Project Name: Printed Circuit Board Design & Manufacture  
Course Name: Digital Electronics  
Grade Level: 11th  
Time Required: ~4 weeks (8 block periods)

Day 1: 30 min lecture PCB Intro to Design & Manuf PPT  
1 hr research time PCB Research Assignment

Day 2: 30 min interactive tutorial Ultiboard Software PPT  
1 hr work time Ultiboard Assignment

Day 3: 1 hr video/demonstration PCB Fabrication  
30 min overview of PCB Fabrication Project

Day 4-6: Group & 1-on-1 assistance as needed

Day 7-8: Class Presentations Presentation Rubric

Summary:  
This is to be the cumulating project of a student’s 2nd semester in Digital Electronics. The final project of this unit is to design and fabricate a custom circuit from scratch, and to present the results to one’s peers. Students shall reinforce the skills which they have learned throughout the year while also building an understanding of how printed circuit boards are designed and manufactured.

Educational Standards:  
Common Core standards for Engineering (TBD)

Industry Skills Practiced:  
- Reading Circuit Schematics  
- Reading Material Safety Data Sheets  
- Electrical Component Identification  
- Multisim Circuit Design Software  
- Ultiboard PCB Layout Software  
- Using a Band Saw  
- Using a Heat Transfer Machine  
- Using an Etch Tank  
- Using a Drill Press  
- Using a Multimeter  
- Electrical Soldering