



Company Information

Company Name	<i>Continental Tire</i>	Date Submitted	<i>5/31/2021</i>
Project Title	<i>Design of a High Capacity Tread Loading Cartridge (CONT_TREAD)</i>	Planned Starting Semester	<i>Fall 2021</i>

Senior Design Project Description

Personnel

Typical teams will have 4-6 students, with engineering disciplines assigned based on the anticipated Scope of the Project.

Please provide your estimate of staffing in the below table. The Senior Design Committee will adjust as appropriate based on scope and discipline skills:

Discipline	Number	Discipline	Number
Mechanical	4	Electrical	1
Computer		Systems	
Other ()			

Company and Project Overview:

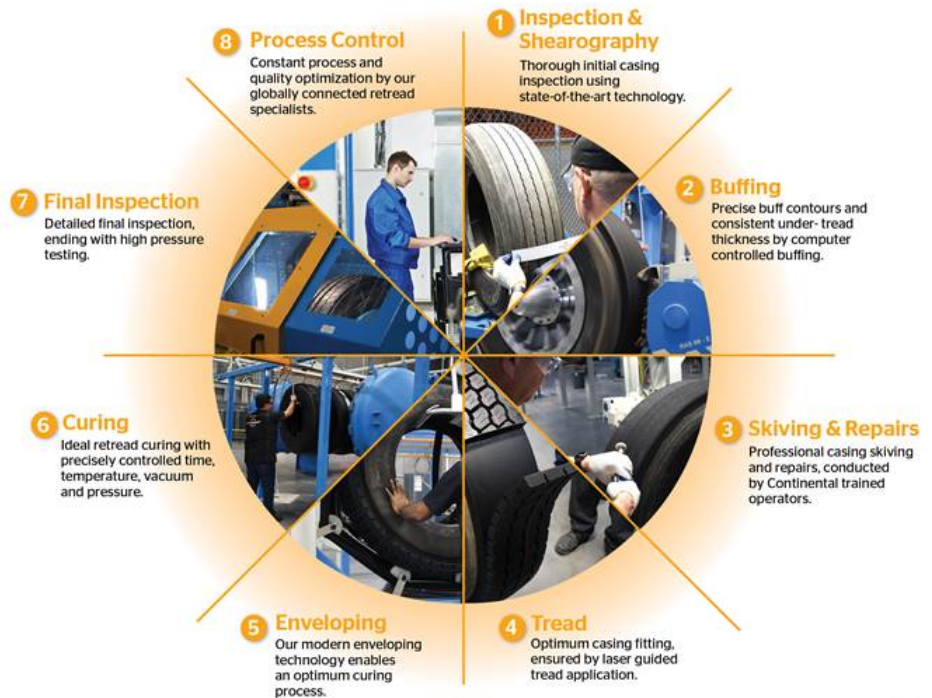
A world leader in tire production

Founded in 1871, Continental is a multinational company which manufactures safe, efficient, and performance-oriented tires for passenger cars, commercial vehicles, and two-wheelers. We are one of the foremost leaders in tire technology and tire production, with a broad product range suitable for use in a variety of conditions and applications. Through continuous investment in research and development, Continental makes a significant contribution to mobility that's secure, cost-effective, and ecologically friendly. This project will be done with the Ft. Mill, SC Continental site which is the headquarters of their North American operation.

This project supports the Continental Retread Process to ensure productivity with our retread partners. ContiTread™ pre-cured treads are produced exclusively with Continental mixtures and profiles. As part of the ContiLifeCycle approach, our customers are able to cap their worn out tires with a new tread, prolonging the life of their tires and thereby reducing total tire costs.

Below is a graphic of the retread process:

ContiLifeCycle™
Process
 Technology Driven for High-Quality
 Retread Products



Project Requirements:

This project is to support Continental Retreading for improving productivity of our tread building process by reducing the set-up time for changing treads.

Within Continental Retreading, our tires are inspected, buffed, and repaired prior to an application of a thin layer of uncured rubber and then the cured tread being applied. The cured rubber is delivered to the retread facilities in approximately 100LBS rolls which will build approximately 3.25 tires per roll. This constraint causes a productivity issue in the retread facilities.

With this project, the idea is to splice the most used SKU into much higher roll weights (1000 – 10,000 LBS) and feed these into a “cartridge” loaded system which can be then fed to the tire builder to run without interruption. The physical act of splice (curing the tread) will be out of scope of this project, but the table, cartridge, feed, and connection to the builder will be within the scope.

Expected Deliverables/Results:

- Each team member will work through our process training videos to have an understanding of the Continental Retread Process.
- The project will incorporate an already functioning bench splice machine but will create the workstation for



the bench splice.

- The project will create the specification for the weight of tread to be held by the cartridge.
- The project will create either the cartridge or model for holding the tread.
- The project will determine the way to move the cartridge into place (either with or without forklift / pallet jack assistance).
- The project will determine the electrical specification needed for assistance of unrolling tread during application.
- Prototype, test and verify the device designed within the constraints of the project budget.

Disposition of Deliverables at the End of the Project:

All hardware and models will be delivered to Continental Tire after Expo.

List here any specific skills, requirements, specific courses, knowledge needed or suggested (If none please state none):

- Ability to travel to the Continental Ft. Mill, NC site as required.