



## Level 6 Advanced Diploma in Graphic Design (992) 153 Credits



<b>Unit:</b> Computer Animation	<b>Guided Learning Hours:</b> 300
<b>Exam Paper No.:</b> 2	<b>Number of Credits:</b> 30
<b>Prerequisites:</b> Excellent keystroking ability.	<b>Corequisites:</b> A pass or better in Diploma in Graphic Design or equivalence.
<p><b>Aim:</b> The unit outline history of animation and its relationship to societies/cultures and explore the development of animation from its earliest attempts in prehistoric times through the present day integration of technology. Strategies for production are presented, including animation techniques, design layout, editing, timing, composition, color, lighting, music, sound effects, voice, story, concept, content, theme, historical relationship, social context, ethical context, purpose, audience, and philosophy. This unit focuses on the history and aesthetics of animation, with references to related arts such as live-action cinema, puppetry and comics. Screenings include a wide range of commercial and experimental works produced throughout the world. Graphic animation techniques utilizing microcomputers and 3D software. 3D modeling, scene composition, materials editing, object and camera movement, character development and storyboarding will be explored. <b>Action Analysis</b> - drawing from life is at the foundation of understanding human and animal articulation, proportion, balance, weight and pose essential for the animator. By using observational drawing techniques to learn to see, learners explore issues of human and animal pose and motion relevant to animation. <b>Principles of 2/3D Animation</b> - learners explore the basic principles of animation to develop an understanding of character and performance. Emphasis is placed on the analysis of actions. The unit include the theories of 2/3D space, object modeling, procedures for texture mapping, lighting and rendering. Learners learn how to construct basic digital 2/3D models of character and environment. <b>Stop Motion</b> - learners learn how to build a simple biped character and animate it in a number of motion tests. Learners become familiar with the use capturing software and will be exposed to a wide range of stop motion styles to encourage personal aesthetic exploration. <b>Principles of Screen Design</b> - screen design is fundamental to animation communication. Learners expand upon traditional media skills and animation craft by adding the element of screen design. Through individual approach and expression in traditional and digital media, learners communicate by juxtaposing and sequencing imagery to develop a sense of artist-audience construct and consequence. <b>Animation Production</b> - using perspective and other traditional design attributes to create a variety of shot compositions, learners learn the business of staging, posing and animating action in a sequential layout to create effective visual narrative. The unit develops the learner's ability to rough, block and animate 2/3-D shots in sequence to meet the goals of the script to tell a story. Through the process of learning to assemble the components necessary to allow for the efficient workflow in getting animated storytelling on the screen, learners focus on pre-visualisation, creating and texturing assets for camera, animating for camera, lighting and rendering in passes, and assembling shots in sequence to create effective storytelling. <b>Motion Capture Animation</b> - motion capture is the process of recording movement and translating it onto a rigged digital character. In this unit animators learn how to capture and cleanup motion capture data, and how to use key frame animation knowledge to enhance character performance.</p>	
<b>Required Materials:</b> Recommended Learning Resources.	<b>Supplementary Materials:</b> Lecture notes and tutor extra reading recommendations.
<b>Special Requirements:</b> This is a hands-on unit, hence practical use of computers is essential. Requires intensive lab work outside of class time.	
<b>Intended Learning Outcomes:</b> 1 Character animation specialised area of the animation process and the tools needed to process creating animated characters.	<b>Assessment Criteria:</b> 1.1 Explain how to design/trace characters 1.2 Explain how to create joints that work 1.3 Demonstrate how to work with outlines 1.4 Explain how to create parts for replacement animation 1.5 Demonstrate how to assemble characters with hierarchies 1.6 Analyse rig replacement animation in After Effects 1.7 Identify rig with the Puppet

	<p>tool in After Effects</p> <p>1.8 Analyse rig Flash characters</p> <p>1.9 Analyse rig replacement animation in Flash</p> <p>1.10 Identify rig with the bone tool in Flash</p>
<p>2 Creating effective animations by understanding the principles behind them using variety of principles and techniques to create animation using visualisation techniques.</p>	<p>2.1 Analyse the first, second and third law of motion</p> <p>2.2 Demonstrate how to use slow in and slow out</p> <p>2.3 Explain arcs and smooth motion</p> <p>2.4 Describe overlap and follow-through</p> <p>2.5 Demonstrate how to animate overlap and follow-through</p> <p>2.6 Explain squash and stretch</p> <p>2.7 Demonstrate how to animate squash and stretch</p> <p>2.8 Analyse squashing and stretching techniques</p> <p>2.9 Explain weight and anticipation</p> <p>2.10 Demonstrate how to animate anticipation and weight</p>
<p>3 The different Flash drawing tools, effective use of symbols, and document management best practices.</p>	<p>3.1 Describe internal vs. external forces</p> <p>3.2 Demonstrate how to bring characters to life</p> <p>3.3 Demonstrate blinking, changes in eye direction and head turns animation</p> <p>3.4 Demonstrate creating a strong line of action</p> <p>3.5 Demonstrate creating strong silhouettes</p> <p>3.6 Analyse pose-to-pose animation: Blocking</p> <p>3.7 Analyse pose-to-pose animation: Animating</p> <p>3.8 Analyse pose-to-pose animation: Finalizing</p>
<p>4 Walking is a complex repeating pattern of movements consisting of all sorts of interesting counterplays and how walk is timed as well as the length of the character's stride.</p>	<p>4.1 Demonstrate how to produce a walk in four poses</p> <p>4.2 Analyse motion of the head and body</p> <p>4.3 Evaluate walk cycles and backgrounds</p> <p>4.4 Examine and evaluate skeleton motion and walking</p> <p>4.5 Demonstrate how animate a walk: Contact position</p> <p>4.6 Demonstrate how to animate a walk: The feet</p> <p>4.7 Demonstrate how to animate a walk: The body</p> <p>4.8 Demonstrate how to animate a walk: The legs</p> <p>4.9 Demonstrate how to animate a walk: The upper body and arms</p> <p>4.10 Demonstrate how to animate a walk: The head</p> <p>4.11 Demonstrate how to animate a walk: Squash and stretch</p>

<p>5 How walk is timed as well as the length of the character's stride and how the mood and demeanor of the character will affect the style of the walk.</p>	<p>5.1 Demonstrate how to create a run in four poses  5.2 Demonstrate how create a first frame:  First pose  5.3 Demonstrate how create a second frame:  Second pose  5.4 Demonstrate how create a third frame:  Third pose  5.5 Demonstrate how create a fourth frame:  Fourth pose  5.6 Demonstrate how to animate upper body</p>
<p>6 Facial animation, how it helps to make speech comprehensible; dialogue turns intuitive using eyes, facial muscles, body language, and a host of subtle factors.</p>	<p>6.1 Explain the basics of dialogue animation  6.2 Demonstrate how to read tracks and assign mouth shapes  6.3 Demonstrate how to use phonemes and lip-syncing  6.4 Demonstrate how to animate dialogue:  Animating the body  6.5 Demonstrate how to animate dialogue:  Assigning mouth shapes  6.6 Outline finalising animating dialogue</p>
<p>7 Animating text in Flash; flash text animation effects, image transitions, button effects, filters and spectacular text effects and the several features of after effects.</p>	<p>7.1 Demonstrate how to animate a scene  7.2 Demonstrate how to set up the scene in After Effects  7.3 Demonstrate how to animate the feet in After Effects  7.4 Demonstrate how to animate the legs in After Effects  7.5 Demonstrate how to animate the upper body in After Effects  7.6 Demonstrate how to animate the mouth and blinks in After Effects  7.7 Demonstrate how to set up the scene in Flash  7.8 Demonstrate how to animate the feet in Flash  7.9 Demonstrate how to animate the body in Flash  7.10 Demonstrate how to animate the legs in Flash  7.11 Demonstrate how to animate the hands in Flash  7.12 Demonstrate how to animate the mouth in Flash</p>
<p><b>Methods of Evaluation:</b> A 3-hour essay written paper with 5 questions, each carrying 20 marks. Candidates are required to answer all questions. Candidates also undertake project/coursework in Computer Animation with a weighting of 100%.</p>	

### Recommended Learning Resources: Computer Animation

<b>Text Books</b>	<ul style="list-style-type: none"><li>• Computer Animation: Algorithms and Techniques by Rick Parent ISBN-10: 0125320000</li><li>• Get Animated!: Creating Professional Cartoon Animation on Your Home Computer by Tim Maloney ISBN-10: 0823099210</li><li>• Handbook of Computer Animation by John Vince ISBN-10: 1852335645</li></ul>
<b>Study Manuals</b> 	BCE produced study packs
<b>CD ROM</b> 	Power-point slides
<b>Software</b> 	Computer Animation software (Centre can choose on any program of their choice)

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