different global situations *(*Synoptic assessment from Unit 1 Fundamentals of IT, Unit 2 Global information and Unit 3 Cyber security)*		D1: Evaluate why the Smarter Planet concept is important for a global society
	P2: Describe the impacts of the Smarter Planet on society	M1: Explain the impact of the Smarter Planet within a specified sector	
2. Be able to propose ways to extend the scope of the Smarter Planet	P3: Propose potential Smarter Planet developments	M2: Conduct a feasibility study for an identified Smarter Planet development	
	P4: Create a concept proposal document for the identified Smarter Planet development		
3. Be able to present, refine and evaluate Smarter Planet concepts	P5: Present the concept proposal document to potential stakeholders	M3: Refine concept proposal document based on stakeholder feedback	D2: Evaluate how the concept proposal will contribute to the sustainability of the Smarter Planet

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 Understand what is meant by a Smarter Planet

P1: The learner will describe the evolution of the Smarter Planet for different global situations as identified in the teaching content for the unit. Each situation must be from a different category in the teaching content. Evidence can be in the form of a written report, a presentation with detailed speaker notes, a video of the learner presenting the information to an audience, or an information guide on the evolution of the Smarter Planet in different situations.

D1: The concept of the Smarter Planet will be evaluated in relation to its importance for a global society. A variety of concepts should be evaluated. Evidence can be in the form of a written report, a presentation with detailed speaker notes, a video of the learner presenting the information to an audience, or an information guide.

P2: The Smarter Planet has impacted on a number of areas of the global society. The learner should describe different impacts. Evidence for this criterion may link with criterion P3. Evidence can be in the form of a written report, a presentation with detailed speaker notes, a video of the learner presenting the information to an audience, or an information guide on areas of impact within a global society.

M1: The evidence for this assessment criterion will link with criterion P2 and will focus on the impact of the Smarter Planet within a specified sector. The selected sector does not need to be IT based, and learners should consider examples identified in the teaching content. The evidence can be presented as a newspaper article, report or presentation with detailed speaker notes.

LO2 Be able to propose ways to extend the scope of the Smarter Planet

P3: In order to identify potential developments using Smarter Planet advancements, it will be necessary for learners to explore existing developments. These developments could be an extension to an existing application, a new application or taking an existing application and identifying how it could be developed in a different context. There is an opportunity to link evidence for this criterion with LO1. Evidence can be in the form of a written report, a presentation with detailed speaker notes, a video of the learner presenting the information to an audience or an information guide identifying potential developments.

M2: The learner will be required to conduct a feasibility study for one of the developments identified in P3. The feasibility study should consider the items listed in the teaching content, but may incorporate other wider considerations if required. The evidence will be in the form of a report.

P4: Evidence for this criterion is likely to be an extension of that provided for criterion P3. Learners should produce documentation to enhance one of the developments into a concept proposal document. The evidence will be the formal concept proposal document.

LO3 Be able to present, refine and evaluate Smarter Planet concepts

P5: This criterion requires learners to prepare and deliver a concept proposal document to potential stakeholders. The concept proposal should cover the headings identified in the teaching content for the unit. The evidence could be in the form of a report, or a formal presentation with detailed speaker notes supported by the concept proposal document.

M3: Learners are required to consider the feedback from the potential stakeholders and revise the concept proposal. The concept proposal produced for criterion P5 will be updated to reflect the stakeholder feedback. The evidence will be the revised concept proposal and the learner's rationale for making the revisions based on the stakeholder feedback.

D2: Learners are required to evaluate how their concept proposal will contribute to the sustainability of the Smarter Planet. Some of the angles they may like to consider are listed in the teaching content. The evidence could be in the form of a report or a presentation with detailed speaker notes.

Some providers for the industry qualifications offer quizzes, tests and assessments. Reference to these websites may support knowledge and learning.
www.**cisco**.com/UK

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, P3, P4, P5, M1, M2, M3, D1, D2
Problem solving	P3, P4, P5, M2, M3, D2
Time management	P1, P2, P3, P4, P5, M1, M2, M3, D1, D2
Critical thinking	P2, P4, P5, M1, M2, M3, D1, D2
Team working	P3, P4, P5, M2, M3, D2
Negotiation	P5, M3
Decision making	P4, P5, M2, M3, 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 undertake an investigation during work experience to establish how developments in technology have impacted on an application within a company and how it has affected the employee(s) and the company and identify how it affects wider society.
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 be used as 'expert witnesses'. Learners could deliver their concept proposal and receive feedback. In turn the learners would revise the business proposal as a result of the feedback. This would provide practitioners with the opportunity to be contribute to the assessment of LO3.

To find out more

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

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

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