COURSE CONTENT

Course Code	DT2016
Course Title	3D Character Animation
Pre-requisites	DT2000 and DT2001
No of AUs	3 AUs for BFA students admitted in AY2017 onwards
Contact Hours	39 Contact Hours

Course Aims

In this practical course, you will aim for a high standard of proficiency in 3D character animation. You will explore character animation from still poses to animated sequences, using a variety of models ranging from simple objects to human and animal. You will investigate body mechanics, movement and basic acting, using a range of specialist workflow techniques and software tools. This course will prepare you for more sophisticated application of these techniques in a more complex context

Intended Learning Outcomes (ILO)

By the end of this course, you should be able to:

1. Identify key principles of character motion within the 3D computer environment.

2. Apply correct body mechanics to a character interacting with a 3D computer environment

3. Demonstrate proficiency with computer animation work flows and techniques.

4. Creatively apply principles learned in class to your own animations.

5. Critique your own work and your peers' work in a clear and constructive manner.

Course Content

- **Animation mechanics.**
  You will receive an overview of key concepts and theories around the creation of motion through computer animation. You will perform exercises using simple models which will reinforce a range of techniques and principles.
- **How to animate in 3D space.**
  A series of lectures with examples will present an overview of the unique characteristics of creating movement in the computer 3D environment. You will then perform a series of exercises to provide experience working in this medium. An emphasis will be placed on technique, workflows and best practice, in order to create expressive, efficient animations.
- **Exploring and expanding pose weight and attitude in relation to human motion**
  Building on your existing skillset, you will explore and expand upon key principles and concepts of complex natural motion. Through the use of a live action and animation examples you will apply advanced concepts in the creation of character motion in a range of camera views and interactions with the computer generated 3D environment as well as other 3D characters.
- **Transfer the knowledge acquired to your own personal work.**
  Through a series of exercises and in-class projects, you will explore the different types of animation challenges pertaining to creating your own original movement. This will enhance and expand your understanding of weight, staging, timing, and acting.

Assessment (includes both continuous and summative assessment)

Component	Course LO Tested	Related Programme LO	Weighting	Team/Individual
Continuous Assessment.: Assignments: Based on class activities	1,2,3,4		30%	Individual
Continuous Assessment: Participation	5		20%	Individual
Final Project: Portfolio: Assemble and present in a reel form the work achieved over the 13 weeks	2,3,4		50%	Individual
Total			100%	

Recommended Reading and References

1. Thomas, Frank, Ollie Johnston, and Walton Rawls. *Disney animation: The illusion of life*. Vol. 4. New York: Abbeville Press, 1981.
2. Luhta, Eric, and Kenny Roy. *How to cheat in maya 2013: tools and techniques for character animation*. Taylor & Francis, 2013.
3. Osborn, Keith. *Cartoon character animation with maya: mastering the art of exaggerated animation*. Vol. 50. Bloomsbury Publishing, 2015.
4. Williams, Richard. *The animator's survival kit: a manual of methods, principles and formulas for classical, computer, games, stop motion and internet animators*. Macmillan, 2012.

Course Policies and Student Responsibilities

(1) General

You are expected to complete all assigned activities, assignments, attend all classes punctually and complete all scheduled assignments by due dates. You are expected to take responsibility to follow up with assignments and course related announcements. You are expected to participate in all project critiques, class discussions and activities.

(2) Punctuality

You are expected to be punctual for all classes. If you are more than 30 minutes late, you will be deemed as absent and will not be able to sign in to the attendance register.

(3) Absenteeism

In-class activities and participation make up a significant portion of your course grade. Absence from class without a valid reason will affect your participation grade. Valid reasons include falling sick supported by a medical certificate and participation in NTU's approved activities supported by an excuse letter from the relevant bodies. There will be no make-up opportunities for in-class activities.

Academic Integrity

Good academic work depends on honesty and ethical behaviour. The quality of your work as a student relies on adhering to the principles of academic integrity and to the NTU Honour Code, a set of values shared by the whole university community. Truth, Trust and Justice are at the core of NTU's shared values.

As a student, it is important that you recognise your responsibilities in understanding and applying the principles of academic integrity in all the work you do at NTU. Not knowing what is involved in maintaining academic integrity does not excuse academic dishonesty. You need to actively equip yourself with strategies to avoid all forms of academic dishonesty, including plagiarism, academic fraud, and collusion and cheating. If you are uncertain of the definitions of any of these terms, you should go to the [academic integrity website](#) for more information. Consult your instructor(s) if you need any clarification about the requirements of academic integrity in the course.

Planned Weekly Schedule*

***Subjected to adjustment by instructor according to your progress, public holidays and unforeseeable circumstances.

Week	Topic	Course LO	Readings/ Activities
1 - 2	• **The fundamental animation mechanics in 3D.** Overview of key concepts and theories pertaining to computer graphic animation and how we create our own animation in 3D. Overview of tool set.	1,2,5	**Introductory Lecture** **In-class exercise:** introduction to course objective and goals **Lecture:** on Key frames, spacing, squash and stretch, slow in/slow out, arcs, anticipation etc **In-class exercise:** creation a bouncing ball animation
3 - 7	• **Understanding the figure motion in relation to the environment** Animating an object and a simple rig expressing attitude, weight, and composition and how this constitutes the basis of the creative process for animation. Human locomotion **Complex 3D tools** Activities are planned for	1,2,3,5	**In-class exercises:** creating motion with overlapping objects **Lecture:** on Complex motion: - Follow through, overlapping and wave action, secondary action etc. - Staging **In-class exercise:** creating a short narrative with simple characters **Lecture:** on Complex Motion; the human walk **In-class exercise:** creating a standard walk and run with a complete human rig.

	this class that will strengthen the skills of the student in creating efficient 3D animations		
8- 13	• **Exploring and designing you own animation** Overview of key issues and concepts in relation to creating a complex character motion for animation based on life observation, with many examples. • **Building a show reel of your own animation** Creating a reel of your own animations. Developed through peer/instructor feedback sessions in the course of the semester	2, 3,4,5	**Lecture** Sophisticated use of wave actions - Weight: - The importance of weight for believable animation - Different approaches to timing The commonality of animation principles through all areas of animation practice: **In-class exercise** Using life action example of human moving in a sport or dancing context you will create a scene that through the analysis of the life action footage demonstrates your ability to reinterpret and re design such complex motion in your own animation **Final Projects** Assemble and animate a scenario demonstrating how 2 character are dealing with weight and staging and interaction with each other **Project Critique** lab class where students will receive personalised feedback as they work on their assignments **Student Presentations** on final show reel