Note: This phase of Senior Design generally starts after your project is modeled and all drawings are complete. However, if you have to purchase an item that has a long lead time on delivery, you should order that before completing drawing package.

- **PURCHASED ITEMS**
  - ORDER PURCHASED ITEMS INCLUDING ANY TOOLING NOT ALREADY AVAILABLE IN SHOP
  - FOLLOW THE PURCHASING PROCEDURES IN THE TEAM TOOLBOX
- **STOCK**
  - CHECK AVAILABILITY IN M.E. MACHINE SHOP AND/OR FACILITIES MACHINE SHOP
  - PURCHASE ELSEWHERE IF NECESSARY
    - ALCOBRA, ONLINE METALS, MSC, MCMASTER-CARR
  - ORDERING STOCK THAT IS ALREADY AT ROUGH SIZES SAVES A LOT OF TIME
- **FABRICATION**
  - ANY ITEMS THAT REQUIRE OUTSIDE MACHINING SHOULD BE STARTED FIRST
  - COMPLETE A MANUFACTURING PLAN FOR ALL MACHINED COMPONENTS.
    - THIS PLAN SHOULD ALSO INCLUDE ANY FIXTURES FOR FABRICATION
    - SEE EXAMPLE
  - REVIEW PLAN WITH MENTOR
  - SCHEDULE TIME ON MACHINES
    - THIS WILL BE BASED ON AVAILABILITY OF YOUR MENTOR AND MACHINES
    - BE RESPECTFUL OF YOUR MENTORS SCHEDULE
- **HEAT TREATING AND/OR ANODIZING**
  - THIS REQUIRES APPROXIMATELY 1 WEEK OF LEAD TIME
- **ASSEMBLE ALL COMPONENTS**
- **TEST FINAL ASSEMBLY**
- **MAKE ANY DESIRED CHANGES**
NOTE: THIS EXAMPLE IS FOR A PART THAT REQUIRES DRILLING AND MILLING, BOTH MANUAL AND CNC. WHEN MACHINING, DOING SIMILAR OPERATIONS ON MULTIPLE PARTS CAN GREATLY INCREASE EFFICIENCY.

• CUT STOCK TO ROUGH SIZES IF NECESSARY
  o BANDSAWS, PLASMA CUTTER
• SQUARE UP THE STOCK, DRILL, TAP, REAM HOLES, COMPLETE MANUAL MILLING OPERATIONS
  o MANUAL MILL
• MAKE ANY FIXTURES NECESSARY TO HOLD PARTS ON CNC MILL
  o MANUAL MILL
• GENERATE MASTERCAM PROGRAM/S
  o USE FINISH CUTS WHERE APPROPRIATE
  o ALWAYS BE AWARE OF CUT DIRECTION (CLIMB VS CONVENTIONAL)
• DO CNC MACHINING
  o MAKE SURE THAT ANY MATING PARTS FIT BEFORE REMOVING FROM MACHINE