

UNC Charlotte – Lee College of Engineering Senior Design Program

Senior Design Project Description

Company Name	<i>Stallergenes Greer</i>	Date Submitted	5/13/19
Project Title	<i>Design of an Improved Mycology Lab Process</i> SGL_LAB	Planned Starting Semester	Fall 2019

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	
Computer		Systems	
Other ()			

Company and Project Overview:

Stallergenes Greer is a global healthcare company specializing in the diagnosis and treatment of allergies through the development and commercialization of allergy immunotherapy (AIT) products and services. Established in 2015, Stallergenes Greer combines a hundred years of allergy expertise of Greer in the United States with Stallergenes' history of innovation in immunotherapy from a base in France.

As a company 100% dedicated to the research and development of innovative treatment of allergies, Stallergenes Greer adopts a comprehensive approach to addressing and managing allergic diseases, offering allergy specialists a wide range of products, from diagnosis to sublingual and subcutaneous allergy immunotherapy. Its core business is researching, developing, manufacturing and marketing innovative allergen immunotherapy medicines.

With a strong focus on innovation, the Group is at the origin of a new generation of allergy immunotherapy treatments. Upon its creation, Stallergenes Greer brought an essential contribution to allergy therapies at a time when symptomatic treatments were the gold standard. These efforts have considerably strengthened the level of evidence supporting allergy immunotherapy.

Allergy immunotherapy innovation has evolved significantly over the years. Stallergenes Greer has never stopped innovating in order to meet the needs of patients and to consolidate its knowledge

and expertise in the field of innovative treatments with a view to developing products that seek to optimise treatment and management of patients with allergies. As the years have gone by, allergy immunotherapy innovation has evolved significantly. The Lenoir NC, facility has been in operation at that location since 1984 producing allergy immunotherapy products for medical and veterinarian uses. This project will address a process in the company's mycology lab.

Project Requirements:

In the Lenoir NC Mycology lab of Stallergenes-Greer, various fungi are grown to be used in allergy immunotherapy (AIT). To maintain medical grade products, exacting process specification must be adhered to. With the growth in demand, the company is interested in expansion of their current process capacities. The objective of this project will be to analyze one of the current mycology processes and develop a new process design that increases capacity while maintaining the integrity of the process.

Photos of the existing set-up are shown below:





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On the left, the cart is holding 2 liter glass bottles that are used to grow specimens. In the center is a vat where the starter nutrient material is mixed. The red door on the right is the autoclave. The current procedure is to put the rack of empty glass bottles into the autoclave to be sterilized. To heat up and cool down, can take an entire day. When the cycle is complete, the sterilized bottles exit the autoclave through a door on the opposite end. Once the bottles are cooled, the nutrient mix from the vat is piped through the wall (which is a barrier between the sterilized and non-sterilized parts of the process) and dispensed into each bottle. The bottles are then placed into an incubation room where the specimen growth occurs:



Expected Deliverables/Results:

- Develop understanding of the current process and biological constraints that must be maintained.
- Design of a new process that increases the capacity of the operation by 100% over current rates.
- Maximize the use of existing capital equipment in order to reduce the cost of any new process equipment.
- Complete design package including drawings, coding, bills of material.etc.
- Maintenance and operations manuals
- Prototyped system built and tested (to the extent of the project budget) to verify capacity increase and biologic integrity.

Disposition of Deliverables at the End of the Project:

Hardware developed is the property of the Industry Supporter. The work product will be displayed at the last Expo then immediately handed over to the supporter unless arrangements have been made to deliver at a future date.

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

- Biomedical concentration for a minimum of half of the student team.
- Ability to travel to Companies facility in Lenoir NC for repeated visits and testing.