Week 1
The class will assemble twenty “TV-B-Gone” devices, to fully demonstrate the capability of ITP’s resources
• Together we’ll populate a “panel” of PCBs with the robotic pick-and-place, and then reflow them in the large oven
• Review the circuit, and each student will individually debug and get their own device working
• If time remains in class, we’ll reprogram them to turn ITP’s projectors on/off

Week 2
The basics of digital circuits, and working with surface-mount components
• Review of electronic basics, including component review, voltage dividers, and power regulation
• We’ll then use solder paste, the manual pick-and-place, tweezers, and the heat gun to assemble a PCB (circuit TBD)

Week 3
Design for copper plates, and acid-etching
• We’ll cover component footprints, and make our first board
designs in Illustrator, as well as drawing traces by hand with marker

• Using our designs from the first half of class, we’ll use the acid-etching technique to bring our circuits into reality, and determine what design choices yield the best results

Week 4
Eagle schematics and board design
• We’ll move our schematics into Eagle CAD, the de facto PCB design software, and learn how to combine pre-made parts into a working schematic

• The second half of class we will switch to Board View, and use Eagle to design our board’s shape and trace layout

Week 5
Micro-Milling Machines (Othermill and Roland Modela)
• Review of micro-milling machines and what we use them for when fabricating circuits.

• We will then load an Eagle file onto the Othermill and cut out custom board shapes, as well as mill an enclosure for the PCB

Week 6
Project workshop
• To prepare for final project, this class will be focused on helping students’ designs and BOM (bill of materials) to be ready for final
Week 7
Project presentations and class review