

ARCH 48 - 125

Introduction to Digital Media 2

Carnegie Mellon University
School of Architecture
Spring 2010

Week 5: Handout

Goal:

Additional methods of moving from curve to surface to solid
Understanding basic geometry transformation using Rhino

Some Useful Commands

Names of commands are supposed to be descriptive.

Quick Demos on:

- Extrusion
- Trim and Split (we already covered this briefly)
- Revolve
- Sweep / Pipe
- Project (also covered before)

A Few Facts on Geometry Systems

- Cartesian geometry uses a coordinate system (x, y, z plane) to describe forms and their locations.
- Euclidean geometry classifies some forms as its basic elements: e.g. Platonic Solids which can be found under Solid menu in Rhino. (5 min tryout on different shapes: cone, cylinder, tube etc)
- Both are algebraic. That means both coordinates and shapes can be added or subtracted.

Boolean Operation

Direct algebraic operation to add and subtract objects.

(Try-out the 4 Boolean options: union, difference, intersection, split)

Quick Geometry Transformation

Rhino uses Lines/Curves as Paths for many more operations: e.g. when copy multiple objects (Array)

Demo using examples below

Real Examples

Chair example using Ellipses, Trim, Revolve, Pipe (with 2 different diameters)

A freeform staircase (railing and steps) using Pipe/Sweep, ArrayCrv, Orient...