## Module 10: Theories & Principles of Animation

| | |
|---|---|
| **Stage** | 1 |
| **Semester** | 1 |
| **Module Title** | Theories & Principles of Animation |
| **Module Number** | 10 |
| **Module Status** | Elective |
| **Module ECTS Credits** | 5 |
| **Module NFQ level** | 9 |
| **Pre-Requisite Module Titles** | None |
| **Co-Requisite Module Titles** | None |
| **Capstone Module?** | No |
| **List of Module Teaching Personnel** | Dr Waseem Akhtar |

| Contact Hours | | | | Non-contact Hours | | | Total Effort (hours) |
|---|---|---|---|---|---|---|---|
| 36 | | | | 64 | | | 100 |
| Lecture | Practical | Tutorial | Seminar | Assignment | Placement | Independent Work | |
| 18 | 18 | | | 24 | | 40 | |

| Allocation of Marks (Within the Module) | | | | | |
|---|---|---|---|---|---|
| | Continuous Assessment | Project | Practical | Final Examination | Total |
| **Percentage Contribution** | 100 | | | | 100% |

## Intended Module Learning Outcomes

On successful completion of this module learners will be able to:

1. Demonstrate an understanding of the fundamental concepts, principles, and techniques of 2D animation.
2. Demonstrate an understanding of the development and history of animation aesthetics.
3. Create an animation from initial concept to final piece.
4. Demonstrate an understanding of design, production, and technology issues around the creation of vector-based animations.
5. Apply a range of animation techniques to the solution of problems involving interrelated concepts and methodologies.

**Module Objectives**

This module introduces learners to the fundamentals of 2D and 3D animation. The conceptualisation, design, and creation of 3D products is examined. Learners gain practical experience in 2D animation and begin to explore the possibilities of 3D animation.

**Module Curriculum**

**Traditional Animation Techniques**
Outline History of Animation, 2D Cel, Stop-Motion Animation, Flip Charts, etc.

**Animation Principles**
Squash and Stretch, Timing and Motion, Anticipation, Staging, Follow Through and Overlapping Actions, Slow In and Out, Exaggeration, Appeal

**Motion Generation**
Key Framing and Tweening, Morphing, Forward and Inverse Kinematics, Motion Capture, Convergence of Techniques

**Detailing and Lighting**
Fundamental Lighting, Colour and Shading Models, Transparency, Texture Mapping, Rendering

**Animation**
Raster-based animation, Vector-based Animation

**Animation Production**
Concepts, Characters, Storyboards, Creating movement and expression utilizing traditional or electronically generated image sequences

**Animation Aesthetics**
Digital animation as Art, Animation in Film and Television, Web, Corporate use

**Reading Lists and other learning materials**

**Recommended Reading**

| | | | |
|---|---|---|---|
| Animation for film and video production | Jones | Prentice-Hall | 2006 |
| Digital lighting and rendering | Birn | New Riders | 2006 |
| Animation from Pencils to Pixels: Classical Techniques for the Digital Animators | White | Focal Press | 2006 |
| Mastering Autodesk 3ds Max 2013 | Harper | Sybex | 2013 |

**Secondary Reading**

| The Animator's Survival Kit | Williams | Faber and Faber | 2001 |
|---|---|---|---|
| The Animation Book | Laybourne | Crown Publications | 1998 |
| The complete animation course | Patmore | Barron's Education | 2003 |

Additional reading as recommended by lecturer, appropriate to topic.

**Module Learning Environment**

Lectures are carried out in class rooms / lecture halls in the College. Lab tutorials are carried out in computer labs throughout the Campus. All have the software required to deliver the programme.

**Library**

All learners have access to an extensive range of physical and electronic (remotely accessible) library resources. The library monitors and updates its resources on an on-going basis, in line with the College's Library Acquisition Policy. Lecturers update reading lists for this course on an annual basis as is the norm with all courses run by Griffith College.

**Module Teaching and Learning Strategy**

Learners are taught using a combination of lectures and Practical tutorials. Tutorials are Lab-based and are used to develop the learner's expression in a creative and innovative fashion. The lecturer further explores animation styles and aesthetics and examines the ways in which 3D animation can be integrated into multimedia products. This is further developed in the practical class where the learners are required to demonstrate the ability to think and design in a 3 dimensional fashion.

**Module Assessment Strategy**

Learners are assessed on the following, completed during the course of the module:

| Element No. | Weighting | Type | Description | Learning Outcomes Assessed |
|---|---|---|---|---|
| 1 | 40% | Assignment | 1. The first assignment will cover the history of animation. Learners will be required to give an overview of the area, and to elaborate at least one technique of animation either by example and case study or by presentation. This assignment will represent 40% of the marks for the overall module. | 1,2 |
| 2 | 60% | Assignment | 2. The second assignment will be a practical project which will involve creating an animation from a basic idea to the finished presentation going through all the steps of animation, such as story boarding, character identification, key frame identification and designing. The learner will use an industry standard tool to create the animation. The process of animation will be assessed as well as the final product. This will be | 3,4,5 |

| | | | done by requiring regular updates to the lecturer and classmates during the production process. This assignment will represent 60% of the overall marks for the module. | |
|---|---|---|---|---|