Syllabus

EIN5255: Interactive Simulation

Required Course for

Interactive Simulation and Training Systems MS Program

Pre-requisites: Post-Baccalaureate or Instructors Permission if the student does not have a Bachelors Degree

Instructor: Dr. Roger Smith

IEMS Office: 316

E-mail: rs@simulationfirst.com

FAX: 407-381-2930

Class Hours: Wednesday 7 PM to 9:45 PM.

Office Hours: Wednesday: 5 PM to 7 PM;

Catalog Description: This course provides an introduction to significant topics relative to the development and use of interactive simulation for knowledge transfer in the technical environment.

Course Objectives: To provide students with: (1) fundamental knowledge of various interactive simulation paradigms, (2) the ability to identify and understand the appropriate use of various implementations of interactive simulations, (3) the understanding of the capabilities and limitations of live, virtual, distributed and constructive simulations, (4) the ability to understand fundamental constructs and assumptions that underlie those simulations, (5) insight into recent simulation issues and (6) the basic ability to develop a interactive simulation environment with entities.

Text:

Networked Virtual Environments, Singhal & Zyda, 1999 (Recommended).

Essential Virtual Reality Fast, Vince, 1998 (Recommended).

References:

The Pilot Maker, by Lloyd L. Kelly as told to Robert B. Parke, 1970

Taking Flight, Watkins & Marenka, 1994

Inside the PC, Peter Norton and John Goodman, SAMS, 1999(not required).

The Design of Virtual Environments, Rory Stuart, McGraw-Hill, 1996 (not required).

Virtual Reality Systems, Vince, Addison Wesley, 1995 (not required)

Applied Modeling and Simulation: An Integrated Approach to Development and Operation, McGraw Hill, Cloud & Rainey, 1998 (not required)

Models and Simulations, DSMC, Piplani, Mercer & Roop, 1994 (not required)

Objectifying Real-Time Systems, John R. Ellis, 1994 (not required)

Pitfalls of Object-Oriented Development, Bruce F. Webster, 1995 (not required)

The Unified Modeling Language User Guide, Booch, et al, 1999 (not required)

The Unified Software Development Process, Jacobson, et al., 1999 (not required)

Modeling Human and Organizational Behavior, NRC, 1998 (not required)

Journals in Library:

Simulation and Gaming H62.S477

Simulation TA343.S54

Presence TA169.P69

Journal of Interactive Instruction Development LB1028.3 J682

Human Computer Interaction QA76.9 S88 H84

Human Factors T58 A2 H8

Military Psychology U22.3 M24

International Journal of

Human Computer Studies TA167 I5

Aviation Psychology TL 553.6.I57

IEEE Transactions on

Neural Networks QP363.I34

….ETC

ACM Transactions on

Computer-Human Interaction QA 76.9.H85.A35

……..ETC

Journals NOT in Library

Transactions of the Society for Computer Simulation International

Military Operations Research

Training Research Journal

Graded Requirements

1. Multigen Creator Task: Build a terrain skin and populate it with entities that you create while going through the tutorials (300 points). Due 1900 hrs 30 Oct.

- **Grade:** Walk-through demonstration of your synthetic world in the ISTS lab during October 30th class. Grade will be based on variety and quality of entities. Break point: 250 points earned if tutorial entities present. The last 50 points are to be earned based on your own doings from another tutorial or adding other effects.

2. Simstorm/SVS/Stealth Task: Build an interoperable and distributed synthetic natural environment using the SimStorm tool set. (0 points). Due 1900 hrs 4 Dec.

- **Grade:** Walk-through demonstration of your synthetic world in the ISTS lab during Dec 4th class. Grade will be based on variety and quality of entities. You may use models available in the example folders. A minimum of 90 points will be earned if you create an interoperable, synthetic natural environment and have entities interact with one another over the network.

3. One individual written research paper on selected research topics (Total: 200 points). Due 1900 hrs 27 Nov.

- Research papers should be formatted according to WSC or SISO conference papers standards. You can find these guidelines on the class web site or on either conference web site (www.wintersim.org and www.sisostds.org/siw/).

- Teams will present the results of their research to the class. Presentations will be made with tactile items or Powerpoint presentations. Guidelines for Powerpoint slides

- Open with a title slide indicating the title of the project, team members, course number, and semester
- Avoid the use of Bullet list slides and long pieces of text as much as possible. Explain your ideas with pictures, diagrams, and other graphics.
- Presentation can be done by a single or multiple members of the team.
- Opening presenter should give a brief description of the contributions of each member of the team.
- Bring physical examples of items to show if possible.
- Presentations will be 15-20 minutes long.

4. Two in class Exams (150, 250 points). 25 Sept. & 13 Nov.

The exams format will be discussed prior to exams.

A: 810 to 900 points

B: 747 to 809 points

C: 675 to 746 points

D: 630 to 674 points

F: 629 and below