



THE OHIO STATE UNIVERSITY
COLLEGE OF ENGINEERING

Geometric Modeling

CSE 5543

Credit Hours:

3.00

Course Levels:

Undergraduate (1000-5000 level)

Graduate

Course Components:

Lecture

Course Description:

Common algorithmic and mathematical techniques for modeling geometric objects in computer graphics and CAD applications; sample based modeling, mesh generation, and hierarchical representations.

Prerequisites and Co-requisites:

Prereq: 2568 (568) or 571.

Course Goals / Objectives:

- Master modeling curves and surfaces (B-splines and Bezier)
 - Master techniques for object creation, manipulation with extrusions, revolutions, lofting
 - Master techniques to generate meshes from point cloud data and CAD data
 - Be familiar with hierarchical representations
 - Be exposed to parameterization techniques
-

Course Topics:

- Curve modeling (B-splines and Bezier)
 - Subdivision curves
 - Surface geometry and topology
 - Surface modeling (B-splines and Bezier)
 - Subdivision surfaces
 - B-rep, CSG, Boolean operations
 - Curve and surface reconstruction
 - Surface and volume simplification
 - Mesh generation
 - Parameterization
 - Midterm examination, review, discussions
-

Designation:

Elective