Module 11 Final Group Project

11.10.1 Wheel Assembly Engineering Redesign

Top plate

- No Changes

Wheel

- Wheel outside diameter changed to 4 ½" + 1/8" tread of your own Design.
- Wheel width changed to 1 ¾" outside edges and l" at the hub – maintain 1/16" gap between wheel and bushing.
- Wheel clearance distance between top plate and wheel tread is to be ¼"

Axle support

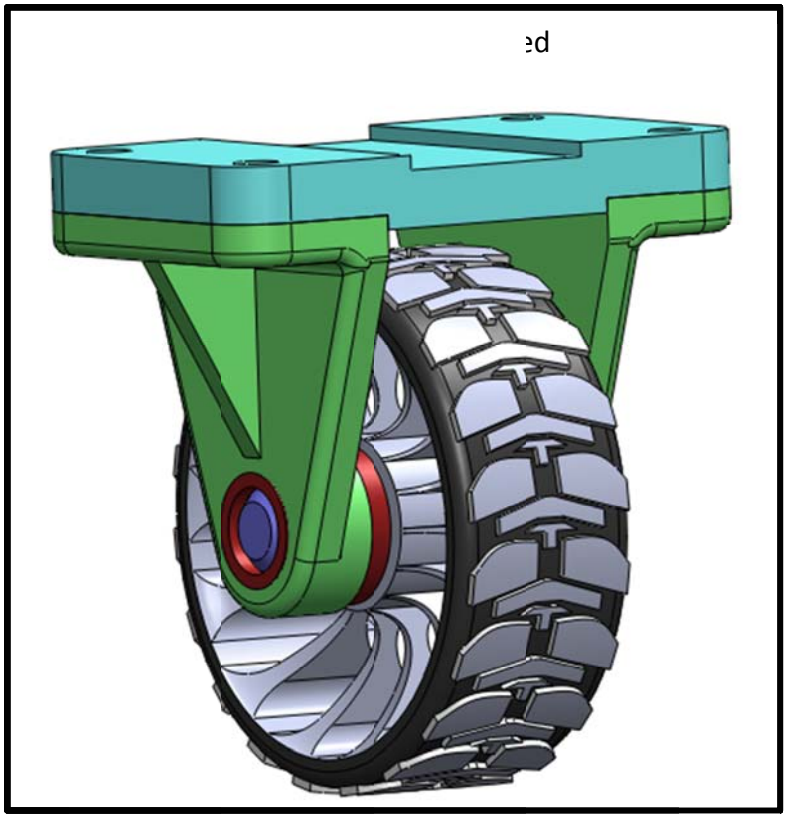
- What other changes need to be made to make the axle support fit correctly into the assembly?

Axle

- Does the axle need to be redesigned?

Bushings

- Do the bushings need to be redesigned?



11.10.1 Wheel Assembly Engineering Redesign Worksheet

Use this worksheet within your engineering notebook to help in the redesign process

1. **Define the problem**
   Redesign the wheel project

2. **Identify criteria and specify constraints**
   See wheel assembly redesign on sheet above

3. **Brainstorm, research and generate ideas**
   - Tread patterns?
   - Wheel design?
   - New wheel or modify existing?
   - Sketches…….

4. **Develop and propose designs**
   - Make some decisions
     - Wheel?
     - How are you going to fix the axle support?
     - Bushing?
     - Axle?

5. **Make a model or prototype**
   - How did you modify or create each part in solid works – take notes!!!
     - How did you accomplish it- Mirrored sketches, Scaled sketches, circular patterns, fillets, revolved cuts, etc…

6. **Evaluate the solution**
   - Did the assembly go together correctly?
     - Wheel topplate clearance ¼”
     - Bushing wheel clearance 1/16”
   - Did you check the section views?
     - Are there part collisions

7. **Create the final design**
   - What needed to be fixed? Take notes!!!
   - Color your project- needs to look good
   - Create exploded view and animation

8. **Communicate the processes and results**
   - Create the updated engineering drawings
     - Detail each part
     - Exploded view with parts list
     - Assembly view