

Making and Repairing your Model for 3D printing

Credits: Valid for 4 AIA hours/LUs
Prerequisite: A basic understanding of any 3D Modeling Application
Available Times: 1/2 day, morning, 9:00am-1:00pm; afternoon, 1:00pm-5:00pm

OBJECTIVE

Learning how to create 3D printable geometry in various applications; AutoCAD, Revit, Rhino, 3D Studio Max. Prepare your design for 3D printing and check for errors. We will discuss the various techniques for repairing errors.

TOPICS INCLUDE

WHAT IS ADDITIVE MANUFACTURING: We start with a discussion about the various 3D printing technologies. CJP - Color Jet Printing, Binder 3D Printing, SLA – Stereolithography, SLS - Selective Laser Sintering, Selective laser melting (SLM), MJP - Multi Jet Printing, DLP - Digital Light Processing, Photopolymerization - Using UV Light to harden a liquid, DMP - Direct Metal Printing, FDM - Fused Deposition Modeling

DEFINITION OF A WATER TIGHT SOLID: Learn what kind of geometry can be 3D printed.

EXPORTING GEOMETRY TO THE APPROPRIATE FILE FORMAT: There are various acceptable file formats depending on the 3D printing technology you are using. We will discuss the setting and considerations required to ensure the best outcome. We also discuss model resolution and scale. The need for confirmation of size color and final material properties after post processing.

UNDERSTANDING THE MATERIAL AND LIMITATIONS: The benefits and limitations of the various materials and printing technologies. Model optimization, wall thickness, making a model hollow and the need for supports are discussed. We consider the best way to use less material and consider when appropriate.

GENERATING SUPPORTS & PROPER ORIENTATION: We discuss the need for support structure and the ways to avoid unnecessary additions. Proper model placement, alignment and orientation can have a big effect on the outcome depending on the technology.

UNDERSTANDING THE COSTS & TIME INVOLVED: Print time estimate, cost analysis, planning and meeting deadlines. Nothing kills the excitement about improving a client presentation than not meeting a deadline.

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