

# PHASE 3 ~ DESIGN FOR MANUFACTURING

## Deliverable 17 ~ Manufacturing Plan Presentation & Report

Due Date: <http://rrq.utk.edu/resources/BME469/assignments.html#Deliverable17>

**INSTRUCTIONS.** Present your manufacturing, or fabrication, plan to the stakeholders and instructors; in addition, write a manufacturing plan report. Your presentation slides and written report are due electronically to Dr. Jeff Reinbolt (reinbolt@utk.edu).

### Purpose

A manufacturing plan gives the design team an early view into what will be required to begin and ramp up manufacturing of a new product. Some planning must be done early enough to allow for aspects such as lead times on new equipment required and development time. As the team thinks through their manufacturing work for a product, they will come up with questions and inputs that can be critical to the product's manufacturability. The manufacturing plan may also have a significant impact on budget and resource requirements.

### Critical Information

The manufacturing plan details how someone can either make another or start producing the product you have designed. There should be sufficient detail so the design team could hand them off to a machinist and get a finished product back. The manufacturing plan should contain information about facilities, materials, equipment, personnel, storage, logistics, and any other sub-process necessary to describe how the design team plans to create and manage manufacturing processes to generate a working prototype.

### Oral Presentation

*The design team is responsible for scheduling the presentation room, inviting and ensuring attendance of participants, and presenting the interim design.*

- SCHEDULING
  - The presentation must be scheduled and completed before the written report due date of February 28<sup>th</sup> to allow adequate time for editing the report to reflect resolved issues identified during the presentation
  - Generally, the room should be scheduled for at least 30 minutes, the presentation should be no more than 15 minutes and allow ample time for audience questions
  - You should contact Pam Ward in DO 414 to schedule a room
  - Do NOT wait to schedule the room!
- PARTICIPANTS
  - Project stakeholders, drivers, supporters, and observers
  - Senior design instructors (at least Dr. Hamel and/or Dr. Reinbolt)

- A presentation without stakeholder(s) and/or instructor(s) is NOT acceptable
- You may find online scheduling resources (e.g., [www.doodle.com](http://www.doodle.com)) helpful
- PRESENTATION
  - The presentation should cover material similar to the written report described below
  - The presentation should be approximately 15 minutes long and no longer than 20 minutes (leave time for a question & answer period)
  - Regardless of the room scheduled, the team should practice the presentation in the scheduled room, use the projector and laptop which will be used on the presentation day, and be familiar with your presentation slides and equipment

### **Format of the Written Report**

The written report should include (*but is not limited to*) the following details:

1. MANUFACTURING OVERVIEW
  - This is a high-level description of the manufacturing process
  - This overview describes the different steps which are involved in the production of the product
  - Think of it like your response to the question, **"How is your design made?"**
2. PART DRAWINGS
  - Drawings of the product can be either CAD (or similar) or hand drawn
  - The must include sufficient detail to NOT leave any part of the design undefined
3. MATERIALS
  - Provide a list of materials needed to construct the product
  - This would be everything that would have to be ordered (or already ordered), aside from available tools, to make it
4. MANUFACTURING PROCEDURE
  - This is a step-by-step procedure required to manufacture the product
  - The level of detail is similar to what is included with a piece of unassembled furniture (details such as the "tab A in slot B")
  - This may include block drawings, Gantt charts, or a work breakdown structure description of the manufacturing
  - This should leave no ambiguity in the way the product is machined, fabricated, and assembled