Cambridge TECHNICALS

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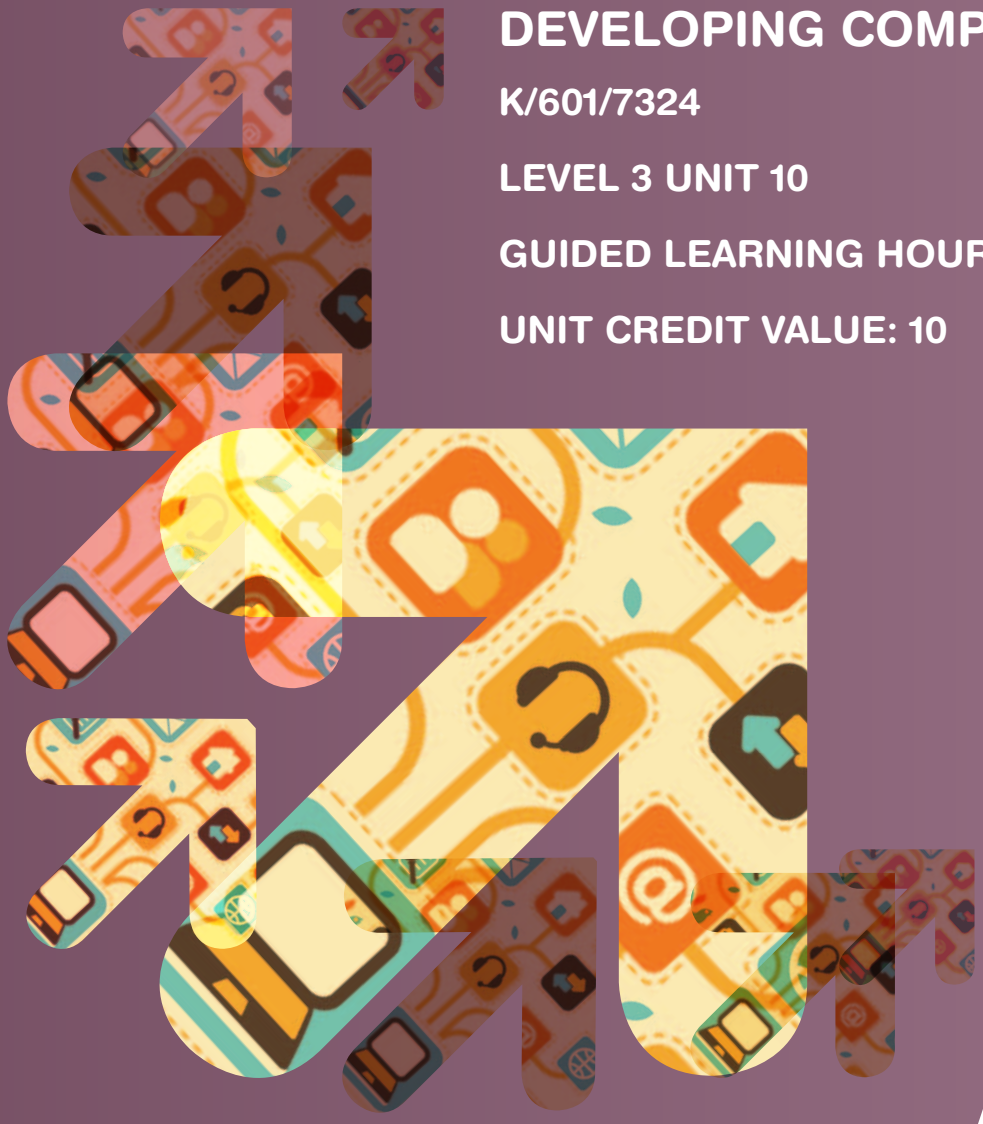
OCR LEVEL 3 CAMBRIDGE TECHNICAL

CERTIFICATE/DIPLOMA IN

IT



DEVELOPING COMPUTER GAMES

K/601/7324

LEVEL 3 UNIT 10

GUIDED LEARNING HOURS: 60

UNIT CREDIT VALUE: 10

OCR

DEVELOPING COMPUTER GAMES

K/601/7324

LEVEL 3 UNIT 10

AIM OF THE UNIT

The computer games industry is a rapidly expanding one which adapts with each new technology that emerges. Games are developed across a range of platforms, for differing audiences and of differing complexity. The look, feel and purpose of games is so varied that the repurposing and multi-purpose/platform becomes a consideration for designers.

This unit gives learners the opportunity to consider the new and exciting developments within the games industry with the rapid advancements of the technologies available to developers. This unit introduces learners to the creativity of the games industry, allowing them to explore the industry, the impact on society and the position within the market place for a game based on its genre and purpose. The learner will design and develop a game to an identified specification, using the appropriate programming techniques.

Once completed the learner will be expected to full test their computer game against the specification and for functionality to ensure that it is suitable to be given to the target audience. They should also create the technical documentation to support their development.

This unit allows learners to understand about different computer games, to be able to understand the social impact of computer games and enables them to design, develop and test computer games. This unit will give a good insight into working within the computer gaming industry.

ASSESSMENT AND GRADING CRITERIA

Learning Outcome (LO) The learner will:	**Pass** The assessment criteria are the pass requirements for this unit. The learner can:	**Merit** To achieve a merit the evidence must show that, in addition to the pass criteria, the learner is able to:	**Distinction** To achieve a distinction the evidence must show that, in addition to the pass and merit criteria, the learner is able to:
1 Understand the impact of the gaming revolution on society	P1 explain the impact of computer games on society	M1 compare the negative and positive impacts of computer games on individuals	
2 Know the different types of computer game	P2 describe different types of computer game	M2 describe how computer games have developed over time	D1 compare platforms and their technical aspects for running computer games
3 Be able to design and develop computer games	P3 produce a design for a computer game for a given specification	M3 describe how the design for the computer game can have capacity for expansions	
	P4 develop a computer game for a given specification		
4 Be able to test and document computer games	P5 follow a test strategy to test and debug a computer game	M4 gain user feedback to a computer game to suggest improvements	D2 act on user feedback to improve aspects of the computer game
	P6 produce user documentation for a computer game		
	P7 produce technical documentation for a computer game		

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 the impact of the gaming revolution on society

Impact

- on society (e.g. global play, addiction, loss of social aspects)
- on employment and finance
- health (e.g. RSI, obesity, fitness)
- psychologically (e.g. gaming addiction, health and fitness, brain training, education).

LO2 Know the different types of computer games

- genres of games (e.g. role-playing, puzzle, platform, first person shooters, MMORPG, puzzle games)
- historical developments (e.g. graphics, online, interface)
- increased popularity (e.g. demand, reduced costs of equipment)
- platforms (e.g. handheld, mobile, internet gaming).

LO3 Be able to design and develop computer games

- design tools (e.g. storyboarding, mind maps, narrative)
- platforms
- interfaces
- possible expansions/repurposing (e.g. add-ons to make more revenue from the game).

Development

- language
- compiling code
- user interface elements (e.g. option menus, puzzles, help facilities, triggers, collisions)
- Artificial Intelligence (AI) techniques (e.g. scripting, rule-based decisions, input processes).

LO4 Be able to test and document computer games

- test plan/table
  - test types
  - iterative testing
  - contents of test plan
  - logs
- debugging
- feedback from test users
- apply feedback e.g. to improve or correct game
- create user documentation to include:
  - game installation
  - game purpose
  - game operation
  - frequently asked questions
- create technical documentation to include
  - data dictionary, algorithm design (including control methods)
  - user interface method design (action charts/tables, input-output-process tables, class and instance diagrams and dataflow diagrams).

DELIVERY GUIDANCE

Understand the impact of the gaming revolution on society

Learners should be taught about the impact of computer games on society and the growth of the industry – learners can look at the revue and financial turnover of the industry and compare this to other entertainment industries e.g. film. Learners will be taught about the impact computer games can have on individuals for example computer gaming addiction, peer pressure to play games. Learners should spend time researching the development of computer games and their popularity over time as individuals or small groups. They should discuss the changes to game playing and the audiences and then identify perhaps as a brainstorming session how lives have changed due to the development of computer games. This may require additional research across a range of areas. The research should include negatives and positives such as the addiction and loss of reality when gaming to the use of games for the educational benefit of learners of the use by surgeons of computer games to improve hand eye coordination.

Know the different types of computer game

Learners will extend the research carried out in learning outcome 1 to consider the history of computer games and how they have improved and they should research and discuss why they games have improved for example – demand, reduced costs of equipment, development of technologies, media etc from the first games like Tic-Tac-Toe 1952, Spacewar 1961, 1975 Atari Pong up to present day computer games.

They should be given the opportunity to play games on different consoles so they understand the differing games e.g. MMPORPG, shoot 'em ups, platform, brain training etc., and can see why historical arcade games can appear simplistic. The learner should also research and discuss the different platforms currently available and also historically used. A valuable exercise would be to give each learner or small group one specific console or platform to research with feedback to the wider group. This should include storage, refresh speeds, graphics capabilities, online access, 2/3D, user interfaces etc.

Be able to design and develop computer games

Learners will learn how to design a computer game using relevant design techniques e.g. storyboarding they should think about the interface and the platform it will run on. They should consider the purpose and the genre of the game and then create outline ideas for their design based on an identified specification. As a group they could review existing games along the same criteria to identify what they think the audience and purpose of the games are. They should be taught about the packages that are available to create computer games e.g. game maker, Kodu, unreal.

Learners should be taught about the revenue that can be generated by gaming companies in downloading additions for the originally purchased game or repurposing across multiple platforms and they should plan for this within their own game.

The games industry encourages the innovative design of games and a guest speaker from the gaming industry to talk to the learners about developing a game, expectations and perhaps roles within the sector will assist the learners in focussing their designs and specifications. They will also be taught how to create a game in the software they choose, based on a given specification initially and then based on their own to ensure that they fully understand the details required.

Be able to test and document computer games

Learners will be shown how to develop and use a test plan and how to gain feedback from test users – this will include the way feedback can be gathered and the sort of areas that could be tested or checked by the test user (learners should look at different types of questioning techniques to draw out information from test users). The learner should create a test plan to test their developed games and perhaps those of others to identify the stages of testing and the details of the tests they will need to record. Learners will also identify that they are testing and correcting errors throughout the development process and these should also be recorded for future reference.

The learners should be encouraged to review each others games and provide feedback over a number of identified criteria. The group feedback should then be reviewed by each learner to identify any changes, problems or improvements that have been suggested and to act on the appropriate feedback to improve the game.

When the computer game has been developed and tested, the learner should understand the importance of technical and user documentation. They should review a number of user guides from a range of computer games and identify whether they are detailed and comprehensive enough for users.

Learners should also look at technical documentation to gain an understanding of what is included in these documents and the differences between this and the user documentations. Learners may bring in documents from their own games in order to analyse these.

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

Assessment Criteria P1, M1

The assessment criteria could be evidenced by the use of a report or presentation. This will explain how computer games have had an impact on society this can be in terms of the employment in the industry (this could be compared to other entertainment genres e.g. revenue compared to the film industry, development costs). The report could be given a specific focus such as being presented to a college to encourage the use of games for education.

For merit criterion M1, when comparing the positive versus negative impacts on the individual, learners could set this out clearly in a table within a report. This report should consider a range of areas for each impact identified in the teaching content.

Assessment Criteria P2, M2, D1

The assessment criteria could be evidenced by a report which includes examples and images of computer games considering the aim, purpose, genre different types of games that are available. Learners should evidence multiple games in a genre as well as multiple genres and draw comparisons between these (this could be in terms of graphics, playability, costs, numbers involved and uniqueness).

For merit criterion M2 learners could present a report which includes showing the development of computer games over time comparing game play, graphics colours used, characters used, sound and use of higher end CGI to introduce the game and set the scene.

For distinction criteria D1 a table could be used to compare a range of different platforms and their technical aspects.

Assessment Criteria P3, M3

Learners should provide the detailed storyboard for the game they are going to produce over multiple levels. This should include scene setting players, rules, purpose, scoring and written annotations that go with it.

For merit criterion M3 learners should produce a report or diagrams of the designs and/or ideas for downloadable expansions that could be used with the game they have planned for the P3. The learners should evidence how this will add to the playability of the game and why a player would want to download or use these expansions.

Assessment Criterion P4

Learners must create a working 2/3D game over multiple levels there must be a purpose to the game and a scoring system either using points or time constraints to add an element of competitive game play, the game must include user interaction. The game can be evidenced using a print of the coding and annotated screen shots of the game running. It should match the storyboard and design document created by the learner.

Assessment Criteria P5, M4, D2

Learners could evidence this criterion by producing and using a test plan/table using multiple tests throughout the game, thoroughly testing the game that has been produced against the specification and then showing the debugging of their game.

For merit criterion M4 learners should gain feedback from users and suggest possible improvements to the game based on these suggestions. This could be evidenced in the form or a report summarising the feedback received and an explanation of the format chosen for feedback and why this was appropriate. The learner should also identify any improvements that have been suggested and why they may or may not be used.

For distinction criterion D2 learners should use the feedback gained in the Merit Criteria and the improvements they have identified could be used and improve aspects of the computer game – this can be evidenced through screen captures showing the game prior to improvements and after giving detailed evidence of the improvements that are being made and including a justification why these changes were made.

Assessment Criteria P6 and P7

Learners will evidence these criterions with the production of all the documentation required for the working game. The documentation will need to be clear and include graphics to illustrate areas that are being explained. The learners' will need to produce a user guide for P6 and the technical documentation for P7.

MAPPING WITHIN THE QUALIFICATION TO THE OTHER UNITS

Unit 15 Computer game platforms and technologies

LINKS TO NOS

4.6 Human Computer Interaction (HCI) Design
5.2 Software Development
IM20 Design Electronic Games
IM21 Program Electronic Games to Develop Functionality
IM22 Test Electronic Games

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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