

INTRODUCTION TO COMPUTER-AIDED-DESIGN

Yogesh Kulkarni

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1 INTRODUCTION

Why

How to model real world objects? - Design

How to put forth ideas in visual manner Communication

How to verify that design serves the purpose Analysis

How to get it made? Manufacturing

All of the above can happen without Computers..but

Better if assisted by Computers/Software

That's why : Computer Aided ... (CAx)



Classification

By dimensionality: 2D/3D

2-Manifold vs Non-manifold

Precision: Exact/Approximate

What to store?

- Procedure

- Result

- Hybrid



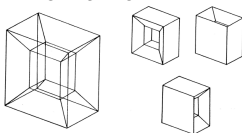
By dimensionality

2D model: Point, line, circular arc, planar curve



3D model

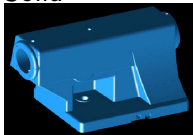
Wire frame



Surface



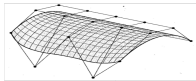
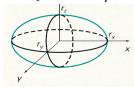
Solid



By Precision

Exact (?) model : Continuous/Smooth representation.

Explicit / implicit / parametric curves / surfaces



Approximate model

Cloud of points



Voxel

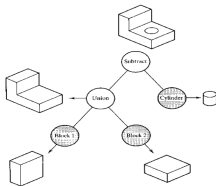


Mesh

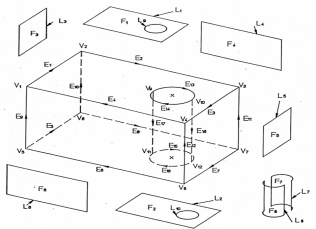


By Storage

Procedural model : CSG (Constructive Solid Geometry)



Result based model : B-Rep (Boundary representation)



Thanks ... yogeshkulkarni@yahoo.com

