UNITS-2- REVERSE ENGINEERING AND CAD MODELING

Prepare a CAD model for Additive Manufacturing

CADfix provides tools and utilities to create a build box for additive manufacturing and organize your models in this area. Click to watch video.

Additive Manufacturing (AM) describes technologies to build 3D objects by adding layer-upon-layer of material, whether the material is plastic, metal, concrete or others. Once a CAD model is designed, the AM equipment reads in data from the CAD file and lays downs or adds successive layers of liquid, powder, sheet material or other, in a layer-upon-layer fashion to fabricate a 3D object. The term AM encompasses many technologies including subsets like 3D Printing, Rapid Prototyping (RP), Direct Digital Manufacturing (DDM), layered manufacturing and additive manufacturing.

What is rapid prototyping in CAD?

Rapid prototyping is **the fast fabrication of a physical part, model, or assembly using computer-aided design (CAD) software** like Autodesk Fusion 360. The rapid prototyping process typically involves taking a 3D model and quickly turning it into a physical prototype, often by 3D printing.

What are the 5 steps in rapid prototyping?

In general, five steps are involved in the RP process, as shown in Figure 14.1. They are **CAD solid modeling, model conversion to STL, STL model slicing, model fabrication, and post-processing**, resulting in a physical prototype.

What Are the Most Common Rapid Prototyping Steps?

1. Step #1. CAD Modeling. The rapid prototyping steps typically begin with a solid model in CAD.
2. Step #2. CAD Conversion.
3. Step #3. STL Model Slicing.
4. Step #4. Model Fabrication.
5. Step #5. Post-Processing.

What are the three techniques available for rapid prototyping of a CAD design?

There are multiple 3D printing processes available, with the ones most commonly used for rapid prototyping being **fused deposition modeling (FDM), stereo lithography (SLA), selective laser sintering (SLS)**.

Which software is used in rapid prototyping?

The software most frequently used in prototyping includes **Sketch Up, AutoCAD, Solid Edge and Solid Works**. Applications: In addition to allowing the visualization of the inside and outside of the parts, their spatial manipulation and measurement of dimensions, the software also offers various applications.