Mechanics and Machines, CAD Details 2

Workflow, Work in groups

CAD file formats

Threads

Innopolis University

Workflow

On whiteboard

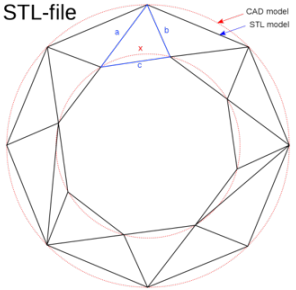
Popular neutral formats

- step
- stl
- dae
- jt

Stereolithography (.STL)

Application: for 3d printers, Gazebo sim

Feature: STL files describe only the surface geometry of a three-dimensional object without any representation of color, texture or other common CAD model attributes.



ISO 10303 (.STEP)

Application: is an ISO standard for the computer-interpretable representation and exchange of product manufacturing information

Feature: Does not contain a lot of information, *including threads*!

COLLADA (.DAE)

Application: COLLADA was originally intended as an intermediate format for transporting data from one digital content creation (DCC) tool to another application.
Blender, *Maya*, *Meshlab*
Feature: XML, which contains detail + texture

Jupiter Tesselation (.JT)

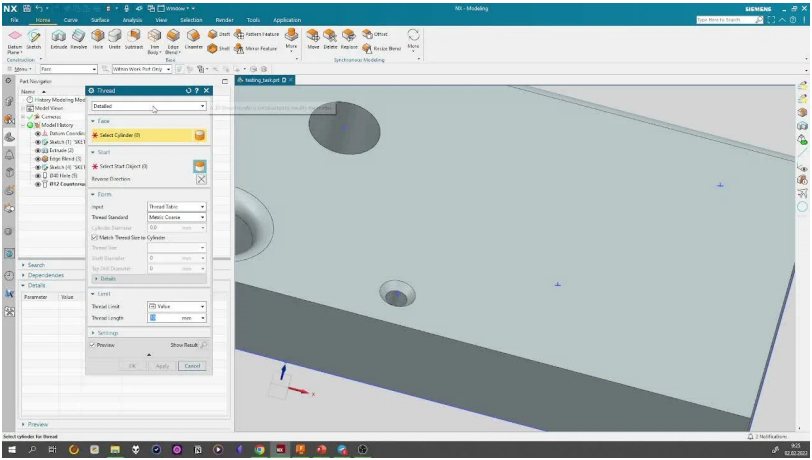
Application: is an openly-published ISO-standardized 3D CAD data exchange format used for product visualization, collaboration, digital mockups, and other purposes.

Feature: The format and associated software is structured so that extremely large numbers of components can be quickly loaded, shaded and manipulated in real-time.

Because JT files are inherently ”lightweight” (≈1-10% of the size of a CAD file) they are ideal for internet collaboration.

Threads and difference between formats

Video

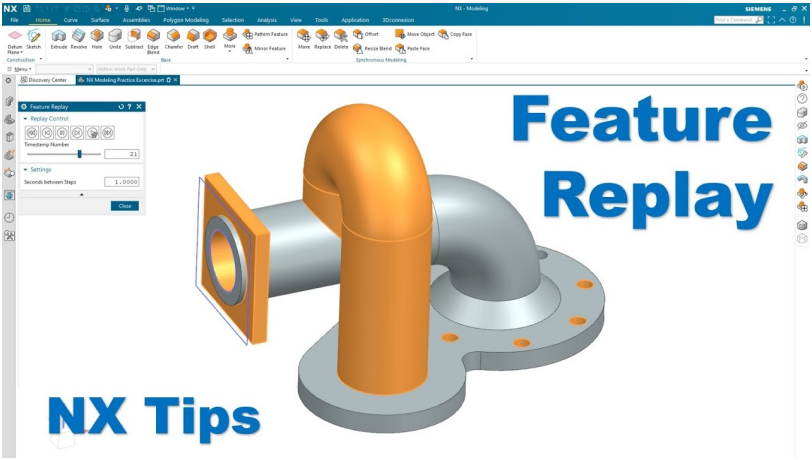


Tools for group work

Grabcad Workbench or OpenBom

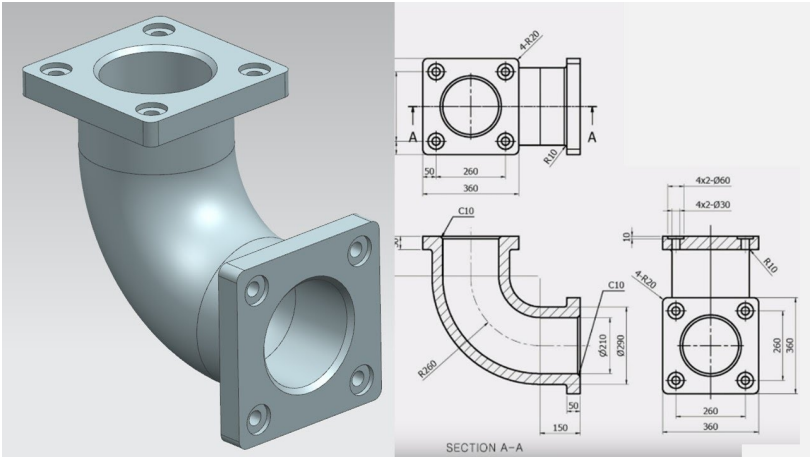
The best way to present a Detail

Video



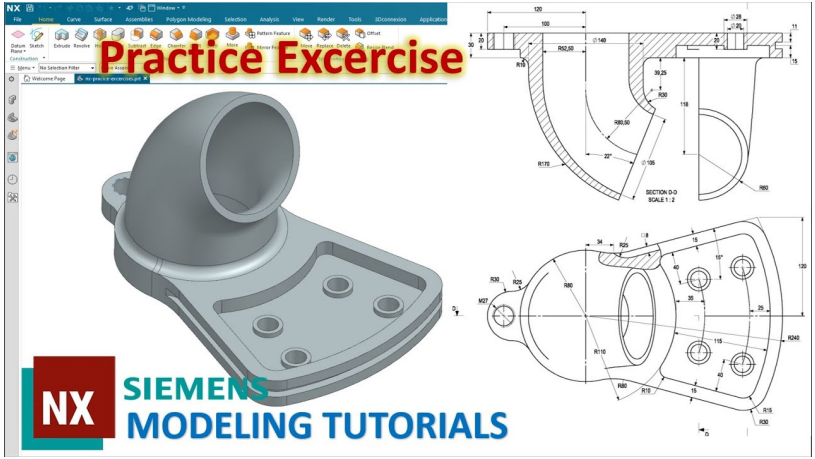
Task for MegaChads

Video



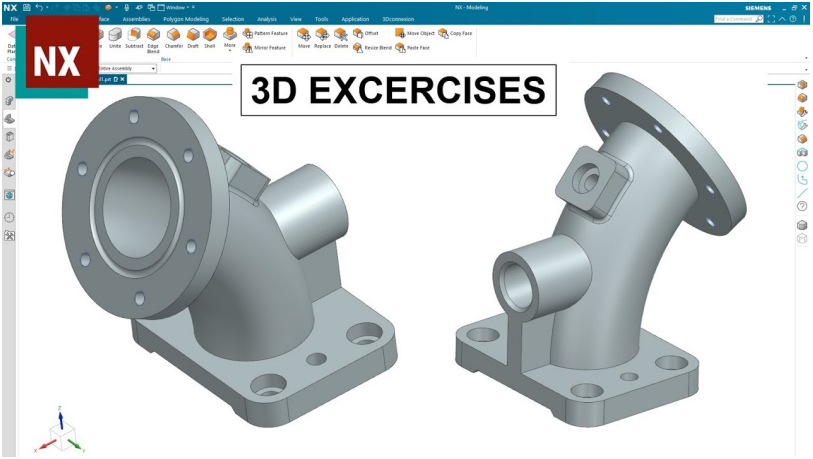
Task for GigaChads

Video



Task for Oleg-likeChads

Video



Deserve “A” grade!

– Oleg Bulichev

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Room 105 (Underground robotics lab)