Silver - Unit 25 - Developing Computer Games and Puzzles (Silver 4 credits)

Relevant LINKS

BACK TO ITQ UNITS **[1]**

Handbook home page **[2]**

Overview

Developing Computer Games and Puzzles at Silver Level requires the candidate to

A work activity will typically be 'straightforward or routine' because:

The task or context will be familiar and involve few variable aspects. The techniques used will be familiar or commonly undertaken.

Example of context – Creating a simple game to illustrate some scientific idea or modifying an existing game to carry out a different ending.

Support for the assessment of this award [3]

Example of typical IT work at this level (Coming soon) **[4]**

Assessor's guide to interpreting the criteria

General Information

QCF general description for Level 1 qualifications

- Achievement at QCF level 1 (EQF Level 2) reflects the ability to use relevant knowledge, skills and procedures to complete routine tasks. It includes responsibility for completing tasks and procedures subject to direction or guidance.
- Use knowledge of facts, procedures and ideas to complete well-defined, routine tasks. Be aware of information relevant to the area of study or work
- Complete well-defined routine tasks. Use relevant skills and procedures. Select and use relevant information. Identify whether actions have been effective.
- Take responsibility for completing tasks and procedures subject to direction or guidance as needed

Requirements

- Standards must be confirmed by a trained Silver Level Assessor or higher

- Assessors must at a minimum record assessment judgements as entries in the on-line mark book on the INGOTs.org certification site.

- Routine evidence of work used for judging assessment outcomes in the candidates' records of their day to day work will be available from their e-portfolios and on-line work. Assessors should ensure that relevant web pages are available to their account manager on request by supply of the URL.

- When the candidate provides evidence of matching all the criteria to the specification subject to the guidance below, the assessor can request the award using the link on the certification site. The Account Manager will request a random sample of evidence from candidates' work that verifies the assessor's judgement.

- When the Account Manager is satisfied that the evidence is sufficient to safely make an award, the candidate's success will be confirmed and the unit certificate will be printable from the web site.

- This unit should take an average level 1 learner 30 hours of work to complete.

Assessment Method

Assessors can score each of the criteria L, S, H. N indicates no evidence and is the default starting position. L indicates some capability but secure capability has not yet been achieved and some help is still required. S indicates that the candidate can match the criterion to its required specification. H indicates performance that goes beyond the expected in at least some aspects. Candidates are required to achieve at least S on all the criteria to achieve the unit. Candidates should be helped and encouraged to reference their work to the assessment criteria using assessment for learning process. e.g. IPU 1.1.2 for IPU Level 1 criterion 1.2. This will make it easier to provide the evidence required for the QA procedures when requested by the Account Manager. There is support for this from learner account profiles on the INGOT web site. PLTS is used to denote where there are opportunities to develop personal learning and thinking skills.

Expansion of the assessment criteria

1. The candidate will understand the principles of graphics animation

1.1 I can identify an image as a group of pixels on a screen

At the simplest level this is knowing that images are made up of picture elements.

Evidence: web based documentation or assessor observations.

Additional information and guidance

At the very basic level, candidates should be able to demonstrate that they understand how pictures are made and that there is a relationship with the picture elements (pixels) on a screen and the perceived object. Understanding this will allow them to appreciate the differences between vector and raster based graphics and how they manage pixels.

1.2 I can relate the detail there is in an image to the amount of computer memory it takes up

Building on the above, candidates will demonstrate understanding of the relationship between images and the memory required to store them.
Evidence: Pre-set assignment or in class discussion with blog based reflections.

Additional information and guidance

Candidates should know the basic mathematics needed to work out memory requirements of the most common image displays. For example a 1024 x 768 image with a colour depth of 24 bits. In most cases, at least being able to work out the rough quantity to the nearest MB.

1.3 I can relate the position of an image on a screen to approximate screen coordinates

Candidates show evidence of spacial awareness.

Evidence: Blog reflections or pre-set assignments.

Additional information and guidance.

Precision is graphics is an important element and candidates should be able to demonstrate a clear understanding of basic dimensions, for example that an image is approximately in the centre of a screen or in the lower left corner etc. They can use this as the basis for more accurate placement such as using pixel references used in software applications.

1.4 I can plot and remove a series of images on a screen at successive coordinates to make an image that appears to move

Candidates should have a basic grasp of making objects appear to move.

Evidence: Working example of simple animation

Additional information and guidance

Candidates will need to be taught the basics of animation and persistence of vision and understand that they can remove objects to give the appearance of movement such as making a simple ball bounce across a screen by placing it in different places and coordinates on a landscape screen with timing differences. This is essentially how compression works in moving pictures where small differences between frames can be remove without affecting the overall impression of movement.

1.5 I can use a programming language to produce animation

Candidates should show evidence of basic programming skills for animation purposes.

Evidence: A working program or documentary evidence in an ePortfolio. Assessor witness statement.

Additional information and guidance

Candidates need to use an application to produce a moving animation. They need to understand the program well enough to create the impression of movement and in more advanced cases can make a working game showing a range of movements and actions.

2. The candidate will understand decision making in a games program

2.1 I can identify places in a working games program where a decision occurs by observing the game running
Some evidence of the use and understanding of trial and error procedures here.

Evidence: A working sheet of testing and noting the decision elements and their actions.

Additional information and guidance

This is an investigative phase where candidates can look at existing games to see how they function. They can make some detailed notes on their favourite games and show that they understand that certain action points are based on decisions and have a rough idea of what the decisions should or might be. This will allow them to build upon this for their own work.

2.2 I can identify places in some source code where decisions have been programmed
Candidates should be able to understand simple source code.

Evidence: Reflective journal notes or screen recordings with voice over.

Additional information and guidance

As with the previous criterion, candidates should be able to look at simple source code which controls a game and be able to identify the points in the code where decisions are being made.

2.3 I can write a simple program that makes a decision based on user input
Candidates should create a simple games program.

Evidence: Web pages providing the presentation of their game. Descriptions in day to day documentation, dialogue with assessor and the game itself.

Additional information and guidance

The candidate should be able to build a basic program that incorporates simple decisions and input from an end user. At its simplest this might be a simple program asking for details from the end user but can be as complex as their understanding and skills allow. Details projects can always be used as a basis to improve towards a level 2 award.

3. The candidate will use story boards to make games specifications

This section lends itself to a pre-made assignment with known outcomes and proven effectiveness as it will be used to introduce and reinforce the main elements required to make decisions based games.

3.1 I can plan a simple game scenario using a provided set of story boards
The candidate should be able to work from pre-set story boards.

Evidence: Assessor witness statements and candidate reflections in blogs or journals.

Additional information and guidance

The idea here is to provide the candidates with a pre-set task with story boards so that they can learn the processes and skills required for their own designs.

3.2 I can identify changes in the order of storyboards that can change the game

The candidate should be able to modify the basic story presented to make it function in a different way.

Evidence: Assessor witness statements and candidate reflections in blogs or journals.

Additional information and guidance

Candidates can use the presented story board and modify it so that it works differently and achieves some different objectives. This will reinforce how decisions can affect outcomes, even at the same

junctions.

3.3 I can use decision cards in a sequence of story boards
The candidate should be able tio use and deploy decision cards.

Evidence: Assessor witness statements and candidate reflections in blogs or journals.

Additional information and guidance

Candidates should be allowed to experiment with story lines to see what impact different decisions wil make on final outcomes. This can reinforce as well the control in seemingly random acts that games try to recreate.

4. The candidate will modify existing games code to make changes to a game

4.1 I can identify places in program source code where a change can be made and predict the outcome
The candidate should be able to predict with reasonable accuracy outcomes to actions and decisions.

Evidence: Video logs of their actions with descriptions of what should and did happen.

Additional information and guidance

Candidates can now look in source code in more detail and decide the different outcomes that will occur as a result of changes in the code and choices offered. This is central to good game design as end users will be more encouraged by complex decisions than simple choice driven games.

4.2 I can understand copyright and licensing related to modifying source code
The candidate should be able to explain the legal requirements and restrictions on their designs.

Evidence: Web pages providing details of different licenses with examples.

Additional information and guidance

If they use other people's games, they should be aware of the licensing restrictions and laws such as copyright. If they modify these games, assuming it is allowed or encouraged, what license will they apply or can they apply? Some games have share alike licenses that insist on re-sharing any improvements. Candidates can perhaps reflect on these issues in their own blogs and journals.

Moderation/verification
The assessor should keep a record of assessment judgements made for each candidate guided by the above guidance. Criteria should be interpreted in the context of the general descriptors of QCF Level 1 qualifications. They should make notes of any significant issues for any candidate and be in a position to advise candidates on suitable routes for progression. They must be prepared to enter into dialogue with their Account Manager and provide their assessment records to the Account Manager through the on-line mark book. They should be prepared to provide evidence as a basis for their judgements through reference to candidate e-portfolios. Before authorising certification, the Account Manager must be satisfied that the assessors judgements are sound. In the event of missing evidence, the assessor will be requested to gather appropriate information before the award can be made.

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Links
[1] http://theingots.org/community/ITQ_unit_development
[2] https://theingots.org/community/handbook2
[3] http://www.theingots.org/community/ITQcourse1
[4] https://theingots.org/community/sites/default/files/uploads/user4/pupila.pdf