



NEW JERSEY INSTITUTE OF TECHNOLOGY
COLLEGE OF ARCHITECTURE AND DESIGN

3D CHARACTER MODELING AND DESIGN

COURSES: DD 444 – 3-Dimensional Character Development (3 credits)
PROGRAM: Digital Design/School of Art + Design
LOCATION: Fourth-year/fall term (undergraduate)
INSTRUCTOR: Andrzej Zarzycki

DESCRIPTION: The course is an in-depth exploration of 3D character design, modeling, and animation for video games and cinematographic production. Conceptual art and technical/production topics are considered. Precedent studies are required from sources including illustration, gaming, and video/animation disciplines as well as theatrical and cinematographic choreography including fashion designers and make-up artists. 3D modeling, UV unwrapping, texturing and rigging as well as pipeline production processes are also included. Students apply fundamentals learned in Video & Animation (DD 284) along with more advanced concepts and techniques in digitally creating and animating 3D characters. Focus is on both conceptual and technical/production aspects of character design.

PROJECT: Design, model, rig, and animate a fictional character; and create the “backstory” for the character.

REQUIREMENTS: Students must design, model, and animate a fictional bi-ped/humanoid character. Progress screen captures are required to document the process of modeling, lighting, and texturing the model. Provide turntable animation in addition to character and narrative-specific movement as well as still image renderings of all characters designed.

OBJECTIVES: (1) Introduce students to the history, complexity, and opportunities (including varied sources of inspiration) of designing characters. (2) Provide instruction and opportunity to model characters in a design context. (3) Provide opportunity to expand and extend knowledge and skill of character rigging introduced in earlier course(s). (4) To understand kinetic behavior of biped and quadruped characters. To gain an understanding of the pipeline of the digital character design and demonstrate an ability to transfer geometries between various modeling, texturing, and rendering software without data loss.

REFERENCES: (1) Cabrera, Cheryl. *An Essential Introduction to Maya Character Rigging* (New York, NY: Focal Press/Routledge/Taylor & Francis, 2008). (2) Goldfinger, Elliott. *Animal Anatomy for Artists: The Elements of Form* (New York, NY: Oxford University Press, 2014). (3) Gray, Henry. *Anatomy of the Human Body* (Philadelphia, PA: Lea and Febiger, 1918). (4) Palamar, Todd. *Maya Studio Projects: Photo Realistic Characters* (Hoboken, NJ: Sybex/Wiley, 2011) (5) Seegmiller, Don. *Digital Character Design and Painting* (Independence, KY: Charles River Media Graphics/Delmar Cengage Learning, 2003).

Online tutorials for *Maya* and *Mudbox* are available as are instructional books and manuals in the reference section of the Littman Architecture and Design Library. A subscription to *Pluralsight* provides online access to additional resources in the lab and in the design studios on campus.