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Spring 2011

CEG 777-01: Computer Aided Geometric Design

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CEG-777 Computer Aided Geometric Design

Spring 2011

Class Hours: 2:45 – 4:00 PM, M, W; Classroom: 193 JC; Instructor: A. Goshtasby;
Office: 495 Joshi Center; E-mail: agoshta at wright dot edu; Phone: 937-775-5170;
Office Hours: 1:00 - 2:00 PM M – R, or by appointment.

CRN:71956

Units: 4

Textbooks:

The Essentials of CAGD

G. Farin and D. Hansford

A. K. Peters 2000, 2006

Purpose of Course:

This course covers the fundamentals of geometric modeling, including design of curves and surfaces, composite curves and surfaces, and subdivision techniques for creation of free-form shapes. Materials covered in the course will be useful in game design and also in visualization of exploratory data.

Contents:

1. Mathematical preliminaries
2. Lines and planes
3. Bézier curves
4. B-spline curves
5. Composite curves
6. Applications of curves
7. Bézier patches
8. B-spline surfaces
9. Subdivision curves and surfaces
10. Composite surfaces

Learning Goals:

Students will learn the basic mathematical tools to design geometric models and will practice some of the tools through implementation. The course will also cover curve and surface methods for data fitting.

Projects:

There will be three projects and three quizzes. Each project will require about 20 hours of work and each quiz will cover two to three weeks of course materials.

Grading Policy:

The projects will worth 50% and the quizzes will worth 50% of the overall grade. Following grades are guaranteed A: 90..100, B: 80..89, C:70..79, D: 60..69, E: 0..59.

Calendar:

Quizzes on: 4/18, 5/9, 5/23

Projects	Assigned dates	Due dates
1	4/13	4/27, 2:00 PM
2	5/4	5/16, 2:00 PM
3	5/18	6/1 2:00 PM