sterlhing cooper: school of design curriculum

    // open school resources:

- woodshop [basement]
- makerspace [rutgers]
- workspace [libraries, cafes, public spaces]
- class resources
  - github: https://github.com/homrThompson
    - code repository
    - product wiki
    - resource locator (who has tools?)
  - contact
    - email
    - signal (desktop + mobile)
    - phone (emergency only)
  - website: [tba] public-facing
    - social
    - youtube

    // student arc (11 weeks (breakneck speed)):

theory (1 week)
    history
    internet diagram (ad tech)
    light theory
    product development
programming (1-2 weeks)
electronics + wiring (1-2 weeks)
prototyping (3-4 weeks)
capstone (2 weeks)

    // theory + hard skills (craft):

- software and programming
  - object-oriented
  - functional

- hardware and electronics
  - arduino
  - wiring + soldering
  - electronics
    - resistors
    - switches
- occult sciences
  - color theory
  - light theory
  - star wars
- product design
  - product mgmt
  - woodworking
  - 3D printing
  - technical drawing, prototyping, speccing/ scoping
  - tinkercad, autocad
  - project mgmt [epics => stories => tasks]

// curriculum

⏰ week 1:

introduce the history of technology, math, time. learn evolution of the computer and the internet. introduce concepts behind product development separate from information technology (packaging design etc.).

- [time](#)
  - when are we in history?
  - time doesn't exist, yet it controls us anyways
    - calendars
    - clocks
- numbers
  - invention of 0 [zero, zilch, zed, nil, null] (628 AD)
  - base 10, base 16, binary

- birth of the computer
  - [ada lovelace](#) (1815–1852) and charles babbage ([analytical engine](#))
    - life and times
      - family
      - occult sciences: mesmerism + numerology
    - [state](#) & [finite state machine](#)
  - analog => digital: parts of computer
    - storage
      - [mechanical calculators](#) [1]
      - [tape storage](#) (VHS/cassette)
      - [disk storage](#)
      - [solid state storage](#)
    - random access memory (RAM)
    - CPU
      - hyperthreading/overclocking
      - multi-core processors
    - GPU
    - modem
- birth of the internet
  - project with contributions from U.S. military + private telecom, bell labs
  - TCP/IP ([internet protocol suite](#))
  - [spacejam.com](#) => google search/ad tech (1998) => AI/web3
- product development
  - ideation
    - sketchpad
      - rough measurements
      - apply drawing conventions (architecture?)
    - specs
      - autocad
      - [tinkercad](#)
  - prototype
    - hacker/maker mentality
    - where to source materials
  - product
    - defining specifications
    - end product materials

- **mass production**
- marketing magic
  - [don draper](#) rant

⏰ week 2:

understand interplay between hardware and software.
receive first components (LEDs, arduino board, wires)
and purchase core soldering tools (iron, solder, paste,
etc.). introduce occult concepts and warnings.

- hardware
  - [adafruit](#)
    - who?
    - what?
    - where?
  - [arduino](#)
    - open source (hardware and software)
    - boards
    - programming language (C++ also compatible
      (bell labs))
  - LEDs, wires, and other components
    - marketplaces
      - adafruit
      - sparkfun
      - amazon.. planet amazon
- software
  - [evolution](#) of programming languages
    - assembly, FORTRAN, COBOL
    - C, SQL
    - C++, java, MATLAB, ada
      - classes, libraries?
    - javascript, ruby, python, haskell
      - internet age: ports, connections
      - web development frameworks
    - scratch, scala, go
    - swift, typescript
  - object-oriented vs. functional
- [occult](#) sciences

- light
    - [intensity]
    - [color]
    - [strobing]
    - light [facts](#)
- color
- sound
- tonics/potions, perfumes, spirits
- cosmic crap (astrology, horoscopes, and other novelties)
- limit time/exposure— dark arts endless mostly not worth knowing

⏰ week 3:

introduce python programming language. upload code to arduino board. blink light and set colors. introduce as many components [sensors, I/O, switches potentiometer, etc.] as time allows. use "jumper wires" in lieu of soldered connections

- programming core concepts
    - variables, data types
    - classes
    - loops
- internet tech
    - server/client relation
    - html/css
    - javascript
        - asynchronous/non-blocking code
        - event loop
        - node.js
    - APIs
        - internet-connected (smart) devices
- arduino tech
    - [arduino](#) programming language
    - [libraries](#)

resources:
- [MDN](#) (mozilla developer network)
- [python crash course](#) (google)
- [arduino](#) docs

⏰ week 4:

shift focus to adroit skills: soldering, wiring, molding. continue exercising with coding practice to switch gears while working with materials. create working artifact no matter how simple.

- small project using:
  - LEDs
  - wires
  - solder
  - breakout board or arduino board
  - resistor
- safety
  - youtube at least 2 safety videos on each new piece of equipment OR
  - receive first-hand instruction from professional/woodshop
- showcase artifact
  - tinkercad community
  - instagram
  - reddit

⏰ weeks 5 - 7 (prototype development):

apply theory/craft learned from first month. schedule time in necessary work spaces.

- planning
  - sketching
  - requirements gathering/speccing

- tinkercad autodesk
- break out assembly into epics/stories
- proactive about scheduling time at facilities
- work modes
  - team agreement
  - pair programming
  - professional models (google, spotify)
  - version control (source code mgmt): [git](git)
- minimum-viable product (MVP)
  - separate core features from add-ons (push to v2)
  - apply iterative approach/versioning
  - use epics/stories from planning phase

⏰ weeks 8 + 9 (product development):

go to market (capstone). produce finalized version of product with detailed instructions on how to reproduce and mass produce.

- use lessons learned in prototyping phase to create finalized product
  - source finer/more durable materials (factor in costs)
  - as close to perfect as possible, don't go nuts
  - plans for grander showcasing.. capstone
- use industry standard for communicating product specifications
  - CNC machine files
  - 3D printer files
- eye towards marketing
  - document any development highlights
  - document product at rest and "functioning"
  - discuss channels for communicating/advertising
    - social
    - etsy marketplace/shopify store
    - ad tags/paid platforms
    - word of mouth, showcasing, exhibitions