



Accredited

OCR LEVEL 3 CAMBRIDGE TECHNICAL CERTIFICATE/DIPLOMA IN IT

DEVELOPING A SMARTER PLANET

D/505/5400

LEVEL 3 UNIT 42

GUIDED LEARNING HOURS: 60

UNIT CREDIT VALUE: 10



DEVELOPING A SMARTER PLANET

Reference code D/505/5400

LEVEL 3

AIM AND PURPOSE OF THE UNIT

The Smarter Planet is an initiative developed by the IBM corporation to encourage individuals and organisations to think and develop solutions to processes or problems innovatively. The purpose is to encourage individuals and businesses to review their current practice to identify what they could change to reduce the impact on the planet/environment. The Smarter Planet initiative can be applied cross sector and this unit encourages learners to consider the ways in which improvements to processes may include cost savings, environmental impact and system efficiencies.

The smarter ideas which learners may identify may initially be small but may then grow and the focus is on constant improvements, developments to "make the planet smarter". They should look at technological developments across a range of sectors to consider whether these can be adapted to other sectors and they should also identify activities or processes they think can be improved in everyday life and consider innovative solutions that may be developed.

ASSESSMENT AND GRADING CRITERIA

Learning Outcome (LO)		Pass	Merit	Distinction
The learner will:		The learner can:		
1 Understand what is meant by a smarter planet		P1 explain how changes in technology have evolved over the last century		
		P2 explain how evolutions in technology have impacted on everyday life	M1 evaluate the wider uses of these technological developments within an identified sector	D1 discuss why the smarter planet concept is important to society as a whole
2 Understand the changing smarter business environment		P3 explain the benefits and beneficiaries of improved technologies to business		
		P4 explain how advances across business sectors have brought additional challenges		
3 Understand how smarter planet technologies could be further developed		P5 explain how advances to technology could be improved or extended	M2 discuss how technologies could be adapted to different business purposes	

TEACHING CONTENT

The unit content describes what has to be taught to ensure that learners are able to access the highest grade.

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 to their work though these do not need to be the same ones specified in the unit content.

LO1 Understand what is meant by a smarter planet

- **Technological developments scope**
 - machinery e.g. cars, radar, sonar, typewriters, computers, radio
 - automation e.g. digital devices, switches, manufacturing, health support machines
 - communication e.g. telephone
 - real examples e.g. the Magnetic strips, bar codes
- **Evolution**
 - improvements to original developments e.g.
 - radio to DAB,
 - telephones to mobile
 - Manual to automated machinery
 - purpose to e.g.
 - reduce manpower requirements
 - improve quality of life
 - Speed processes
 - improve efficiency
 - reduce waste and inefficiency
 - harness natural resources
- **Smarter planet**
 - focus/objectives
 - principles e.g. information, instrumented, interconnected
 - relevance

- **Life styles i.e.**
 - health
 - comfort
 - travel
 - communication
 - social
- **IBM Smarter Planet Projects e.g.**
 - Parking, traffic management.
 - Challenges through technology
- **Environmental e.g.**
 - pollution
 - food miles
 - increased energy consumption
- **Ethical e.g.**
 - health and transplants
 - the internet,
 - data privacy
- **Social e.g.**
 - acceptance
 - communication
 - exposure to threat
 - reduced face to face communication
- **Sectors e.g.**
 - banking
 - construction
 - towns and cities
 - computing and data storage
 - education
 - energy
 - healthcare
 - infrastructures
 - oil
 - products
 - regulatory bodies
 - retail
 - telecoms
 - transport/traffic
 - water

LO2 Understand the changing smarter business environment

- **Business Sectors e.g.**
 - healthcare
 - environmental
 - engineering
 - manufacturing
 - IT, retail
 - electronics
 - transport
- **Individuals e.g.**
 - health
 - labour saving
 - time saving
 - flexibility
 - accessibility

LO3 Understand how smarter planet technologies could be further developed

- **Features for extension e.g.**
 - instrumented - measure, sense and monitor conditions
 - interconnected - people, systems and objects can communicate in new ways
 - intelligent - infuse intelligence into systems and ways of working, models to manage massive amounts of data generated by the end-user devices, sensors. Use of analytics, to translate data into making systems, processes and infrastructures more efficient, more productive and responsive — ultimately, making them smarter.

DELIVERY GUIDANCE

This unit is designed to get the learners to think about technology that is taken for granted by them all.

LO1 Understand what is meant by a smarter planet

They could start by reviewing what technology they use every day from getting a bus or driving in the morning to their place of work or study. This would require them to consider the traffic infrastructure, the technology used to power the mode of transport, the way they identified a route, the way they sourced timetables etc. By working as a group they could identify the other technologies they use and as smaller groups should research the development of these. The more they research the more they will be able to identify how these developments have evolved potentially from different original purposes.

They should then identify, explain and discuss how life and environments have changed over the last century or even longer. This research and discussion will then give the learners an appreciation of how life, society, the environment and business has changed over the period and even the past 20-30 years.

The IBM Smarter Planet initiative is supported by a number of resources to allow learners to understand the core principles, objectives and activities. The learners can also identify the developments in technology made by IBM that have advanced the technologies they use i.e. the Bar Code and magnetic strip.

The group with tutor facilitation should then consider the “by-products” of the technological advances such as information and data although this could be taught further and in more depth in related units.

LO2 Understand the changing smarter business environment

Learners should identify a range of technologies that have surprised or impressed them and be encouraged to research in more depth as to the impacts of these technologies. All developments have primarily benefits but many provide challenges and these would be identified, discussed and opinions given as to whether the advancements outweigh the challenges. There may also be examples where challenges outweighed the benefits and the original purpose was not completed. These technologies will not have been wasted as they are frequently repurposed. Identification of these will assist the learners when they are required to think of wider

uses for technology in LO3. Identification of developments in a sector the learner can relate to will enable them to contextualise the scope of the development and appreciate the benefits. Research may include benefits to individuals as well as the main business organisation focus.

LO3 Understand how smarter planet technologies could be further developed

Based on their research, learners should start to consider how existing developments in technology can be improved or extended. An example of this would be the telephone which has extended from an almost exclusive, luxury usage with a fixed location to mobile, widely available and multi purpose. This is the case across society for many advances. Learners should discuss and evaluate these developments. They should then be encouraged to strip down the advances in to original purpose so that they can then look at problems in society or business that could be solved with repurposing or adaptation of technology. They should discuss their ideas and their feasibility and potential challenges.

SUGGESTED ASSESSMENT SCENARIOS AND TASK PLUS GUIDANCE ON ASSESSING THE SUGGESTED TASKS

Assessment Criteria P1,

For P1 learners must explain how changes in technology have evolved over the last century. This is not restricted to computers and technology but should consider a wide range of technologies across a number of sectors. Evidence could be in the form of a time line showing stages of the evolution.

Assessment Criteria P2, M1, D1

For P2 learners must explain how evolved changes in technology have impacted on everyday life This may be an addition to P1 where the learner explains impacts against a timeline for each change to a range of identified technologies across a range of sectors. Learners should consider the impact on social activity and business activity

For merit assessment criterion M1 learners must evaluate the wider uses of these technological developments within an identified sector. Learners could evidence this with a report identifying where these developments have been put to a wider use and should evaluate the application of identified technological developments to an adapted purpose.

For distinction assessment criterion D1 learner must discuss why the smarter planet concept is important to society as a whole. Learners should consider the concept of the smarter planet, the underpinning concepts and ideas and why the concept is important for a range of factors. This is likely to be a report identifying the concepts and ideas in detail and the benefits explained. Alternatively this may be a video presentation covering the same criteria.

Assessment Criteria P3, P4, P5, M2

For P3 learners must explain the benefits and beneficiaries of improved technologies to business. This could be evidenced with an annotated diagram and supporting narrative to clearly identify the beneficiaries of identified improvements and what the benefits that they experience are.

For P4 learners must explain how advances across sectors have brought additional challenges. This could be evidenced in the form of a report or as an addition to P3. The proposed beneficiaries of technological advances may not always

have benefitted and learners should identify challenges that changes in technology have brought. Examples can be focussed across a range of business sectors.

For P5 learners must explain how advances to technology could be improved or extended. Learners should identify technological developments both recent and historical and suggest ways in which the core developments could be extended to further evolve within the originating business sector. They should include a range of examples and their own thoughts on how these extensions to technology would bring additional benefit. This could be in the form of a presentation or a video presentation but the criteria must be covered.

For merit assessment criterion M2 learners must discuss how technologies could be adapted to different business purposes. Learners should use this explanation and their own thoughts to identify where technological developments in one area could be adapted and implemented into other sectors to give similar or differing benefits. They may also use their own ideas as to how these developments could potentially and practically be applied to sectors not yet identified. They may use existing examples of adaptations of technology to support the discussions. This could be presented as a visualisation diagram supported by explanatory notes.

RESOURCES

http://www-03.ibm.com/ibm/university/academic/pub/page/academic_initiative

Centres may wish to sign up free of charge to the academic initiative for the full range of resources and videos.

MAPPING WITHIN THE QUALIFICATION TO THE OTHER UNITS

Unit 1 Communication and employability skills for IT

Unit 2 Information systems

Unit 9 Project planning with IT

Unit 20 Impact of the use of IT on business systems

Unit 21 Communication technologies

Unit 29 The business environment

Unit 30 Business resources

Unit 33 System design

Unit 36 Exploring computer applications

LINKS TO NOS

4.2 Data Analysis

4.3 Human Needs Analysis

4.5 Data Design

4.7 Systems Design

5.3 IT/Technology Solution Testing

7.4 IT Application Management/Support



CONTACT US

Staff at the OCR Customer Contact Centre are available to take your call between 8am and 5.30pm, Monday to Friday.

We're always delighted to answer questions and give advice.

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