Digital Activity Ideas

Resource Overview

Examples and simple activities using digital tools, machines, and creative technologies.

Use this resource to design simple activities using digital tools, machines and creative technologies. It can help staff and facilitators introduce users to digital fabrication, textile experimentation, soft circuits or machine-based making.

26.03.2026
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#activities #practical #beginner

3D Printing on textiles

To explore the intersection of digital fabrication and textile design by integrating 3D printed elements onto fabric substrates

👩‍🔧	Facilitator skills	3D printing (especially adhesion strategies for textiles) Basic textile handling. 3D design software (Rhino + Grasshopper). Familiarity with slicing software & print parameters. Ability to troubleshoot common print issues	🎯	Outputs	Producing at least one 3D printed textile prototype and experiencing the process of preparing textiles for 3D printing Understanding the impact of print settings and material choices on textile adhesion and flexibility Sharing insights with peers and articulate challenges and solutions
👫	Target audience(s) & Age group(s)	Creative makers, designers (18+), students in design, fashion, arts, or engineering, hobbyists curious about blending traditional textiles with digital processes			
🛠️	Techniques and tools	Fabric preparation for printing, 3D design for soft surfaces, FDM / PLA 3D printers with adaptable bed surfaces, Iterative prototyping and design refinement	📝	Learning Objectives	• Prepare textile substrates for successful 3D printing • Design a 3D-printable pattern/component • Use basic 3D modelling and slicing software • Evaluate material behaviour and surface interaction
⏱️	Duration	*min 3 hours*			

Warm up activity	Main activity	Follow up activity
Introduction to 3D printing on textiles: examples, application, and sustainability potential. Basic safety rules for working with 3D printers *(15 min)* Material exploration: Participants handle and compare different textile samples. *(10–15 min)*	• Design preparation: Participants either modify a provided design file or create a simple custom pattern. *(30–40 min)* • Print preparation: Fixing textiles onto the print bed and adjustment of printer settings *(20 min)* • Test printing: Participants run small test prints directly onto fabric, observe adhesion and flexibility. *(45–60 min)* • Participants produce at least one textile sample *(30–45 min)*	Participants carefully remove samples from the print bed and test the materiality *(15–20 min)* Group reflection on outcomes: what worked, what failed, material surprises, and potential applications *(10–15 min)*

Material list	References
• Textiles (cotton, linen, mesh etc), Stabiliser fabrics/backing • 3D printers and (flexible) filament, Computers, • Scissors, measuring tools, clips, masking tape	• Fabricademy | Dineshkumar | Expanded lines (advanced) • Fabricademy 3D printing on textiles instructions | Video (advanced) • 3D Printing on Fabric for Designers Guide

3D Printing on textiles

To explore the intersection of digital fabrication and textile design by integrating 3D printed elements onto fabric substrates

Image from workshop set up (in space)	*Image from outcome examples / references*
	
Credits: Fab Lab Barcelona | Fabricademy	*Credits: Fab Lab Barcelona | Fabricademy* *Dinesh Kumar | Expanded Lines*

Lasercutting or 3D printing lace

The workshop explores how traditional lace logics can be reinterpreted through vector design and laser cutting, enabling participants to experiment with pattern density, structure, and material behaviour in garment-scale applications.

👩‍🔧	Facilitator skills	Laser cutting workflows, incl. textile-specific settings. Vector-based design software. Basic textile knowledge Translating pattern logic into designs. Laser cutter safety, setup, troubleshooting	🎯	Outputs	Produce at least one laser-cut textile lace sample or garment component Gain hands-on experience preparing textiles for laser cutting Understand how vector design choices affect structural integrity and flexibility Observe the impact of laser settings and material choice on cut quality
🧑‍🤝‍🧑	Target audience(s) & Age group(s)	Creative makers, designers (18+). Students in fashion, textile, arts. Craftspeople interested in digital fab. No prior laser cutting experience required; basic computer literacy recommended.			
🛠️	Techniques and tools	Digital lace pattern design, Material testing & parameter adjustment, Laser cutter, Textile materials	📝	Learning Objectives	• Prepare textile substrates for safe and laser cutting. • Design vector-based lace pattern for garments & panels • Operate a laser cutter following safety protocols. • Evaluate material behaviour and structural performance of digital lace.
⏱️	Duration	*min 3 hours*			

Warm up activity	Main activity	Follow up activity
Introduction of digital lace, its roots in traditional craft, contemporary applications in fashion. Discussion of sustainability &upcycling potential. Laser cutter safety *(15 min)* **Material exploration**: Participants examine sample textiles, discussing expectations, fragility, and structural logic. *(10–15 min)*	• Design preparation: Participants create or adapt a simple lace pattern using vector software, focusing on negative space, bridges, & repeat logic *(40 min)* • Pater refinement:Adjust line weights, spacing, and scale to ensure cut stability. Export files for laser cutting. *(20 min)* • Laser cutting & testing: Demonstration of textile setup in the laser bed and test cuts. Participants run their designs, adjusting parameters if needed. *(30–45 min)*	Participants remove stabilisers, inspect cuts, and test flexibility and drape. Optional quick assembly to suggest garment use. *(15–20 min)* **Group reflection on outcomes**: what worked, what failed, material surprises, and potential applications *(10–15 min)*

Material list	References
• Textiles (cotton, linen, mesh etc), Stabiliser fabrics/backing • Lasercutter, Computers, Vector software • Scissors, measuring tools, clips, masking tape	• Fabricademy | From 3D Modeling to Lasercutting Tutorial • Distributed Design Platform Masterclass | Lasercutting Garments • How to use the TROTEC Speedy 400 (Lasercutter)

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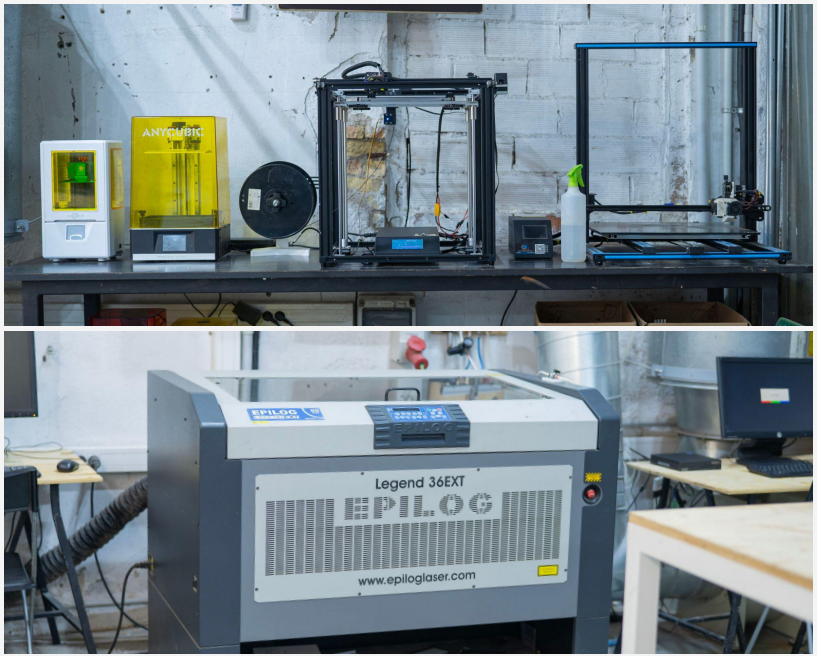	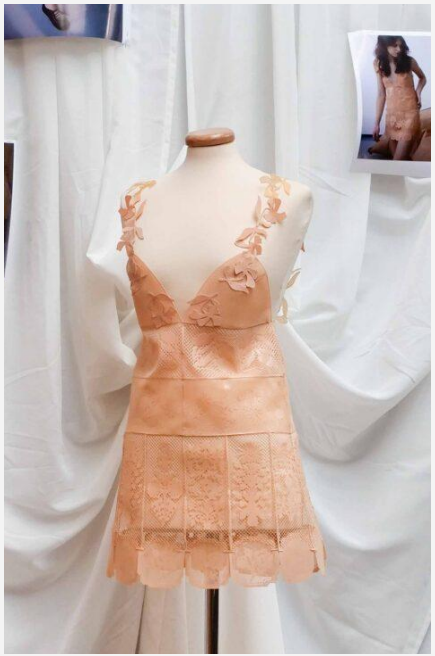 
Credits: Fab Lab Barcelona	*Credits: Open Dot Foundation | Joana Meyer Duró*

Soft circuits

Through hands-on experimentation, participants will learn to integrate conductive materials and basic components into fabric, emphasising playful interaction, and intentional material choices.

👩‍🔧	Facilitator skills	Basic electronics (LEDs, resistors, battery, switches) E-textile materials (conductives, fabrics, sensors) Simple sewing and hand embroidery techniques Circuit design and troubleshooting	🎯	Outputs	Construct at least one soft circuit embedded in fabric Explore different ways of making LEDs light, switch, or react to touch/motion Understand basic conductive behaviour in textile materials Document their process and explain choices made during prototyping
👫	Target audience(s) & Age group(s)	Creative makers and designers (16+). Students in design, fashion, arts, or engineering. Educators seeking interactive learning tools. Basic curiosity encouraged, no prior electronics or sewing experience required.			
🛠️	Techniques and tools	Soft circuit construction with conductive thread, LED, Switch and sensor integration into fabric, Fabric and sewing techniques, basic electronics	📝	Learning Objectives	• Recognise the behaviour of conductive materials in textile contexts. • Create basic circuits with LEDs and power sources inside fabric. • Incorporate simple switches or interactive triggers into soft surfaces.
⏱️	Duration	*min 3 hours*			

Warm up activity	Main activity	Follow up activity
Present what “e-textiles” and “soft circuits” means, bridging between textile culture &interactive electronics *(15 min)* Participants examine conductive threads, fabrics, and components; brief safety orientations on batteries and small electronics, including a short demo *(15 min)*	• Circuit sketching: Participants design quick paper sketches of their intended circuit “map” *(20 min)* • Select fabric base; marking paths for conductive thread; consider embroidery or visible stitching *(20 min)* • Stitching & component integration: Using conductive thread, participants sew their paths and integrate LEDs, batteries and simple switches into the fabric structure*(45–60 min)* • Participants test circuits, identify issues, iterate by adjusting stitching *(30 min)*	Each participant shares outcomes briefly: what worked, what didn’t, and creative ideas that emerged. *(15–20 min)* Reflection and next steps: Discuss possible extensions, reflect on sustainability challenges and opportunities *(10–15 min)*

Material list	References
• Fabric swatches, conductive threads, embroidery needles • LEDs, Coin cells batteries, Battery holders, switches, sensors (optional) • Scissors, thread snips, tweezers/pliers, clips, paper, pencils	• Fabricademy E-Textiles | Introduction electronics • Fabricademy E Textiles (Video)

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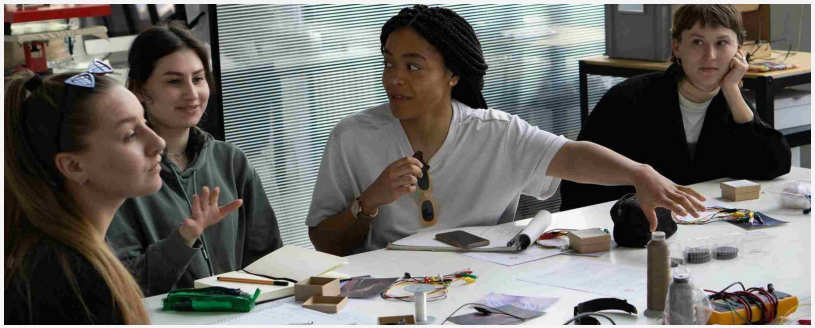
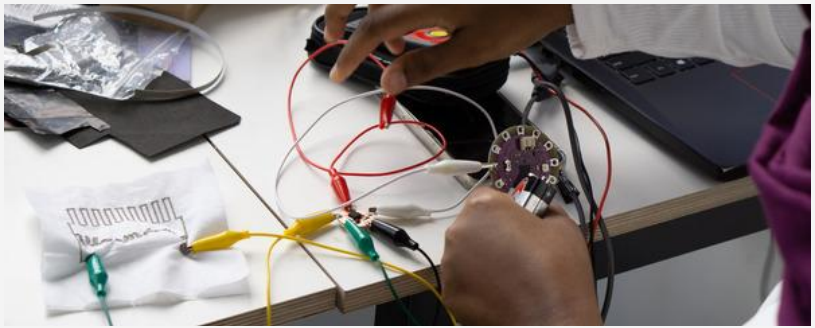
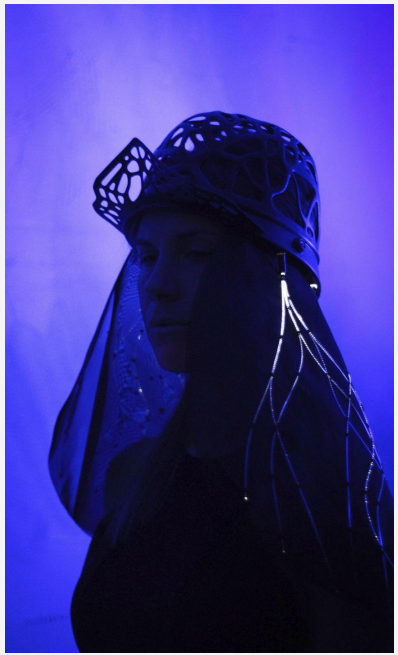
  *Credits: Shemakes | Sigrid Rotzler, Kamil Garbacz and Tasneem Hussain*	  *Credits: Fabricademy | Betina Pavón (left), Rachel Freire (right)*

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makeathek-toolkit.eu

Digital and physical kit designed by
Opendot Foundation
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Funded by the European Union

make-a-thek has received funding from the European Horizon Europe programme under grant agreement No. 101177660.