Course Code	DT2003
Course Title	Digital Sculpting
Pre-requisites	NIL
No of AUs	3
Contact Hours	39 Contact Hours

Course Aims

This introductory level course will familiarise you with a range of digital modelling and sculpting techniques which you will be able to employ for animation, special effects, cinema and digital gaming. The processes learned in this course are essential for character and asset creation for a wide range of more advanced courses in media art.

Intended Learning Outcomes (ILO)

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

1. Identify and discuss techniques used to create digitally created forms.
2. Employ a range of modelling and sculpting techniques to create 3D objects.
3. Apply digital modelling and sculpting techniques to create a digital character or major asset.
4. Present 3D modelled concepts, stages and finished work in a clear and cohesive manner.
5. Contribute to discussion around peer's 3D modelling techniques and approaches in a constructive manner

Course Content

This course is a practical course that focuses on learning techniques and processes to create digital 3d models. There are two main types of digital modelling – constructed and sculpted. Both approaches will be learned and explored as to their suitability for a range of outcomes. A wide range of mechanical and organic shapes will be developed, using a variety of techniques and level of detail. Surface colouring and lighting will be examined, as well as other surface attributes such as reflectivity, shininess, dullness, glow, wetness, as well as some discussion into complex surface textures such as hair.

The course will also cover a range of export and linking options in order to integrate into a production scenario for animation, special effects, cinema or digital gaming.

Assessment (includes both continuous and summative assessment)

Component	ILO Tested	Programme LO	Weighting	Team/ Individual
Continuous Assessment Studio-based exercises and projects	1,2,3, 4	--	40	Individual

Mid semester portfolio review				
Final Project: Portfolio of all exercises and class projects	1,2,3,4	--	40	Individual
Continuous Assessment: Participation	5	--	20	Individual
Total			100%	

Reading and References

1. Keller, Eric. Introducing ZBrush. John Wiley & Sons, 2011.
2. Lewis, Martha. Sculpting from the imagination: Zbrush. 3dtotal 2016.
3. Spencer, Scott. Zbrush creature design: creating dynamic concept imagery for film and games. John Wiley & Sons, 2012.
4. Vaughan, William. Digital modeling. New Riders, 2011.

Course Policies and Student Responsibilities

(1) General

You are expected to complete all assigned readings, 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 on the attendance register.

(3) Absenteeism

In-class activities 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 recognize 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, 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 students' progress, public holidays and unforeseeable circumstances.

Week	Topic	Course LO	Readings/ Activities
1	**Introduction to 3D Modelling and Digital Sculpting**	1,2, 3, 5	**Introductory Lecture** In-class demonstration Introduction to key principles and software First exercises
2-6	**Principles and Tools** 3D polygonal modelling. Concepts of mesh, vertices, and faces. Auto techniques for mechanical shapes. Manipulating mesh in the 3D space. Working from reference. UV space and texturing principles. Export considerations.	1,2, 3, 5	**In-class demonstrations** Exercises to gain familiarity with techniques and software A series of exercises and tasks to establish a base-level of ability and produce results for personal portfolio
7	**Mid semester review** Peer-review presentation and discussion of work in progress.	1, 2, 3, 5	**Student presentations, critique and feedback** In this interactive process you will learn through and from the work of your peers and the advice offered by the professor. These reviews will take all previously learned concepts into account and test understanding of the topic.
8-12	**Digital Sculpting** Principles of digital sculpting. How it differs from polygonal construction approach. Hi-res / low-res principles. Sculpting techniques. Using textures to create surfaces. Mapping concepts such as bump, displacement and normal. Export processes.	1, 2, 3, 4, 5	**Introduction to Mesh Sculpting Lecture** In-class demonstrations Introduction to key principles and software **In-class demonstrations** Exercises to gain familiarity with techniques and software A series of exercises and tasks to establish a base-level of ability and produce results for personal portfolio

| 13 | **Final review of assignments**
Peer-review presentation and discussion of final work. | 1, 2, 3, 4, 5 | **Final presentation and handin** |