CGDD 4003: Digital Media and Interaction

3 Credit Hours

Prerequisite: CGDD 3103 or CS 3305 or IT 3883

This course explores how digital media is created and utilized within computer games and simulations. Topics include sound, video, text, images, character modeling, animation, game world and level generation (2D and 3D), and current and emerging interaction techniques. Students are required to work in teams to produce a multimedia term project.

CGDD 4113: 3D Modeling and Animation

3 Credit Hours

Prerequisite: CS 3305

This course explores the theory and application of 3D geometric model generation and animation. Topics include mesh and Non-uniform Rational B-Spline (NURB) modeling, textures, subdivision and levels of model detail, rigid/constrained body dynamics, and non-rigid/fluid dynamics. Students will be required to develop and animate a complex model, and a significant project is required

CGDD 4203: Introduction to Mobile and Immersive Gaming

3 Credit Hours

Prerequisite: CGDD 4003

This course explores the segments of mobile (handheld, tablet, and mobile phone) and immersive gaming. The technical and hardware requirements and constraints of mobile and immersive game development are investigated. Students will learn to design and develop within these constraints. Patterns and methodologies for designing and developing these games are covered. Several projects are required (both mobile and immersive).

CGDD 4242: Agent-Based Artificial Intelligence

3 Credit Hours

Prerequisite: CS 3305

This course introduces students to the key concepts of Artificial Intelligence in single-agent, adversarial, and multi-agent systems. This includes topics such as agency, knowledge representation, searching, planning, algorithms, and machine learning in both single and multiple agent scenarios. The students will also apply this knowledge to games, serious games, and simulations and implement their solutions within serious game and simulation environments such as Unity or Unreal.