2016 Suite

OCR
Oxford Cambridge and RSA

Cambridge TECHNICALS LEVEL 3

Cambridge TECHNICALS 2016

IT

Progression: Foundation Diploma to Extended Diploma

Application Data Technician (Software Development Pathway)

Summer Project
Vision West Nottinghamshire College

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Contents

Introduction

Congratulations!

You have completed the Application Developer Foundation Diploma (year 1 of your course) and you are aiming to return to complete the Application Data Technician Extended Diploma (year 2 – which we call Software Development).

You have already studied many units and you now have knowledge, understanding and skills to take you forward into year 2. During the second year of your course you will study the following subjects:

- Cyber security
- Data analysis and design
- Product development
- Business computing
- Social media and digital marketing
- Software engineering for business
- Cognitive computing
- Enterprise computing
- Cloud technology

You are encouraged to view the content and structure of these units on the OCR website: http://www.ocr.org.uk/qualifications/vocational-education-and-skills/cambridge-technicals-it-level-3-certificate-extended-certificate-introductory-diploma-foundation-diploma-diploma-05838-05842-2016-suite/

All of your assignments will be crafted to suit your needs and support your progression into employment and higher education. You have 2 exam units in year 2: Cyber Security and Cloud Computing.

As you progress through the second year of your course, one of your units; Product development, could have many additional benefits for you, outside of the usual value of study. Unit 9: Product development content can be found here: http://www.ocr.org.uk/Images/267360-unit-09-product-development.pdf

The summer project is a vital and mandatory component of your course; it is linked directly to Unit 9: Product development and will be a part of your assessment in year 2.

Your summer project will contribute towards:

- Unit 9: Product development assessment
- Your Computer Science showcase product in year 2
- A portfolio of work that may be required for application to employment and higher education*
- Possible links with local employers
- Expanding upon your knowledge, understanding and skills within the computing sector
- Enhancement of your employability skills

You are required to participate in the Computer Science Showcase event during June of your second year. This event will be used to demonstrate your final product and skills to your teachers, other students and visiting dignitaries, including local employers, visitors from the computing industry and your own guests. The product that you create as part of Unit 9: Product development (beginning with your summer project) will be your centrepiece during this event.

**Some employers and higher education providers (including many courses at Vision West Nottinghamshire College) require a portfolio of work for you to demonstrate during interview.*

Summer Project Requirements

You are required to complete 2 main points of your project over the summer break:

- Project definition
- Project requirements specification.

The project definition will be demonstrated during your first week back (induction week) of year 2.

Your project requirement specification will be submitted as an assignment on the Friday of the second week back (first week of classes) of year 2.

Getting Ahead

You may wish to make a head start on your product in addition to the work you are required to complete over your summer break. If this is the case, you could consider working on the following things:

A written guide which contains the following criteria:

P1: Outline the phases of the product development life cycle
Phases of the product development life cycle, i.e.:
• requirements analysis
• design
• implementation
• testing (e.g. unit, integration, product, acceptance)
• deployment
• maintenance

M1: Compare and contrast different product development methodologies
Product development methodologies (e.g. Waterfall, Incremental, Spiral, Agile development)

D1: Assess the potential impact of constraints upon product development
Constraints, i.e.:
• time
• financial
• social (e.g. language, text types)
• regulation (e.g. company codes of practice, governmental regulation, national and international law)
• standards organisations (e.g. ISO, EN, BS, IEEE)
• standards (e.g. safety, design, quality management, risk analysis, reliability, requirements analysis)
• the need for compromise (e.g. cost/benefit trade-off, complexity/error trade-off)

All of the above should be familiar to you, as you have studied them before in various depth on your year 1 units.

Alternatively, you may wish to begin production of your product, e.g., creating your game, developing your web site etc.

Please note that you are not required to work on these areas over summer, however, they will give you a great head start on your units and allow you to spend more time in development of your project.

Your Product

You will have to carefully consider what kind of product you will create before you continue with your project.

By definition your product must be 'an item or service'; which needs to be 'functionally able to do what it is supposed to, and do it with a good quality.' Your product must relate directly to the IT industry and preferably in a specific field in which you would like to study further or be employed in doing.

You could consider units from year 1 as the basis of your project, such as: creating a game, developing an application, producing a web site, implementing a mobile technological solution or producing an IoE product.

You could also consider upcoming units in year 2, such as: designing and building a data analysis solution, implementing a social media and digital marketing campaigns, or creating a software solution for business.

The IT industry does not end with the units you have and will study on your course; if your chosen field of further study or employment if so inclined; you could explore an augmented, virtual or mixed reality product, smart home or factory products, creative interface developments, and even graphical products.

If the product is relevant to you and the IT industry, is an item or service, and does 'something' with a good level of quality, you have free reign to choose.

Group Work

Question: Can I work in a group?

Answer: Yes. However, if you work in a group at any stage, you must still produce work that shows your individual contribution. Your tutor can advise you how to do this.

If you do elect to work in a group, your own product **must be clearly defined**. Maximum 3 people.

For example; a group of 3 people have decided to work as a team to create a computer game: one person could be responsible for creating the game, the designs, the programming and testing, this would be that person's 'product', a second team member could be responsible for the marketing of the game, including a social and digital media campaign, a web site, etc. This would be the second person's 'product'. The third team member may be responsible for producing the graphics within the game and digital marketing, and producing a unique selling point such as a custom-built interface, this would be that team member's 'product'. Each product is clearly defined but each team member must work together to create an overall product.

Live Briefs

Question: I know someone who needs an IT solution, can I use this as my product?

Answer: Yes, you are encouraged to do so. However, you must ensure that the final product is of a level of complexity befitting a second-year level 3 course. If you are unsure, speak to your tutor.

Understanding

Question: What if I don't understand something?

Answer: It's your responsibility to read the assignment carefully and make sure you understand what you need to do and what you should hand in. If you are not sure, check with your tutor before you leave for the summer break.

Product Definition

Once you have chosen your project, you must be able to define it. You **must** create a requirements analysis which you will need to demonstrate to the class during the first week (induction week) of year 2.

Your requirements analysis **must** include the following points:

- Clear definition of the final product
- Client needs and wants
- End user needs and wants
- Competing products on the market
- Limitations (e.g. Target platform, bandwidth, development resources, human resources, etc.)
- Prototyping (e.g. Final interface designs, paper prototype, mock product, etc.)

Your requirements analysis must be fit for purpose (demonstration to the class during induction **and** demonstration to visitors during the Computer Science showcase). It must be of high quality.

You can elect one of the following methods of demonstrating your requirements analysis:

- Video
- Academic poster
- Automated presentation with A4 'handout'

Video

Your video must include you (and possibly your team). Your video **must** also contain the following points:

- Summarise technical details to a non-technical audience
- Effective verbal communication
- Make a convincing case
- Project confidence
- Correct and appropriate use of English language
- Clearly explain the project

Academic Poster

Your poster must be A1 in size with text no smaller than can be read from 3m away. Your poster **must** also contain the following points:

- Summarise technical details to a non-technical audience
- Correct and appropriate use of English language
- Clearly explain the project
- Appropriate graphic images
- Eye catching and interesting

For more help in creating an academic poster follow the link below:
http://www.supi.manchester.ac.uk/media/services/supi/Academic-Poster-Guidance.pdf

Automated presentation

Your presentation must be fully automated, requiring no input from the user. It **must** also be accompanied by an A4 document, explaining the finer points. Your presentation and document **must** also contain the following points:

- Summarise technical details to a non-technical audience
- Correct and appropriate use of English language
- Clearly explain the project
- Appropriate graphic images
- Eye catching and interesting

For more help in creating an automated presentation follow the link below:
https://support.office.com/en-us/article/create-a-self-running-presentation-57fc41ae-f36a-4fb5-94a3-52d5bc466037?ui=en-US&rs=en-US&ad=US

Product Requirements Specification

The second part of your summer project relates directly to criteria within Unit 9: Product development.

P2: Develop a product requirements specification to meet an identified client's requirements

P2: Learners must produce a product requirements specification that describes a product that meets the client requirements as given in the scenario. To achieve this, learners will need to carry out a requirements analysis, including prototyping if appropriate. The evidence will be a completed product requirements specification that covers all areas of the 'product requirements specification' section of the teaching content.

The *'product requirements specification' section of the teaching content* is included below:

- introduction
- purpose (e.g. what it needs to do, where it needs to be used)
- context (e.g. stand-alone product or part of a larger whole, a replacement for an existing product, a totally new product)
- assumptions (e.g. hardware or software to be used, user experience or training)
- constraints (e.g. timescale, interoperability with existing products, design tools to be used)

Functional Requirements

- main functional requirements – a set of clearly defined, unambiguous needs of the product, with priorities
- target user profiles (e.g. end user tasks, end user knowledge and level of experience, client goals)

Non-functional Requirements

- usability (e.g. easy to learn, clear operating procedures, appropriate for the level of knowledge of each target user profile)
- performance – stated in an easily measurable form (e.g. capacity, availability, response times, environmental issues safety (e.g. to prevent possible loss, damage or harm, specific safety standards to be adhered to)
- security (e.g. standards compliance, privacy issues, certification)
- maintainability (e.g. define consumables, regular calibration activities, updates, bug fixes, error recovery)
- interfaces (e.g. hardware, software, communications, user)
- appendices (e.g. glossary of terms, diagrams describing processing, a numbered list of TBD (to be determined) items with clear responsibilities and timescales defined)

You are required to produce a product requirement specification and submit it as an assignment during week 2 of the second year of your course. All of the above points will be familiar to you, as you have created similar documents in past units such as mobile technologies, project management, internet of everything, application design, etc. Materials from these units are still available of Moodle and you are welcome to use them to refresh your skills.

Not all of the points may be appropriate to your chosen product; in such cases you should explain why they are not considered. Please don't ignore them.

A template for is provided for your Product Requirements Specification as a MS Word document the following link: https://padlet.com/wayne_johnson_wnc/SP