

COLLABORATIVE ONLINE
DESIGN

Using Onshape

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Poll

- Which CAD software has your team used the most or in your last build season?

Poll

- Is your team able to work in the same building currently? If so, at what capacity? i.e. 50% would be “we met for 4 hours a week last year at this time, but only 2 hours a week currently”

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Presentation Resources

<https://bit.ly/2OUAUDI>

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What is Onshape

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Onshape is....

Google Docs of CAD - **Collaborative**

Free for students/FRC

Automatically updated every 3 weeks

Hardware agnostic - runs on phones, chromebooks, macs, linux and pc



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Onshape isn't

CAM software

FEA software

Rendering Package

Offline



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Onshape is CAD
Everything else is an addon
(not always free)

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Using Onshape

- 1) **Sharing and Collaboration**
- 2) Onshape Teams
 - a) Part libraries
- 3) Sample workflow
- 4) Branching and Merging

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Live Demo Follow along -
<https://bit.ly/2krGCQH>

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Using Onshape

Sharing and Collaboration

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Benefits of Sharing

- Fast, Easy Remote Collaboration
- Online training and feedback
- Back on Campus?
 - Manufacturing/Assembly benefits
 - Remote collaboration still exists

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Remote collaboration

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Volunteer?

We need a volunteer to review a part file with Alex and make edits.

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Onshape Teams
And building a part library

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Onshape Teams

- Instantly share files with multiple people, no need to type their names and emails individually
- Takes seconds to set up
- Allows folders to be shared easily - can create libraries of parts

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Online Training
Lessons learned so far

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- Learning curve is steep for people who have never used CAD software before
- Many tutorials assume that you have a basic understanding.

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- You can let the learning center do a lot of the teaching, but it helps to meet regularly to answer questions about it.

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- There's a fine line between telling rookie to figure it out for themselves and giving them the answers.

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After you return to the shop

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Production team

Onshape can run on your phone

- Manufacturing can see the model
- Can grab any necessary dimensions
- WITHOUT hunting for a designer or **reprinting a drawing**



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Remote Collaboration is still necessary

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Branching and Merging

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Branching and Merging

PROS

Allows for a variety of ideas to be attempted quickly

Allows for a separate “render” branch to be created where all colors/high quality models etc are stored without messing up main assemblies

CONS

Slightly difficult to implement

Can require a strong lead to manage the merge process and deal with issues

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Branch and Merge Demo

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Sample workflow (current 701 process)

For on campus use

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701 workflow

Onshape

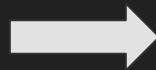


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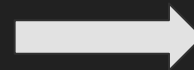
Create parts

Create assemblies

Create drawings



Export step files



Create CAM

Create Renders

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Things we like and dislike

Like

- Collaboration
- Essentially no hardware requirements
- Phone app

Feels the same

- Drawings
- Basic features
- Help documentation

Dislikes

- When running Onshape and video conference software it can cause issues on lower powered hardware

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Are there any other choices?

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