2016 Suite

OCR
Oxford Cambridge and RSA

Cambridge **TECHNICALS LEVEL 3**

Cambridge TECHNICALS 2016

IT

Unit 15

Games design and prototyping

K/507/5018

Guided learning hours: 60

Version 1 September 2015

LEVEL 3

UNIT 15: Games design and prototyping

K/507/5018

Guided learning hours: 60

Essential resources required for this unit: Learners should have access to a range of games for different audiences and purposes. They should also have access to suitable development software to allow them to build a prototype for a game.

This unit is internally assessed and externally moderated by OCR.

UNIT AIM

Gaming is a continuously developing market. There are a number of platforms available for game developers to release games that they have designed and developed. This unit will help you develop skills in designing and developing a prototype for a simple game. It will enable you to consider the logic of the programming structures required, as well as the interface design. You will then build a prototype in order to demonstrate an element of your game.

This unit is optional within the Application Developer specialist pathway. Games designers and developers design and develop games across a wide range of applications and platforms.

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 the principles of game design and prototyping	1.1 Game design principles, i.e.: • purpose of a game • audience of a game • common features in games • first/third person • player characters • non-player characters • sprites • achievement attainment • maintaining a player's interest • player interaction/controls • player immersion • progression • competition (e.g. highscore) 1.2 Game prototype, i.e.: • types of prototyping e.g. visual/representational (non-working) and proof of concept (working) • testing concepts • gauging player interest • skill level required • gauging difficulty of achievement • clarity of interface • clarity of understanding of gameplay/goals 1.3 Benefits of building a prototype, i.e.: • ensures the design does what it is supposed to do • helps to identify and address problems at an early stage • gives the client and end-user an appreciation of the final product • allows developer to explore ideas and obtain feedback with the client and end-user

Learning outcomes The Learner will:	Teaching content Learners must be taught:
2. Be able to develop game concepts	2.1 Game elements, i.e.: • navigation • scoring • movement • interaction/controls • conveying information • sound • levels • enemies • problem solving 2.2 Interface design, i.e.: • layout • colour palette • text styles • sound • stage/scene • actions (e.g. menus/buttons) 2.3 Stage design, i.e.: • perspective (e.g. 2D/3D) 2.4 Character generation, i.e.: • bitmaps • wireframe 2.5 Documentation i.e.: • requirement specification • design specification • project plan • system flowchart • top-down • JSP 2.6 Logic structure (e.g. clear definition of objectives of game, flow chart showing the 'flow' of the game through single or multiple layers with single or multiple players)
3. Be able to develop game prototypes	3.1 Use of bespoke software for game development, e.g. Gamemaker 3.2 Programming techniques, i.e.: • variables/constants • strings • inputs • outputs • sequence • selection • iteration (e.g. counting/conditional) • subroutines (e.g. functions/procedures) • conditions • counting • totalling

Learning outcomes The Learner will:	Teaching content Learners must be taught:
	• data structures (e.g. arrays/lists) • file handling • maintainable code • libraries 3.3 Testing, i.e.: • test plans • test data • black box • white box • alpha • beta • user testing
4. Be able to present and evaluate game concepts	4.1 Present the solution, i.e.: • choose a suitable method of presentation (e.g. live demonstration, use of presentation software, report) • plan a presentation to incorporate: o comparison of game concept against requirements o demonstration of functionality o demonstration of interactivity o demonstration of responsive design o justification of design choices o present the solution to the client 4.2 Evaluation, i.e.: • has it met the requirements? • does it reflect the design? • is it suitable for the identified audience and purpose? • suggest recommendations for full game concept • justify the continued development of the full game concept

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 the principles of game design and prototyping	P1*: Outline key considerations that support games design *(*Synoptic assessment from Unit 1 Fundamentals of IT, Unit 2 Global information and Unit 3 Cyber security)*	M1: Compare and contrast the features of games for different audiences	
	P2: Explain the benefits of developing game prototypes		
2. Be able to develop game concepts	P3: Create a design for an identified game concept	M2: Prepare alternative interface designs for the identified game concept	D1: Justify the design rationale for the identified game concept
	P4: Produce a logic structure for the identified game concept		
3. Be able to develop game prototypes	P5: Build a prototype using core programming techniques and test for functionality		
4. Be able to present and evaluate game concepts	P6: Present the prototype to stakeholders to obtain feedback on the games concept	M3: Make changes to the games design and prototype based on stakeholder feedback	D2: Evaluate the game design and prototype against the identified game concept

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 the principles of game design and prototyping

P1: Learners should outline key considerations that support games design. Learners are required to identify key features in a range of games and describe their purpose. This could be most effectively achieved by reviewing different types of games with a different focus, genre or purpose. Common key features are identified in the teaching content. The evidence for this could be presented as a written review or report, or a presentation.
M1: Learners are required to identify the features of games for different audiences. They are required to compare the use of features and comment on the suitability for different audiences and genres. This can be an extension of P1, and evidence can be presented as a written review or report.
P2: Learners are required to explain the benefits of developing a prototype for a game considering the criteria within the teaching content. The evidence for this could be presented as a report or a presentation (either videoed or with detailed speaker notes).

LO2 Be able to develop game concepts

P3: Learners are required to create a design for a game concept. They need to produce full design documentation that includes chosen game elements and relevant interface designs, stage designs and character generation, in addition to the core considerations and purpose for the game. Designs must contain enough detail to enable them to be understood by a third party.
M2: Learners are required to prepare alternative interface designs to the one identified in P3. The alternative designs must contain enough detail to enable them to be understood by a third party. Evidence can be an extension of P3 and be presented as additional visualisations or written explanatory designs, or a combination of both.
P4: Learners are required to produce a logic structure for their game concept using suitable documentation identified in the teaching content. Evidence would be the completed documentation, which may include diagrams, etc.
D1: Learners are required to justify their design choices and explain why they are suitable for the identified audience and purpose of the game concept. Evidence can be an extension of P3 and M2, and can be an addition to the design documentation, a presentation or a report, but should reference the designs submitted.

LO3 Be able to develop game prototypes

P5: Learners are required to understand different ways that a prototype can be produced. They are required to demonstrate the techniques identified in the teaching content to build a prototype for the game concept. The prototype could be a particular level or module of the full game concept. Evidence of the prototype could be presented in the form of annotated screenshots or as a video of a working prototype, or the prototype itself. Learners are required to plan and carry out testing of their prototype. Testing must be thorough enough to prove the prototype is functional and meets requirements.

LO4: Be able to present and evaluate game concepts

P6: Learners are required to present the prototype to stakeholders to obtain feedback on the games concept. The evidence could be in the form of a video of the learner demonstrating the prototype to the stakeholders and receiving feedback. Evidence could also be documented feedback from the stakeholders supported by a detailed witness testimony explaining how the learner delivered the presentation and the reaction from the stakeholders.
M3: Learners are required to analyse the results of the feedback from the stakeholders and make changes to the games design and prototype based on the feedback provided.
D2: Learners are required to evaluate the game design and prototype against the identified game concept. They should evaluate each stage of the design and provide a rationale as to how their game design and prototype reflects the original game concept.

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, P4, P6, M1, M3, D1, D2
Problem solving	P3, P4, P5, P6, M2, M3
Time management	P3, P4, P5, P6, M1, M3, D2
Critical thinking	M1, M2, M3, D1
Decision making	P3, P4, P5, P6, 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 work experience with a local game design/development business; the work experience could be structured to all or some of the learning outcomes in this unit.
2. Learners undertake project(s), exercises(s) and/or assessments/examination(s) set with input from industry practitioner(s).	You could use an industry practitioner to develop a scenario/project for the development of a game.
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.	A guest speaker from a local game design/development company could present a guest lecture on they develop game concepts and prototypes. An industry practitioner could co-deliver some of the more technical elements of the unit such as how to produce the logic structure design or alternative interface designs.
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 act as expert witnesses by observing the learners developing their prototype game designs and providing feedback to contribute to the assessment of the learners.

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**

OCR
Oxford Cambridge and RSA