
Virtual Team Project - The Mobile Workbench

Introduction

Having a place to store tools and do work is not always easy. The solutions are often expensive and include large, bulky, pre-made workbenches. There are also toolbags and toolboxes to carry around tools and parts but they can be heavy and messy. The answer to this dilemma is to have a mobile system that allows for tool storage and includes a workspace.

Equipment

- Engineer's notebook
- Isometric grid paper
- Computer with 3D CAD solid modeling software

Procedure

This project will provide you with the opportunity to work together in teams of four. You will follow the design process to make a prototype of a mobile workbench. You will create a set of technical drawings that will be sent to the woodshop who will manufacture all of the wooden parts for assembly.

Requirements

1. Come to a consensus with your team on a design brief that you wish to work on.
2. Using the steps in the design process, your team will come up with a solution to a problem.
3. Use your engineering notebook to sketch ideas and possible solutions as well as journal your process and communications
4. Create several possible solutions. Remember, the final solution will be determined from your decision making matrix
5. Create a complete CAD model and set of working drawings
6. Create a presentation to explain your design and process

Mobile Workbench Design Brief

Client Company: Home Improvement Stores

Target Consumer: Home Improvement Enthusiasts with limited space

Designer: _____

Problem Statement: Having the space to organize tools, parts and have space to work on

Design Statement: Design and model a product that will solve the issues of storage and space to work.

- Constraints:**
1. May not have a footprint that exceeds 14" depth x 30" width x 72" height.
 2. Must hold tools, nuts & bolts and screws & nails
 - a. 2 hammers
 - b. 3-4 screwdrivers
 - c. 2-3 wrenches
 - d. 2-3 pliers
 3. Must have a durable, worktop
 4. Must have wheels, with at least 2 locking wheels
 5. Must cost less than \$50 for final product

Deliverables:

1. Engineering notebook
2. Set of technical drawings
3. Working Prototype –
 - a. CAD Model or Physical Model (time/cost permitting)
4. Must have bill of materials with cost breakdown