

Department of Civil Engineering & Engineering Mechanics

Spring 2006

Instructor: G. Dasgupta

dasgupta@columbia.edu

Office Hrs: R 2:30 — 4:00

www.columbia.edu/~gd18

Computer-aided engineering graphics

E 2005y

Office: 620 Mudd

tel:854-3102

Announcement-1: Date Prepared: November 4, 2005

1 Major Topics

1.1 Computer Graphics Programming Environment (4 Lectures)

1.1.1 Graphics Primitives and Directives

1.1.2 Demonstration with *Mathematica* Graphics

1.1.3 Two- and three-dimensional plots: (student selects a programming environment) functions and data

1.1.4 Test-1: (from classwork and homework problems) February 16, 2006

1.2 Classical Graphics (3 Lectures)

1.2.1 Descriptive Geometry

1.2.2 Principal views

1.2.3 Auxiliary views

1.2.4 Test-2: (from classwork and homework problems: sketching different views) March 23, 2006

1.3 Mathematical elements of Computer Graphics (4 Lectures)

1.3.1 2-D Transformations

1.3.2 Computer Implementation: Matrix operation and perspective views

1.3.3 Hand Calculations and sketches

1.4 Interpolations and splines

1.5 3-D Graphics, Surface, Color

1.6 Individual Projects:

Report: Calculations and Graphics

Students can use any Graphics system of their choice.

A structured programming language will be preferred.

May 11, 2006 — Final Examination