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| **Qualification details** | | | |
| **Training Package Code and Title:** | **ICT – Information and Communications Technology** | | |
| **Qualification National Code and Title:** | **ICT40120 Certificate IV in Information Technology** | **State code:** | AC17 |

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| **Assessment Title** | **AT04 3D Character Development knowledge questions** | | |
| **Unit National Code & Title** | **ICTGAM428 Create 3-D Characters for interactive games** | | |
| **ICTGAM431 Design and create 3-D digital models** | | |
| **Date Due** | ***Session 18 from commencement of cluster*** | **Date Received** |  |

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| **Student Name** |  | **Student ID** |  |
| **Student Declaration** | I declare that the evidence submitted is my own work:  ………………………………………….. | | |

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| **Assessor Name** |  | | | |
| **Assessment Decision** | * Satisfactory | | * Not Yet Satisfactory | |
| **Assessor Signature** |  | | **Date** |  |
| **Is student eligible for reassessment (Re-sit)?** | * No | ☐ Yes | **Reassessment Date:** |  |

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| **Feedback to student** | | | |
| *Via Blackboard (LMS) – Please check [Grade] section.* | | | |
| **Feedback from student** | | | |
| *Via Blackboard (LMS) – Please use [Comment] section during submission.* | | | |
| **Student signature** |  | **Date** |  |

**Assessment Instructions**

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| **TO THE ASSESSOR** |  |
| Type of Assessment | *Knowledge questions* |
| Duration of Assessment | *18 Class Sessions (Week 2- 18)* |
| Location of Assessment | *Classroom* |
| Conditions | *Knowledge questions must all be answered to satisfy the units required knowledge.*  *Learners are required to complete the required tasks in class and submit the required documentation electronically via Blackboard*  *The scenario for assessments is set within a simulated studio context (Immersive Studio’s) The* lecturer takes on the role of a studio head and the lecturer must have full access to the project management system Hack n Plan and all the students’ projects  *Instruction checklists* refer to marking guide |
| Elements and Criteria | As detailed in the assessment plan  You are required to make sure that all students meet the elements, performance criteria and oral communication items as outlined in the provided checklist. |

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| **TO THE STUDENT** |  |
| Purpose of Assessment | The purpose is to evaluate knowledge aligned to the units within the training package selected.  You are required to show you have knowledge of: ICTGAM428 Create 3-D characters for interactive games:   * Identify features of 3-D software packages * Industry standard game design briefs * different character styles and animations * 3-D character modelling methods, within the technical parameters and constraints of game development * technical limitations of creating 3-D character models in games * organizational procedures that maybe used to create 3-D character for interactive games.   ICTGAM431 Design and create 3-D digital models:   * 3-D digital modelling and design principles * stages in model production process, from initial design through to finished product * issues and challenges arising from designing and creating 3-D digital models * roles and responsibilities of project team members in developing digital models * features of a range of delivery platforms |

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|  | * geometry as it applies to the design and creation of realistic 3-D digital models * use of scale, form, weight and volume in the development of 3-D digital models * organizational guidelines and procedures * industry standards applicable to designing and creating 3-D models * range of industry standard 3-D modelling software.   You are required to meet the elements, performance criteria and oral communication items as outlined in the provided checklist. |
| Allowable Materials | Blackboard (Topic by topic) will include the following: Weekly Readings, Class notes, and Weekly Activities. |
| Required Resources | *Computer with:*   * *Internet Access* * *Word processing software* * *Access to Learning Management System (LMS)* * *Blender 3.0 +* * *Hard drive* |
| Reasonable Adjustment | In some circumstances, adjustments to assessments may be made for you. If you require support for literacy and numeracy issues; support for hearing, sight, or mobility issues; change to assessment times/venues; use of special or adaptive technology; considerations relating to age, gender, and cultural beliefs; format of assessment materials; or presence of a scribe you need to inform your lecturer. |
| Assessment Submission | *All activities must be attempted.*  *Use of research tools and peers in formulating answers are acceptable – but work submitted must be your own work.*  *Final project documentation is to be uploaded to the appropriate area in the Blackboard course created for this unit.*  *If you are marked as NYS (Not Yet Satisfactory) on your first attempt, you will be provided with another opportunity to re-attempt the assessment.* |
|  | Students must:  Task’s breakdown: |

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| **Task E1, Knowledge Questions:**   * + Please answer all questions for the knowledge-based component of the units within the 3D Digital Modelling cluster: |
| 1. What would be the standard features of 3-D software packages used to create 3-D character models in games? (Creating a list is and acceptable way of presenting or description of process) |
| *Please submit your answer here:*   1. **Modelling Tools:**    * Polygonal, NURBS, and Subdivision Surface Modelling. 2. **Sculpting Tools:**    * Digital sculpting brushes, dynamic topology. 3. **Texturing and Mapping:**    * UV mapping, texture painting. 4. **Rigging and Animation:**    * Skeleton/rigging tools, IK, animation controls. 5. **Shading and Rendering:**    * Material editor, shader support, real-time rendering. 6. **Physics and Dynamics:**    * Cloth simulation, hair and fur dynamics, particle systems. 7. **Import/Export Formats:**    * Support for common file formats (FBX, OBJ). |
| 1. Explain what an Industry standard game design briefs is and the main features you may add?   *There are many differences in the industry documentation for various companies describe the method you used in your project and describe what are common elements that the GDD’s (Game Design Documents) share* |
| *Please submit your answer here:*   1. **Overview:**    * Project summary, game concept, and core gameplay mechanics. 2. **Story and Characters:**    * Narrative overview and character profiles. 3. **Gameplay:**    * Objectives, goals, and level design. 4. **Art and Design:**    * Visual style, asset list, and art references. 5. **Audio:**    * Soundtrack, effects, and desired audio experience. 6. **Technical Details:**    * Platforms, technology, and performance requirements. 7. **User Interface (UI):**    * Mock-ups, wireframes, and UI flow. 8. **Development Timeline:**    * Milestones, deliverables, and project timeline. 9. **Team Roles and Responsibilities:**    * Team structure, roles, and communication plan. |
| 1. Describe different character styles and animations and what you may use them for! |
| *Please submit your answer here:*  **Character Styles:**   1. **Realistic:**    * *Use:* Ideal for games with immersive narratives or simulations, providing a lifelike experience. Realistic characters are often employed in serious or emotionally impactful narratives, enhancing the player's connection with the story. 2. **Stylized/Cartoonish:**    * *Use:* Versatile and suitable for family-friendly games, humorous settings, or those with a fantastical tone. The exaggerated features of cartoonish characters add charm and playfulness to the visual style, making them adaptable to a wide range of genres. 3. **Pixel Art:**    * *Use:* Popular in indie games, pixel art characters offer a retro aesthetic, evoking a sense of nostalgia. They contribute to a unique and visually appealing style, particularly in games with a focus on simplicity and creativity. 4. **Anime/Manga Style:**    * *Use:* Found in games with a Japanese influence or those targeting audiences familiar with anime and manga culture. Anime-style characters often enhance the visual storytelling aspect of games, particularly in visual novels or games with strong character-driven narratives. 5. **Abstract:**    * *Use:* Abstract characters, focusing on shapes and colours rather than realistic features, are often used in experimental or artistic games. They provide a visually distinct and unconventional aesthetic, appealing to players seeking unique and thought-provoking experiences.   **Character Animations:**   1. **Idle Animation:**    * *Use:* Beyond preventing static characters, idle animations add realism and depth to character personalities. Subtle movements during periods of inactivity contribute to a more engaging and immersive player experience. 2. **Walk and Run Cycles:**    * *Use:* Fundamental to nearly every game genre, walk and run animations provide the basic locomotion needed for exploration and navigation. They serve as the core animations shaping the player's interaction with the game environment. 3. **Combat Animations:**    * *Use:* Essential in action, fighting, and role-playing games, combat animations include attacks, blocks, and dodges. They make combat sequences visually dynamic and responsive, enhancing the overall gaming experience. 4. **Emote/Gesture Animations:**    * *Use:* Particularly common in multiplayer and social games, emote animations convey characters' emotions or reactions. They contribute to a sense of social interaction and can be crucial in games with strong community elements. 5. **Environmental Interactions:**    * *Use:* Animations for interactions with the game environment, such as climbing, swimming, or pushing objects, enhance realism and contribute to puzzle-solving mechanics. These animations provide players with a more immersive and interactive experience. 6. **Cinematic/Storytelling Animations:**    * *Use:* Scripted animations used in cutscenes, or scripted events advance the narrative and add cinematic flair. They play a crucial role in storytelling, helping to convey plot points and character development in a visually compelling way. 7. **Dance or Celebration Animations:**    * *Use:* Often found in social or multiplayer games, dance or celebration animations express joy, accomplishment, or social interaction. They contribute to the overall atmosphere of the game and can strengthen the connection between players. |
| 1. Describe 3-D character modelling methods, within the technical parameters and constraints of game development. (You may outline your project requirements for the 3-D Character models as context of constraints) |
| *Please submit your answer here:* |
| 1. Describe the technical limitations of creating 3-D character models in games! |
| *Please submit your answer here:*  When creating 3D model for video games there are limitations such as   1. the number of polygons you can have without impacting performance. 2. having to create high-resolution textures without affecting performance. 3. rigging and animating characters that interact with the world in a natural way. 4. creating different levels of detail (LOD) for characters at different distances. 5. Rendering real time lighting and shadows. |
| 1. Explain the organizational procedures that maybe used to create 3-D character for interactive games. |
| *Please submit your answer here:*   1. **Conceptualization:**    * Define character style, personality, and role.    * Create rough sketches or storyboards. 2. **Modelling:**    * Develop a high-resolution 3D model with optimized topology. 3. **Rigging:**    * Set up a digital skeleton for movement and animation.    * Assign weights for realistic deformation. 4. **Texturing:**    * UV map and apply textures considering surface properties. 5. **Animation:**    * Define key poses and use motion capture for realism. 6. **Testing:**    * Integrate into a prototype for initial testing.    * Gather feedback and iterate as needed. 7. **Optimization:**    * Reduce polygon count and optimize textures. 8. **Export and Integration:**    * Prepare for game engine integration.    * Conduct integration testing. |
| 1. Describe the 3-D digital modelling and design principles. |
| *Please submit your answer here:*   1. **Geometry and Topology:**    * Utilize mathematical representations and efficient topology. 2. **Resolution and Detail:**    * Balance detail based on use and performance constraints. 3. **Texture Mapping:**    * Apply textures accurately using UV mapping. 4. **Shading and Materials:**    * Use shading techniques and define material properties. 5. **Lighting:**    * Employ realistic lighting for visual enhancement. 6. **Colour Theory:**    * Apply colour principles for aesthetics and hierarchy. 7. **Composition:**    * Apply traditional design principles in 3D space. 8. **Animation Principles:**    * Bring models to life using keyframing and rigging. 9. **Realism vs. Stylization:**    * Choose a consistent style based on project direction. |
| 1. Explain the stages in model production process, from initial design through to finished product. |
| *Please submit your answer here:*   1. **Conceptualization and Design:**    * Generate ideas and create concept art. 2. **3D Modelling:**    * Develop a detailed high-poly model. 3. **Topology and UV Mapping:**    * Optimize geometry and unwrap for texturing. 4. **Texturing:**    * Apply textures for colour and details. 5. **Rigging:**    * Create a digital skeleton for movement. 6. **Animation:**    * Define key poses and movements. 7. **Testing and Optimization:**    * Integrate, test, and optimize for performance. 8. **Export and Integration:**    * Prepare for game engine integration. 9. **Quality Assurance (QA):**    * Rigorous testing and bug fixing. 10. **Documentation:**     * Create comprehensive documentation. 11. **Finalization and Delivery:**     * Make final adjustments and deliver the finished model. |
| 1. Describe the issues and challenges arising from designing and creating 3-D digital models (You may use your project as a reference example) |
| *Please submit your answer here:* |
| 1. Describe the roles and responsibilities of project team members in developing digital models. |
| *Please submit your answer here:* |
| 1. Explain the features of a range of delivery platforms. |
| *Please submit your answer here:* |
| 1. Describe geometry as it applies to the design and creation of realistic 3-D digital models. |
| *Please submit your answer here:* |
| 1. Describe the use of scale, form, weight, and volume in the development of 3-D digital models. |
| *Please submit your answer here:* |
| 1. What are your organizational guidelines and procedures used within your team or studio work! |
| *Please submit your answer here:* |
| 1. What industry standards are applicable to designing and creating 3-D models for your project? |
| *Please submit your answer here:* |
| 1. Describe a range of industry standard 3-D modelling software. |