Department of Mechanical Engineering
Dr. Becker's Project
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ME476C Section 1 Fall 2023

To: Dr. David Willy

From: Team #: Dr. Becker's Project

Date: 9-8-23

Re: Team Charter

Team Purpose

The general purpose for the ME476C Capstone project is to complete a client's request to increase the team members' engineering experience. The task this team has been given is to create a Modular Filter Fan Unit (FFU) that can be used for a Clean Room and a Gown Room in the stakeholder's company while following the constraints set by the clients. For this project, the clients will be Timothy Becker, David Willy, and the company Aneuvas Technologies Inc. Throughout this project, the team will document engineering process by creating multiple reports, presentations, CAD Files, and documents relating to the Filter Fan Unit, clean room and gown room.

The client's expectation for this project is to produce enough airflow to keep a positive pressure in the clean room and gown room. This is done by a modular FFU that can accommodate both rooms. The clean room will be approximately 10' x 10' of floor space with a floor plan with assembly stations and tables for testing. The clean room will be able to accommodate 6 workers with equipment and will be combined with the current 3-person clean room. The clean room will fulfill the standards of airborne particle counts and the validation of a working clean room. For the gown room, our team will convert the current 3-person cleanroom into a gowning room and be clean room compliant storage for gowning with proper gowning procedures.

Team Goals

This team is determined to present professional quality work to the stakeholders in this project. Each member has agreed to put in effort to achieve that goal. This project is the team's last and best chance before graduation to design and build something worth being proud of. They are seeking an A in the class, as well as something to add to their portfolios and meeting every requirement of the client's and stakeholder's needs.

To reach this goal every member of the team will complete the work assigned to them in their roles in a timely manner, giving other team members time to proofread and edit if necessary. Each team member will need to be well versed in parts of the project they are not responsible for, so they can design their section to fit and work with the other sections. The team will need to keep open lines of communication, including cell phones, e-mail, discord, and MS Teams. Each member will submit their best work with thought and intention.

Team Member Personalities, Roles, and Responsibilities

Each member of the team plays an important role on the team. The distribution and execution of the roles will be vital to the success of the team. Table 1 shows the administrative role(s) and technical role(s) assigned to each team member. The relation of the members' roles will be discussed with the strengths, weaknesses, and personality types of each team member.

Table 1: Breakdown of Team Roles

Member	Administrative Roles	Technical Roles
Logan Bennett	Test Manager Manufacturing Engineer	Structural Analysis
Michelle Borzick	Project Manager Logistics Manager (Internal Communication)	Fluid Mechanics Analysis
Gia Neve	Financial Manager Logistics Manager (External Communication) Web Developer	Material Analysis
Aaron Reynoza	CAD Engineer Manufacturing Engineer	Thermodynamic Analysis

Logan Bennett

Strengths: Engineering Analysis, Big Picture focused, Thermodynamics, Good under Pressure, Math, Basic Coding.
Weaknesses: A-social, Few Useful Connections, Fluid Mechanics, Slow with CAD.
Personality Type: INTP

Michelle Borzick

Strengths: Professional writing, Project Management, Cleanroom and Medical Manufacturing experience, Engineering analysis.
Weaknesses: Solid Works knowledge, 3D Printing/Design
Personality Type: INTJ

Gia Neve

Strengths: AR/VR experience, Coding Experience, Cleanroom experience, 3D Printing/Design experience, Communication.
Weaknesses: Professional writing skills, Solid Works knowledge.
Personality Type: ISFP

Aaron Reynoza

Strengths: Solid Works Parts/Assembly/Drawings, Design for manufacturing experience, Blender animation, Thermodynamic and basic Fluid Mechanics.
Weaknesses: Professional writing, Coding Skills, Knowledge of Cleanrooms.
Personality Type: ISFJ

The team is composed of all different personality types. Besides the introvert category, each other category is evenly distributed throughout the team. There are two members each for sensing/intuition, thinking/feeling, and sensing/judging. This even mix will help the team be more creative as multiple perspectives will be approaching each problem. The entire team scored as introverted. Although this could be seen as a complication, the team members have all agreed to take on the challenges associated with public speaking and communication with clients.

Ground Rules

The team will meet in-class Mondays from 5:30PM to 8:00PM. Additionally, the team plans to consult with the client on Fridays at 1:30PM. Collectively, the team agrees on completing all assignments 24 hours prior to the assigned due date. This provides time to make small changes if needed and finalize any necessary changes. Assuming a team member cannot complete their portion of the assigned workload, 48-hour notice is required to allow other members to re-distribute these tasks. Regarding communication amongst team members, the team plans to handle disagreements within the team one-on-one unless escalation to the capstone professor is needed.

Decision making and discussions regarding project details and progression will be communicated frequently via Discord and quick brief meetings. If there are any discrepancies, there will be a ¾ vote to come to an agreement. If the team is gridlocked and cannot come to an agreement, they will flip a coin. Accountability for project milestones and ground rules will be reviewed using peer evaluations when necessary. Although this is not the only course each member of the group is taking, there is an expectation of high levels of communication and commitment to the final senior project.

Potential Barriers and Coping Strategies

Potential barriers to effective teamwork could include availability, communication, or work distributions issues. All the team members are full time students and work at least part time. Therefore, the team's availability varies, and it could become difficult to have frequent team meetings. To combat availability issues the team will make the most of the Monday class meeting time each week. Each week, the Project Manager will ensure all necessary weekly deliverables are distributed among the team and that all team members have everything they need to successfully complete their deliverables. For weekly meetings outside of the Monday class time, the team will select a time that works best for the most team members. The Project Manager will ensure detailed meeting minutes are recorded so team members who could not attend can reference. For any planned vacation times or unplanned illnesses, the team members will communicate their expected amount of time away from school so the remainder of the team members can help pick up the extra work if needed.

Communication issues among the internal team members and potentially with the faculty advisor could also occur. For internal communication issues, the team has agreed to address each other directly. If the team member is not receptive to feedback, then Dr. Willy will be contacted to help resolve the issues. During the first client meeting with Dr. Becker, the team

will set communication/meeting expectations with him to ensure communication is maintained throughout the project.

Lastly, work distribution errors could come up throughout the project. Since team roles were assigned before the team fully understands the scope of the project, the assigned roles could create unbalanced workloads. The team has decided that it is the team member's responsibility to communicate with the rest of the team if they need help with their administrative or technical role. Administrative and technical roles will be redistributed as needed.

In past projects, the team has mostly experienced issues with participation and work distribution. All team members have experienced group projects that had team members that did not participate in the project at all or did not deliver quality work. This team has decided to maintain open communication and transparency around their work distribution. Any issues that come up will be addressed immediately by the team.