SIMULATION

SIM 110

Introduction to Simulation Technology (3)

A first course in Simulation Technology. Students are exposed to the hardware and software principles and applications used for simulating realworld systems. Both virtual and physical systems are explored. An introduction to the mathematics involved in real-world simulations is provided. Continuous, discrete, and distributed simulation methods are introduced. Validation of a simulation model and comparison of different simulation areas (such as vehicle, weather, medical, industrial, and entertainment) are examined.

3 Class Hours; No Prerequisites.

SIM120

Simulation Techniques (3)

This course introduces the student to the various mathematical methods required in different simulation scenarios (matrix transformations, algebra, trig, complex numbers), as well as open-loop and closed-loop system theory, discrete versus continuous simulation, the use of databases in simulations, and the necessary real-world physics.

2 Class Hours, 2 Lab Hours.

SIM 210

Simulation Systems (2)

This course concentrates on the theory and operation of several major simulation system components, including input/output systems, hydraulic and electric 3-axis platforms, software rendering techniques, 2-d and 3-d graphical systems (OpenGL and DirectX), video card and graphics accelerator operation, and basic networking.

2 Class Hours, 2 Lab Hours.

SIM 220

Simulation Systems Design and Senior Project (2)

In this capstone course, the students will develop their own original simulation system. This includes all aspects of the design, from the original system specification, to subsystem development, integration, testing, and troubleshooting. All students present their designs to the entire class for critique and review.

2 Class Hours, 2 Lab Hours.