

Pre Fab Academy Program

Day 1. Introduction

- Welcome
- Presentations
- Digital Fabrication introduction. Fab labs. Fab lab Network
- Fab Lab tour for participants
- Complete survey
- What is Pre Academy
 - Is not Mini Fab Academy
 - Addressed to people who wants to do Fab Academy later
 - Fills Missing gaps
- What is Fab Academy
 - Distributed education
 - Personal Research
 - No roads
 - Free your mind (forget what you already know)
 - Be brave, Take risks (not physical risks)
 - The nine principles. MIT Media Lab
 - Stress control. Can you handle it?
- What it is not
 - Is not a traditional education
 - Tutors vs teachers
- How it works
 - 1 week cycle. Why is it important. Time x effort = constant
 - 19 - 20 weeks, 1 week break
 - Wednesdays 9am in Boston. Global Assignment reviews and Lecture (small bits of info)
 - Assignment
 - Documentation
 - Learn + make + share. Every week different topic.
 - Graduation: Diploma vs Learning
- Start learning now!
 - edX
 - Youtube
 - Instructables
- Mailing list. Do's and don'ts
 - The lists: class, alumni, instruct
 - Create you local lab communication service
 - Workflow: Research yourself - Local help - Remote Guru - Class list
 - Reply vs Reply all
 - How to ask properly. Going beyond "It does not work. It gives me error"
 - Read. The key to success
- Links to previous years archives and important docs (manual, grading sheets etc.)
- People and entities you should know in the Fab Academy. Their tasks

- Neil
- Sherry
- Coordination
- Evaluation
- Regional Reviewer
- Remote guru
- The final project
 - Remember: it is a 1 week project (production time).
 - Your research may take the whole semester.
 - The Zen of Python <https://www.python.org/doc/humor/#the-zen-of-python>
 - Remember: Fab academy will not convert you into a (you name it)
 - Think about you. Your hobbies and interests
 - Propose what you want to do. Forget how to do it
 - Must be sellable
 - Make meaning. Guy Kawasaki video
 - Increase the quality of life
 - Right a wrong
 - To prevent the end of something good
 - The three types of final projects
 - The good. Simple, well crafted
 - The bad. Overcomplicated, does not solve any problem
 - The ugly. Bad documented, horrible aspect

Day 2

Preparing Notebook for academy

- Recommended that each student uses a A4 paper notebook with no detachable sheets. Do not use sheets. Reason is that you WILL loose the sheets.
- What to write down
 - Date
 - Machine used
 - Material (thickness, type, color...)
 - Settings (speeds, feed rates...)
 - Results (what worked, what didn't)
 - Debugging
- Assignment: Document what you do every day.

Preparing Laptops and Lab Computers

- The importance of Open Source
- Recommended Backups
 - Backup data to USB
 - Backup data to Cloud
- Showing how to install latest Ubuntu Desktop LTS (currently 14.04)
- Showing how to install software using Ubuntu software center
- Showing how to install software using apt-get
- Showing how to compile software
- Showing how to install windows software using wine
- Showing basic command line for ubuntu
- Assignment: Install list of software
 - "Terminal here" addon for Nautilus
 - fab modules compiled version (deprecated)
 - Instructions in kokompe web site <http://kokompe.cba.mit.edu/>
 - fab modules html5 version (current version)
 - Nodejs <https://nodejs.org/en/download/package-manager/>
 - Install instructions <http://fabacademy.org/archives/2015/doc/fabmodules-html5.html>
 - <https://github.com/fabmodules/fabmodules-html5/tree/master>
 - kokopelli retro (editing Neil's circuit boards)
 - Install dependencies from kokompe web site <http://kokompe.cba.mit.edu/>
 - Unzip the folder
 - Open folder in terminal
 - make fab
 - sudo make install
 - \$: kokopelli -r
 - antimony
 - inkscape
 - openscad

- gimp
- cura
- arduino IDE (not the ubuntu software center version)
- attiny addon for arduino IDE (Instructions in tutorial section of **Hi Lo Tech MIT Media Lab**)
- processing
- qcad
- git
- eagle
- kicad
- wine
- partworks in wine
- Text editor of your choice

Day 3.

Creating accounts

It is recommended that students create the following online accounts

- Fablabs.io account
- git.fabcloud.io account for fab academy archive
- Google account
- Youtube and/or Vimeo account for storing large videos
- Github account for your personal code projects
- Dropbox account for sharing files
- Sketchfab.com account for embedding and storing STL files

Assignment: Create all these account, write down all the links

Repositories

- Install git
 - sudo apt-get install git
- Configure git
 - <https://help.github.com/articles/set-up-git/>
- Create a repository in Github for website
 - <https://pages.github.com/>
- HTTPS link vs SSH link
 - Creating SSH keys <https://help.github.com/articles/generating-ssh-keys/>
 - Change from HTTPS to SSH <https://help.github.com/articles/changing-a-remote-s-url/>
- Workflow for Pulling and pushing
 - git pull
 - git add --all
 - git commit -m "message"
 - git push
- Conflicts. Do's and Don'ts
 - <https://help.github.com/>

Assignment: Create your repository where you will store your documentation

Documenting Fab Academy and Pre Academy

- Temporary documentation Index page: <http://thebeachlab.github.io>
- It's all about documentation. Does not matter what you did, only what you documented.
- Importance of documenting while you work
 - If you are in a trouble, it will help your, local or remote tutor, a friend or the class to understand what you did.
 - It helps yourself during your research to keep track of what you did
 - It helps you to acquire a good habit useful in the future, not only for Fab Academy
- Tell your story, not a step by step tutorial. Is what you did, not what to do
<http://fabacademy.org/archives/2013/students/sanchez.francisco/weekly-assignment/s/index.html>
- Pay attention to the grading criteria and final project requirements
 - https://docs.google.com/document/d/1v3GzwGII4TFND0PUZPv_1FMEWwciLfZj8WpypcbdFI/edit?usp=sharing
 - <https://docs.google.com/document/d/1Y7sYGcorkyrItmHEYzs4uvXvQC-HigonjJSwO8TYCg0/edit?usp=sharing>
- Documenting in HTML
 - Learning HTML
<https://www.edx.org/course/html5-part-1-html5-coding-essentials-w3cx-html5-1x>
 - HTML templates
 - Warning: can distract you from the content
 - If used make sure to remove all Lorem Ipsums and so
 - Useful for starting a new HTML web when you already know HTML
 - <http://startbootstrap.com/template-categories/all/>
 - Software for Editing HTML
 - Text Editor (recommended)
 - WYSIWYG (What you see is what you get). Not recommended. They create messy unusable code.
- Documenting in Markdown
 - Rising tendency
 - Easy to write, fast and clean compared to HTML
 - 10 minutes tutorial <http://markdowntutorial.com/>
 - Ubuntu app ReText
 - Online editor and publisher <https://stackedit.io>
 - Online HTML to Markdown converter
<http://domchristie.github.io/to-markdown/>
 - Online Markdown to HTML converter <http://dillinger.io/> (keep both .md and .html files always)
 - Pandoc: Command line converter <https://github.com/jgm/pandoc/releases>
 - Usage ***pandoc -s -o file.html file.md***
 - Create a sh script
- Photography

- Blurred images
- Size (web size). There is something even worse than a blurred image, and it is a 16 Mpx blurred image.
- Crop images
- Scale down images in right click menu in Nautilus: [nautilus-image-converter](#)
- Backgrounds
- Composition: Rule of thirds
- Lighting. Beware of flash.
- Prepare the scene
- Videos
 - Do not upload videos in the archive. Host them in Vimeo or Youtube
 - Consider GIF for short videos (~5sec)
- Mockups
 - Useful for final project presentation or interface application week
 - <http://www.mockupworld.co/all-mockups/>
- Principles of good design
 - Simplicity <http://vaseodesign.com/web-design/simplicity/>
 - Typography <http://fontpair.co/>
 - Color harmony <http://paletton.com/>

Day 4

Time management

- Supply vs Demand-based time
- serial vs parallel development
- Spiral development
- bottom-up vs top-down debugging (solve the problem or the cause)

https://books.google.co.in/books?id=YmKmWVYqNx4C&pg=PA388&lpg=PA388&dq=bottom+up+vs+top+down+debugging&source=bl&ots=w4Jq3hUaBW&sig=eW5zcSpQQPCwcek_dSDC-Ef7hTo&hl=en&sa=X&ved=0CCgQ6AEwAmoVChMIw5LM6q_TyAIVCpmUCh1hDgl6

Preparing the lab

- Cleaning up -Not someone's else task-
- Inventory
- Access control
 - Facility
 - Sensitive items
 - Machines
- Emergency Plan
 - Fire
 - Police
 - Hospital
 - Pharmacy