Websites:
what, why and how

We will document the course on **personal websites**

Documentation includes:
Visual (video, photo)
Textual (explanations, ideas, thoughts, complications and overall process)
Connections (links, references)

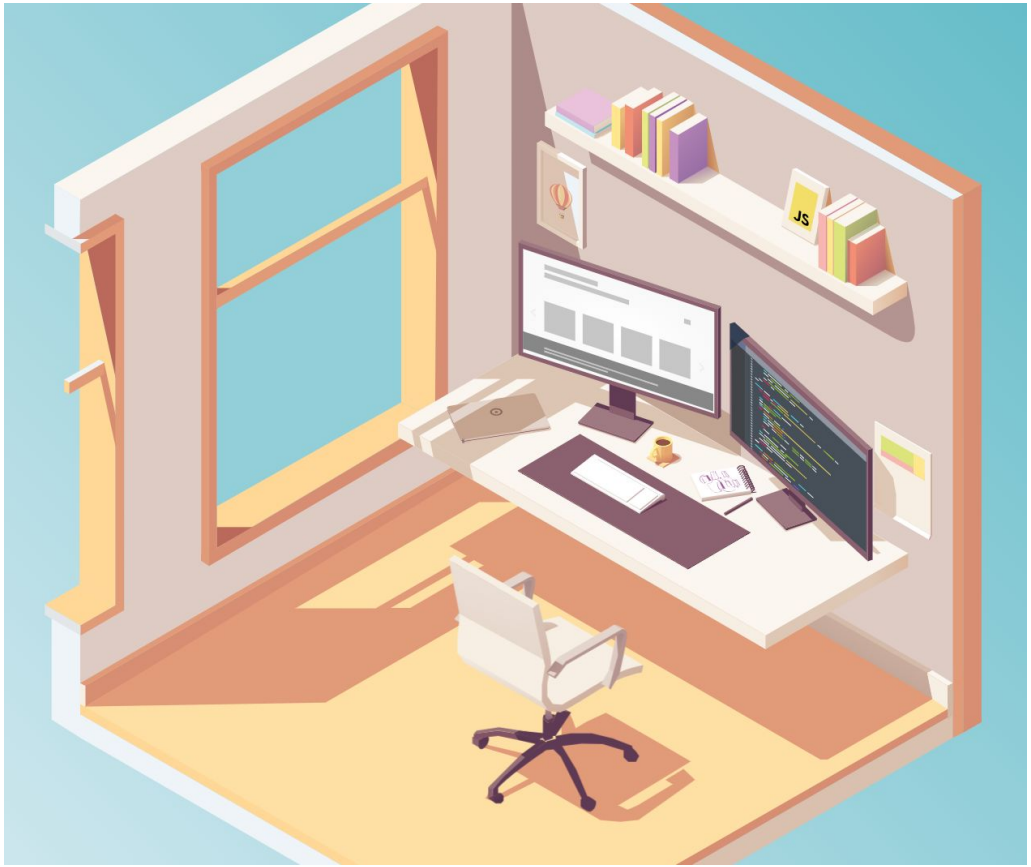
In order to encourage the flow of information between courses - you learn for previous years, and share what you learn for the next.

Additionally, **we evaluate your work through your website.**

However you like,
We recommend WIX – free, easy to use.

Each week you must upload your work and process to your site.

Websites - References



https://albinotonnina.com/

הקוד נמצא בGITHUB

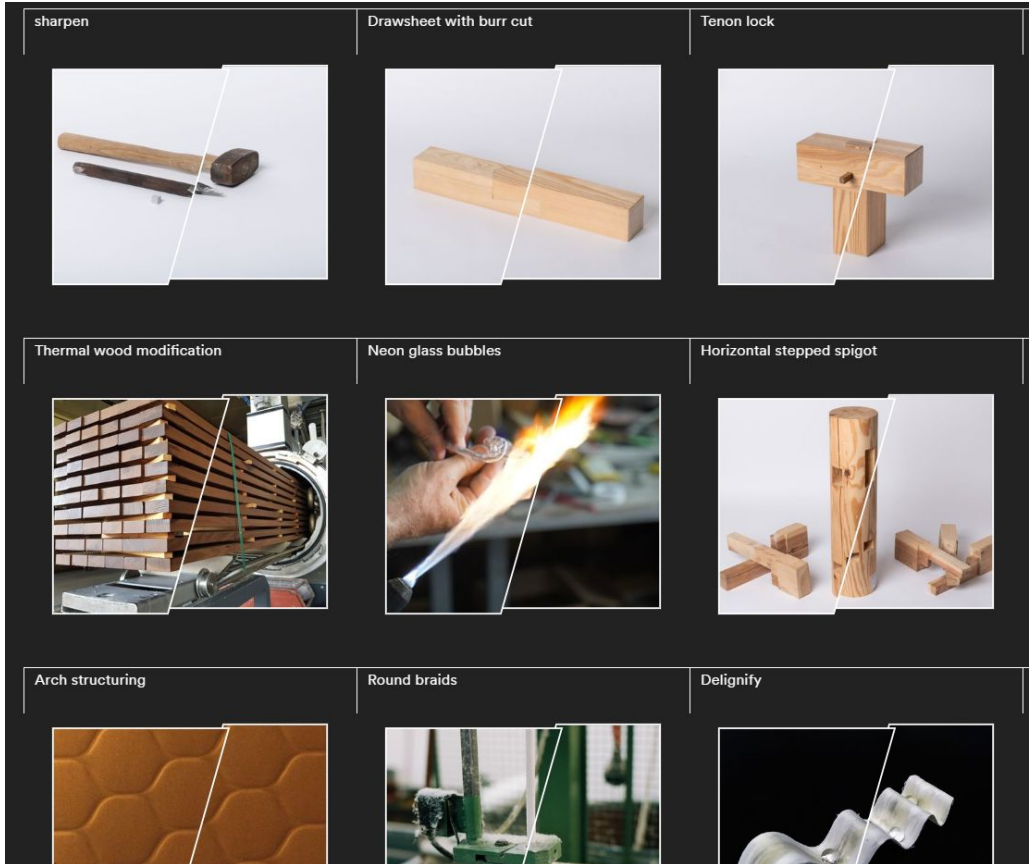
<u>מה טוב בזה:</u>
מעניין, מורכב, ברור, מעבר נוח ליצירת קשר, מעיד על אישיות

<u>מה פחות:</u>
מאוד לינארי

https://bruno-simon.com/

<u>מה טוב בזה:</u>
כיף, מעניין, מורכב, הרבה אינפורמציה (עולם אין סופי), מעיד על אישיות

<u>מה פחות:</u>
לוקח זמן, לא בטוח שכולם יגיעו לכל המידע



https://materialarchiv.ch/de/?type=all

מה טוב בזה:
מסודר ונוח, הרבה אינפורמציה, נוח לשימוש וחיפוש, פורמט אחיד להצגת מידע בצורה בהירה.

מה פחות:
אין היררכיה - בגלל שהאתרים שלכם יהיו של תהליך, צריך יותר היררכיה וסדר על צירי זמן

Lab Websites and Similar Courses

MAS.863/4.140/6.9020
How To Make (almost) Anything
Wednesdays 1:00-4:00 E14-633
2023

Application

Schedule

09/06: introduction, computer-aided design
recitation (9/07 5:00-6:00): parametric design (*video*)
09/13: project management, computer-controlled cutting
recitation (9/14 5:00-6:00): version control (*video*)
09/20: embedded programming
recitation (09/21 5:00-6:00): AI (*video*)
09/27: 3D scanning and printing
recitation (9/28 5:00-6:00): electronics (*video*)
10/04: electronics design
recitation (10/05 5:00-6:00): EDA (*video*)
10/11: electronics production
recitation (10/19 5:00-6:00): how to debug (almost) anything (*video*)
10/18: molding and casting
recitation (10/12 5:00-6:00): CAM (*video*)
10/25: computer-controlled machining
recitation (10/26 5:00-6:00): sustainable materials (*video*)
11/01: input devices
recitation (11/02 5:00-6:00): signal processing (*video*)
11/08: output devices
recitation: (11/09 5:00-6:00): artificial muscles (*video*)
11/15: networking and communications, midterm review
recitation (11/16 5:00-6:00): embedded architectures, device profiles (*video*)
11/22: interface and application programming
recitation (11/27 5:00-6:00): machine building (*video*)
11/29: mechanical, machine design
recitation (11/30 5:00-6:00): machine building (*video*)
12/06: wildcard week
recitation (12/7 5:00-6:00): why make (almost) anything (*video*)
12/08: final assignments/orders
12/13: project development
12/19: project presentation
prep: 9:00-1:30
final exam: 1:30-4:30
open house: 5:00-6:30

http://fab.cba.mit.edu/classes/MAS.863/

אתר קורס - how to make almost anything

מה טוב בזה:
מסודר, הרבה אינפורמציה

מה פחות:
לא מעוצב, לינארי

The Fab Academy
2023 Schedule

Jan 12-16: instructor boot camp
Jan 19-24: student boot camp, project presentations
Jan 25: principles and practices (*video*), presentations (*video*), project management (*video*, *review*)
Jan 30 *recitation*: version control (*video*)
Feb 01: computer-aided design (*video*, *review*)
Feb 08: computer-controlled cutting (*video*, *review*)
Feb 13 *recitation*: parametric, algorithmic, generative design (*video*)
Feb 15: embedded programming (*video*, *review*)
Feb 22: 3D scanning and printing (*video*, *review*)
Feb 27 *recitation*: programming (*video*)
Mar 01: electronics design (*video*, *review*)
Mar 08: computer-controlled machining (*video*, *review*)
Mar 13 *recitation*: debugging (*video*)
Mar 15: electronics production (*video*, *review*)
Mar 22: output devices (*video*, *review*)
Mar 27 *recitation*: machine building (*video*)
Mar 29: mechanical design, machine design (*video*, *review*)
Apr 05: break, midterm review
Apr 12: input devices (*video*, *review*)
Apr 17 *recitation*: fab ecosystem (*video*)
Apr 19: molding and casting (*video*, *review*)
Apr 26: networking and communications (*video*, *review*)
May 01 *recitation*: education (*video*)
May 03: interface and application programming (*video*, *review*)
May 10: wildcard week (*video*, *review*)
May 15 *recitation*: Fab All-In (*video*)
May 17: applications and implications (*video*, *review*)
May 24: invention, intellectual property, and income (*video*, *review*)
May 29 *recitation*: start-ups (*video*)
May 31: project development (*video*)
Jun 07-: project presentations (7, 9, 12, 14)
Jul 25-29: FAB23

https://fabacademy.org/archive/

GRAMAZIO
KOHLER
RESEARCH

News
Teaching
Research
Projects
Publications
About
Team
Open Positions
Contact

Current
Architectural Design V-IX AS
Seminar Week AS
Basic Course AS/SS
Core Course AS/SS
Elective Course AS

2023
Elective Course SS
Subject Specialisation SS
Computational Design III-IV
Architectural Design V-IX SS
Seminar Week FS

2022
Core Course AS
Architectural Design V-IX AS
Elective course HS22
Seminar Week AS
MAS DFAB: Eggshell Pavilion
Core Course SS
Seminar Week SS

2021
Core Course AS
Seminar Week AS
Workshop USA
Core Course SS

2020
Core Course AS
MAS DFAB: Rapid Clay Formations II
Core Course SS
Seminar Week SS
MAS DFAB: Rapid Clay Formations (Rio)

2019
Core Course AS
Robotic Landscapes III
MAS DFAB: Up Sticks
Seminar Week AS19
Core Course SS
Seminar Week SS

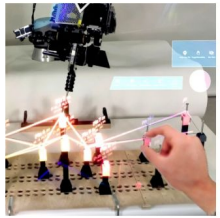
2018
Core Course AS
Architectural Design V-IX AS
MAS DFAB: Rapid Clay Formations
Zero-Waste Geometry
Seminar Week AS

De

https://gramaziokohler.arch.ethz.ch/web/e/lehre/211.html

University of Stuttgart
Integrative Technologies and Architectural Design Research

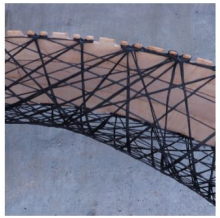
2022



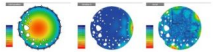
Augmented Intuition

Curve-Fit

Embraced Wood

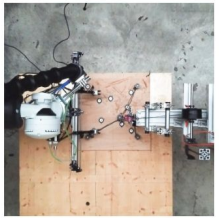


Hybrid-Active Winding



Interactive Design Method for Irregular Column Layouts

Self-Formed Substrate



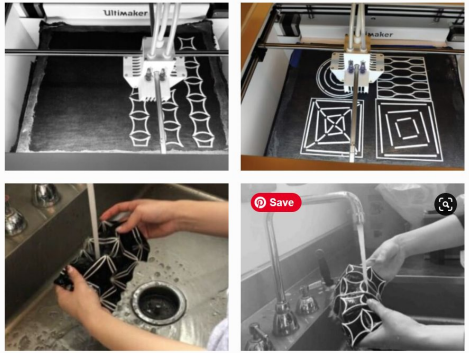
Slack Pack

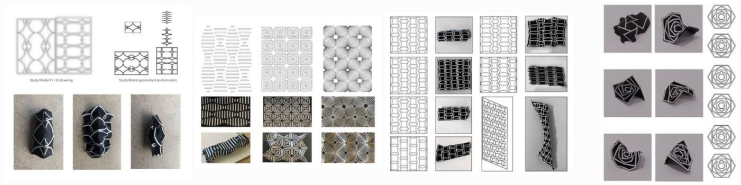
https://www.itech.uni-stuttgart.de/

Approach

Ultimaker 3D printers with print beds limited to 8.8"X10.5", at the Autodesk Technology Center, were used to explore two different techniques of 3D printing on fabric to add new dimensions to the material.

- 1- By printing a precise 2-dimensional pattern, a shape can self-transform after being released from the machine. By changing the pattern design and thickness of the 3D printed layer on stretched textiles, then released after printing, students explored how to design pre-programmed shapes out of two-dimensional design and fabrication process. The combination of stretch fabric and printed patterns offers both flexibility and stability.
- 2- By printing on the flexible materials (Fabric), rigidity is added to specific locations. By distributing flexibility and rigidity on a surface, different pre-designed shapes out of 2d surfaces are explored.





http://digitalcraft.cca.edu/

MAA 01 > 2019-2020 > SO.1 - Introduction to Digital Fabrication

- 1st TERM

Introductory Studio G1

Introductory Studio G2

Introductory Studio G3

/ SO.1 - Introduction to Digital Fabrication

SO.2 - Advanced Architecture Concepts

SO.4 - Introduction to Programming and Physical Computing

SO.3 - Computational Design

- 2nd TERM

RS.I - X-Urban Design

RS.II - Self Sufficient Buildings

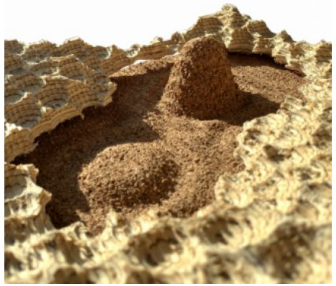
RS.III - Digital Matter

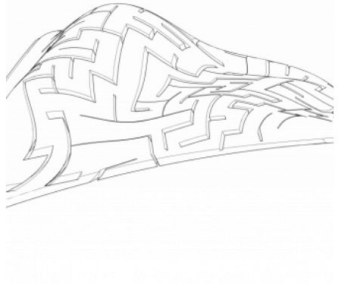
RS.IV - Advanced Interaction

SO.5 - Computational Design

SE.1 - Digital Design for Living Systems

SE.2 - Data Informed Structures





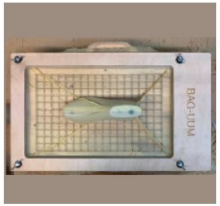
https://www.iaacblog.com/programs/courses/maa-01/2019-2020-maa01/so-1-introduction-to-digital-fabrication-maa01-2019-2020-1st/

FABRICADEMY 20217-23 OS MACHINES

FAB LAB: DIY Built / Hacked Machines, Parts, Tools

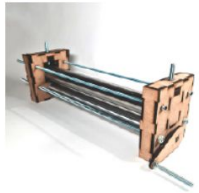
Vacuum Machine - 2022

Vacuum Box - 2021

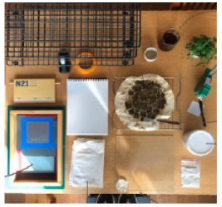


Vacuum Box - 2020

DIY Shredder 2022

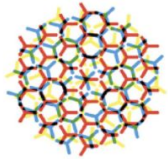


Printing Press Machine - 2022



Print Making Tools - 2021

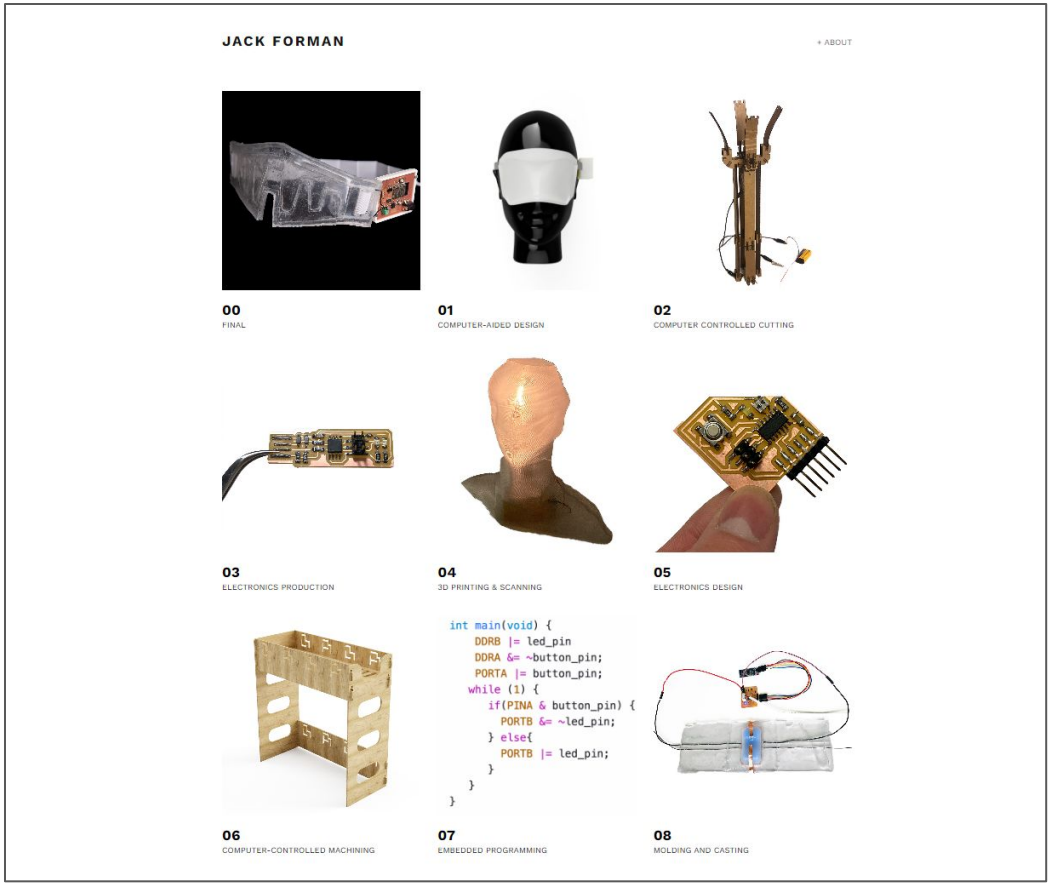
Silicone Applicator - 2017



Lasercut Stencil tools 2023

https://class.textile-academy.org/projects/

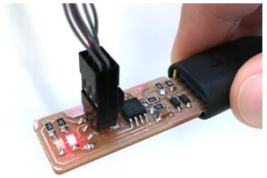
Websites that present processes



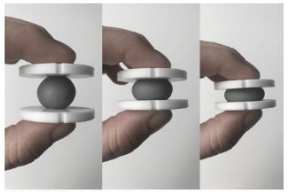
http://fab.cba.mit.edu/classes/863.19/CBA/people/jack/index.html

HOME — FINAL PROJECT BLOG — ABOUT ME

Computer-Controlled Cutting

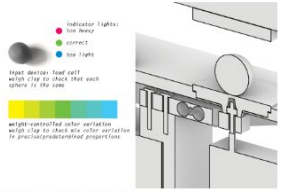


Electronics Production

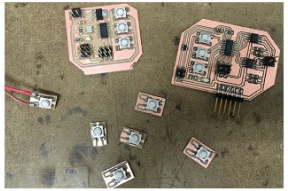


3D Printing and Scanning

Molding and Casting



Input Devices



Output Devices

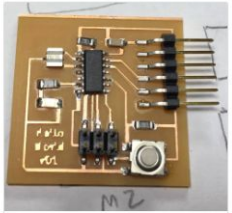
Wildcard Week

Final Project

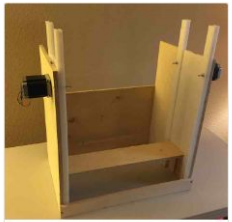
http://fab.cba.mit.edu/classes/863.19/Architecture/people/Lavender/index.html

Electronics Production

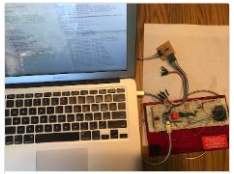
3D Scanning + Printing



Electronics Design

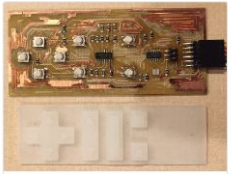


Computer Controlled Machining

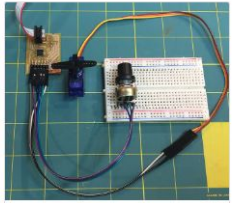


Embedded Programming

Molding and Casting



Input Devices



Output Devices

Applications and Implications

https://fabacademy.org/2019/labs/vancouver/students/peter-holm/index.html

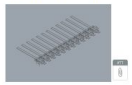
Construction | Disruption

Music Box

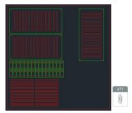
We have no words to express our gratitude towards **Pinchas** and **Dudi** from Bezalel's workshop, **Yarden** from Beit Hansen's, and **Avi** from the architecture department. We couldn't have done anything without their help and kindness.
Thank you so much.

Based on <u>this</u> tutorial

The Musical Mechanics



AutoCAD for laser cutting



Laser cutting - Bezalel

Box and Drum

Rhino for CNC

We made two drum options:
1. Horizontal layers
2. Vertical layers

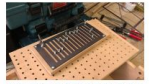
Since we didn't know if the robotic arm could drill holes so close together without splitting the MDF, we tried to come up with various ways to counteract the dash.

AutoCAD for CNC

CNC - Beit Hansen

Box

Assembly



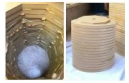
The metal we cut didn't make any sound. We think it's because of the type (thin) and/or because we got thin sheets of 1 mm (expensive limitations) and that we couldn't tighten the parts correctly.

Drum

Vertical layers

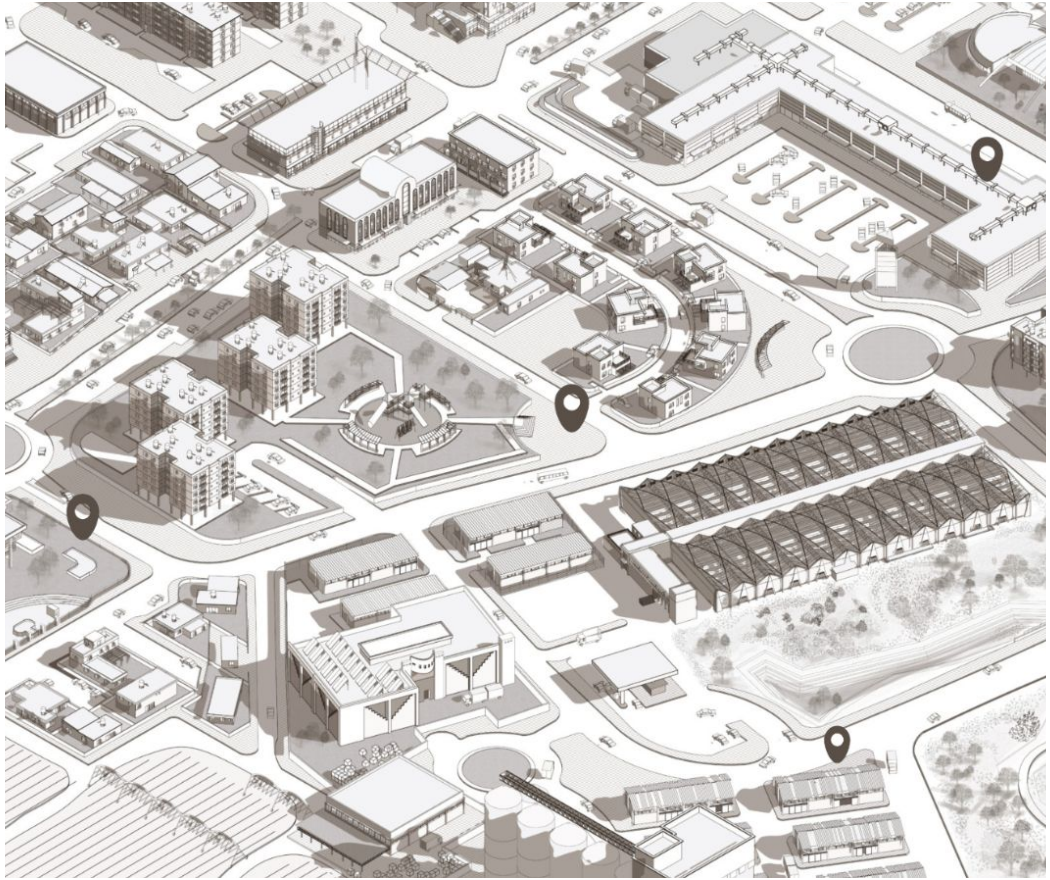
First try didn't work and we didn't have time to try again

Horizontal layers



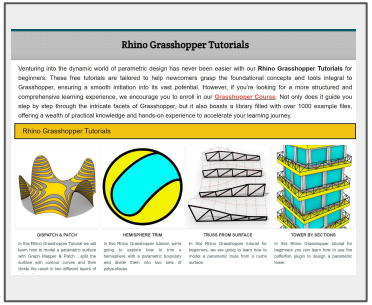
Gluing the layers and preparing for the robot in Bezalel

https://disruptionconstruc.wixsite.com/website



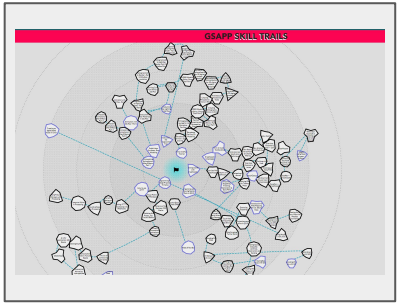
https://www.ofarofakim.com/

Helpful websites and tutorials

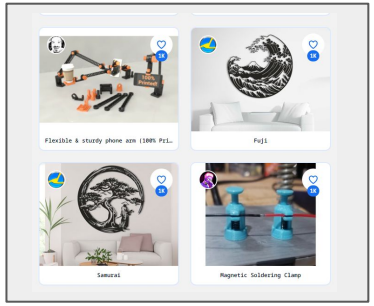


https://parametrichouse.com/rhino-grasshopper/

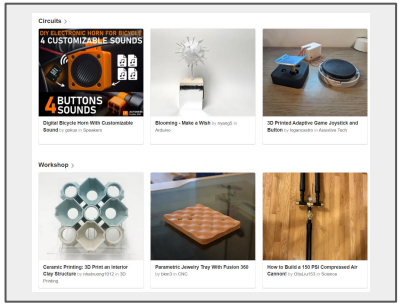
https://class.textile-academy.org/tutorials/



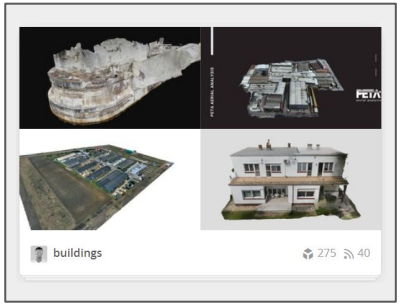
https://skilltrails.gsapp.org/#/map



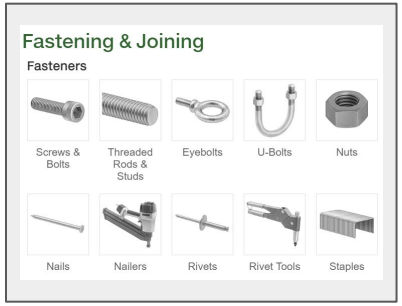
https://www.thingiverse.com/



https://www.instructables.com/



https://sketchfab.com/



https://www.mcmaster.com/

Guidelines:

1. Document the work process and not just the product (think of the the site as a learning log) - conceptual development, trials, difficulties, failures and solutions.
2. The documentation should be textual (verbal explanation of the process and learning) and visual (images, videos and files).
3. You can use and learn from existing projects, if so you should refer to them and describe what you changed / learned from them.
4. The site should be in English, and needs to be updated every week.
5. The site must include a homepage + a separate page for each task with its own explanation.