

Digital Media Fab Lab – Resource Links for Digital Fabrication Processes

All linked information below is continually evolving. When possible, preserve and maintain the resource as a link for the most current information. Updates to the labs.art.fsu.edu webpage may affect in-text hyperlinks; find full webpage addresses in the footnotes. Always look to source webpages for the most accurate and updated information.

Direct resource links to open source information:

1. Guides for Creating and Preparing Files for Manufacturing
 - a. Adobe Illustrator
 - i. Laser Cutting/Engraving [How To – Set Up a File for Laser Processes](#)¹
 - ii. Plotting/Vinyl Cutting [How To – Set Up a File for Plotting/Vinyl Cutting](#)²
 - b. Carbide Create
 - i. CNC Machining [How To – Create GCode for CNC Machining with the Carbide3D](#)³
 - c. PrusaSlicer
 - i. FDM 3D Printing [How To – Basic File Preparation in PrusaSlicer](#)⁴
 - d. Watertight 3D Models for 3D Printing and CNC Machining
 - i. [Prusa 3D Article](#)⁵
 - ii. Fusion360
 1. [Essential Training](#)⁶
 2. [Exporting Models for 3D printing](#) (00:00 – 01:40 seconds)⁷
 - a. Advanced
 - i. [3D Scanned Mesh to Solid](#)⁸
 - iii. TinkerCAD
 1. [Learning TinkerCAD](#)⁹
 2. [Exporting for 3D printing](#)¹⁰
 - iv. SketchUp
 1. [SketchUp Fundamentals](#)¹¹
 2. [Essential Training](#)¹²
 3. [SketchUp for 3D Printing](#)¹³
2. Approved Materials for processes in the Digital Media Fab Lab
 - a. [CNC Machining](#)¹⁴
 - b. [Laser Cutting](#)¹⁵
 - c. [3D Printing with Composite Materials](#)¹⁶
3. Material Resources Available within the Digital Media Fab Lab
 - a. Plotting/Vinyl Cutting
 - i. White Drawing/Construction Paper, 12” Width (for plotting only)
 - ii. Oracle Orafoil 631 Calendered Vinyl, 24” Width
 1. Matte: Red, Orange, Yellow, Turquoise, Light Blue, Dark Blue, Purple, White, Black, Silver
 2. Gloss: Red, Pink, Yellow, Green, Blue, Black
 3. Fabric Masking Material

¹ <https://labs.art.fsu.edu/wp-content/uploads/2020/03/How-To-Set-Up-a-File-for-Laser-Cutting.pdf>

² <https://labs.art.fsu.edu/wp-content/uploads/2020/03/Digital-Media-Fab-Lab-How-To-File-Set-Up-for-the-Plotter.pdf>

³ <https://labs.art.fsu.edu/wp-content/uploads/2020/01/Digital-Media-Fab-Lab-How-To-Create-GCode-for-CNC-Milling-Carbide3D.pdf>

⁴ <https://labs.art.fsu.edu/wp-content/uploads/2020/01/How-To-Basic-File-Preparation-in-PrusaSlicer.pdf>

⁵ https://help.prusa3d.com/en/article/watertight-prints_112324/

⁶ <https://www.linkedin.com/learning/fusion-360-essential-training-2/use-fusion-360-to-turn-your-ideas-into-designs?u=42572828>

⁷ <https://www.linkedin.com/learning/fusion-360-essential-training-2/exporting-polygonal-models?autoplay=true&u=42572828> (00:00 – 01:40 seconds)

⁸ <https://www.youtube.com/watch?v=820iVkt5Hg>

⁹ <https://www.linkedin.com/learning/learning-tinkercad-2/welcome?u=42572828>

¹⁰ <https://www.linkedin.com/learning/designing-a-replacement-part-using-3d-printing/exporting-your-design?u=42572828>

¹¹ <https://learn.sketchup.com/track/sketchup-fundamentals-part-1>

¹² <https://www.linkedin.com/learning/sketchup-2019-essential-training/build-your-design-ideas-with-sketchup-pro?u=42572828>

¹³ <https://www.linkedin.com/learning/sketchup-tips-tricks/use-sketchup-for-3d-printing?u=42572828>

¹⁴ <https://docs.carbide3d.com/nomad-faq/nomad883-materials/>

¹⁵ <https://labs.art.fsu.edu/wp-content/uploads/2020/01/Materials.pdf>

¹⁶ <https://labs.art.fsu.edu/wp-content/uploads/2020/06/Digital-Media-Fab-Lab-3D-Printing-with-Composite-Materials.pdf>

- b. Laser Cutting
 - i. Assorted sizes of 1/8" and 1/4" Plywood, Acrylic, Foam Board, Cardboard, and Construction Paper, Mat Board
- c. 3D Printing
 - i. Hatchbox Brand: Silk White, White, True Gold, Silk Gold, True Pink, Blue, True Red, Black, Copper, Grey, Glow in the Dark
 - ii. Form Labs V4 Black Resin

1. Machine Information

- a. Carbide3D Nomad 883
 - i. [Demonstration Video - MatterHackers](#)¹⁷
 - ii. [Demonstration Video - Winston Moy](#)¹⁸
 - iii. [Website](#)¹⁹
 - iv. [CNC Basics](#)²⁰
 - v. [CNC Tutorials](#)²¹
 - vi. [Carbide3D - YouTube](#)²²
 - vii. [How To – Create GCode for CNC Machining with the Carbide3D](#)²³
 - viii. [Carbide Create User Guide](#)²⁴
 - ix. [Carbide Motion User Guide](#)²⁵
 - x. [Fusion360 for Carbide3D CNC Milling](#)²⁶
 - xi. [Programming Tool Paths for Machining](#)²⁷
 - xii. [Nomad 883 CNC Milling Machine Specifications](#)²⁸
- b. EinScan Pro 2x Plus
 - i. [Demonstration Video - Shinning 3D](#)²⁹
 - ii. [Demonstration Video - How to Use EinScan for Scanning Thin Wall Objects - SHINING 3D Digitizing Solutions](#)
 - iii. [Demonstration Video \(short\) - 3DPrintingSystems](#)³⁰
 - iv. [Demonstration Video from Afinia3DPrint – Afina3DPrint](#)³¹
 - v. [Demonstration Video - Make More](#)³²
 - vi. [Demonstration Video - Print3DD.com](#)³³
 - vii. [Color Pack Demonstration Video - Shining 3D](#)³⁴
 - viii. [Website](#)³⁵
 - ix. [Teamviewer Download - Remote Contro](#)³⁶
 - x. [Phone Holder and Any Desk Setup](#)³⁷
 - xi. [Digital Media Fab Lab – 3D Scanning Guide](#)³⁸
 - xii. [Digital Media Fab Lab – How To: 3D Scan with the EinScan Pro 2X Plus 3D Scanner](#)³⁹
 - xiii. [Safety Information and Seizure First Aid Procedure](#)⁴⁰
- c. FormLabs

¹⁷ <https://www.youtube.com/watch?v=i9MUoYnzy4o>

¹⁸ <https://www.youtube.com/watch?v=fmYEK8h7-oM>

¹⁹ <https://carbide3d.com/>

²⁰ <https://labs.art.fsu.edu/wp-content/uploads/2020/01/CNC-Basics.pdf>

²¹ <https://docs.carbide3d.com/tutorials/>

²² <https://www.youtube.com/channel/UCNmhzXrhuBxXaAazUf1Qow>

²³ <https://labs.art.fsu.edu/wp-content/uploads/2020/01/Digital-Media-Fab-Lab-How-To-Create-GCode-for-CNC-Milling-Carbide3D.pdf>

²⁴ <https://docs.carbide3d.com/assembly/carbidecreate/userguide/>

²⁵ <https://docs.carbide3d.com/assembly/carbidemotion/userguide/>

²⁶ <https://docs.carbide3d.com/software-fag/fusion360/>

²⁷ <https://help.autodesk.com/view/fusion360/ENU/courses/AP-C-FUNDAMENTALS-OF-MILLING>

²⁸ <https://labs.art.fsu.edu/wp-content/uploads/2020/06/03-1-Carbide3D-Nomad-883-CNC-Milling-Machine-Specifications-1.pdf>

²⁹ <https://www.youtube.com/watch?v=Cy2uyISFGZ0>

³⁰ <https://www.youtube.com/watch?v=wsVmyVTKpcc%22>

³¹ <https://www.youtube.com/watch?v=EtqpR84i9r0>

³² <https://www.youtube.com/watch?v=LuY88YMremE>

³³ <https://www.youtube.com/watch?v=KGUZA19JVv4>

³⁴ <https://www.youtube.com/watch?v=qz666IESMA>

³⁵ <https://www.einscan.com/handheld-3d-scanner/color-pack/>

³⁶ <https://www.einscan.com/>

³⁷ <https://get.teamviewer.com/6kepw55>

³⁸ <https://labs.art.fsu.edu/wp-content/uploads/2020/01/Phone-Holder-and-AnyDesk-Setup-Guide.pdf>

³⁹ <https://labs.art.fsu.edu/wp-content/uploads/2020/01/3D-Scanning-Guide-1.pdf>

³⁹ <https://labs.art.fsu.edu/wp-content/uploads/2020/01/How-To-Scan-with-the-EinScan-Pro-2X-Plus-3D-Scanner.pdf>

⁴⁰ <https://labs.art.fsu.edu/wp-content/uploads/2020/06/Einscan-Pro-2X-Plus-Safety-Information-Seizure-First-Aid-Procedure.pdf>

- i. [Demonstration Video - FormLabs](#)⁴¹
 - ii. [Website](#)⁴²
 - iii. [FormLabs - YouTube](#)⁴³
 - iv. [Digital Media Fab Lab – Resin 3D Printing Guide](#)⁴⁴
 - v. [Digital Media Fab Lab – FormLabs Resin 3D Printer Safety](#)⁴⁵
- d. NextEngine
 - i. [Demonstration Video - NextEngine](#)⁴⁶
 - ii. [Demonstration Video - Next Engine for Special Effects](#)⁴⁷
 - iii. [Website](#)⁴⁸
 - iv. [NextEngine 3D Scanner Tutorial](#)⁴⁹
 - v. [Digital Media Fab Lab - 3D Scanning Guide](#)⁵⁰
- e. Prusa i3
 - i. [Demonstration Video – Details of Revisions from Josef Prusa](#)⁵¹
 - ii. [Website](#)⁵²
 - iii. [PrusaResearch - YouTube](#)⁵³
 - iv. [PrusaSlicer Download - PrusaResearch](#)⁵⁴
 - v. [Digital Media Fab Lab – How To: Basic File Preparation in PrusaSlicer & Prusa i3 Machine Set-Up](#)⁵⁵
 - vi. [Digital Media Fab Lab – 3D Printing with Composite Materials](#)⁵⁶
 - vii. [Creating Custom Supports - PrusaResearch](#)⁵⁷
- f. SummaCut D75
 - i. [Demonstration Video](#)⁵⁸
 - ii. [Website](#)⁵⁹
 - iii. [SummaCut - YouTube](#)⁶⁰
 - iv. [Digital Media Fab Lab – How To: Machine Set-Up for Plotting](#)⁶¹
 - v. [Digital Media Fab Lab – How To: Plot with MacSign](#)⁶²
 - vi. [Material Speeds and Pressures](#)⁶³
 - vii. [SummaCut User Manual](#)⁶⁴
 - viii. [MacSignCut Manual](#)⁶⁵
- g. Trotec Speedy400
 - i. [Demonstration Video](#)⁶⁶
 - ii. [Demonstration Video – Rendering & Machine Specifications](#)⁶⁷
 - iii. [Website](#)⁶⁸

⁴¹ <https://www.youtube.com/watch?v=PgOWfzSnorg>

⁴² <https://formlabs.com/>

⁴³ <https://www.youtube.com/channel/UCCV8IMXXyCjBj-KW7ScvxdA>

⁴⁴ <https://labs.art.fsu.edu/wp-content/uploads/2020/08/16DIGI1.pdf>

⁴⁵ <https://labs.art.fsu.edu/wp-content/uploads/2020/08/16-2-Digital-Media-Fab-Lab-FormLabs-Resin-3D-Printer-Safety.pdf>

⁴⁶ <https://www.youtube.com/watch?v=MazCajTQuQs>

⁴⁷ <http://www.nextengine.com/company/news/rogue-one>

⁴⁸ <http://www.nextengine.com/>

⁴⁹ <https://www.nasa.gov/sites/default/files/files/3DScannerTutorial.pdf>

⁵⁰ <https://labs.art.fsu.edu/wp-content/uploads/2020/01/3D-Scanning-Guide-1.pdf>

⁵¹ <https://www.youtube.com/watch?v=JqH41K2vq0g>

⁵² <https://shop.prusa3d.com/en/>

⁵³ <https://www.youtube.com/channel/UCLHAXAdvAKJY0niRJRyMvg>

⁵⁴ <https://www.prusa3d.com/prusaslicer/>

⁵⁵ <https://labs.art.fsu.edu/wp-content/uploads/2020/01/How-To-Basic-File-Preparation-in-PrusaSlicer.pdf>

⁵⁶ <https://labs.art.fsu.edu/wp-content/uploads/2020/06/Digital-Media-Fab-Lab-3D-Printing-with-Composite-Materials.pdf>

⁵⁷ https://help.prusa3d.com/en/article/modifiers_1767

⁵⁸ <https://www.youtube.com/watch?v=59WM0SuJLYE>

⁵⁹ <https://www.summa.com/en/home/>

⁶⁰ <https://www.youtube.com/channel/UChR6E9g0452YEtYAKEj4PZg>

⁶¹ <https://labs.art.fsu.edu/wp-content/uploads/2020/06/How-To-Machine-Set-Up-for-Plotting.pdf>

⁶² <https://labs.art.fsu.edu/wp-content/uploads/2020/03/How-To-Plot-with-MacSign.pdf>

⁶³ <https://labs.art.fsu.edu/wp-content/uploads/2020/03/Material-Speeds-and-Pressures.pdf>

⁶⁴ <https://labs.art.fsu.edu/wp-content/uploads/2020/01/summa-cut-user-manual.pdf>

⁶⁵ <https://labs.art.fsu.edu/wp-content/uploads/2020/01/MacSignCut-Manual.pdf>

⁶⁶ <https://www.youtube.com/watch?v=oMK3SufWew>

⁶⁷ <https://www.youtube.com/watch?v=yOCwZsH7eyo>

⁶⁸ <https://www.troteclaser.com/en-us/>

- iv. [Trotec Laser USA - YouTube](#)⁶⁹
 - v. [Speedy400 Operation Manual](#)⁷⁰
 - vi. [Job Control Manual](#)⁷¹
 - vii. [Job Control Book of Parameters](#)⁷²
 - viii. [Digital Media Fab Lab – How To: Set-Up a File for Laser Cutting](#)⁷³
 - h. Universal Laser Systems
 - i. [Demonstration Video](#)⁷⁴
 - ii. [Website](#)⁷⁵
 - iii. [Universal Laser Systems – YouTube](#)⁷⁶
 - iv. [PLS6.75 User Guide](#)⁷⁷
 - v. [Digital Media Fab Lab – How To: Set-Up a File for Laser Cutting](#)⁷⁸
2. Scheduling Machine Time
- a. [Department of Art - Labs Calendar](#)⁷⁹

⁶⁹ <https://www.youtube.com/user/lasersRfun>

⁷⁰ <https://labs.art.fsu.edu/wp-content/uploads/2020/01/Speedy-400-Manual-EN-1.pdf>

⁷¹ <https://labs.art.fsu.edu/wp-content/uploads/2020/01/Trotec-Laser-JobControl-Manual-EN.pdf>

⁷² <https://labs.art.fsu.edu/wp-content/uploads/2020/01/Parameters-how-to-use.pdf>

⁷³ <https://labs.art.fsu.edu/wp-content/uploads/2020/03/How-To-Set-Up-a-File-for-Laser-Cutting.pdf>

⁷⁴ https://www.youtube.com/watch?v=eEDJA8Z_eiU

⁷⁵ <https://www.ulsinc.com/>

⁷⁶ <https://www.youtube.com/user/UniversalLasers/featured>

⁷⁷ <https://labs.art.fsu.edu/wp-content/uploads/2020/01/PLS6.75-manual.pdf>

⁷⁸ <https://labs.art.fsu.edu/wp-content/uploads/2020/03/How-To-Set-Up-a-File-for-Laser-Cutting.pdf>

⁷⁹ <https://labs.art.fsu.edu/calendar/>