

Project Team Charter

ME476C: Capstone I

Signature Cover Page

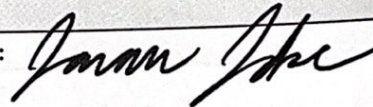
Each team member will copy the following statement in their own handwriting (LEGIBLY) in one of the designated areas below:

I agree to do an equal amount of work in the team. I understand that my grade will reflect my effort in the team.

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Print Name: Javan Take

Signature:

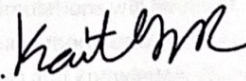


I agree to do an equal amount of work in the team. I understand that my grade will reflect my effort in the team.

Print Name:

Kaitlyn Redman

Signature:



I agree to do an equal amount of work in the team. I understand that my grade will reflect my effort in the team.

Print Name:

Christian Brown

Signature:



I agree to do an equal amount of work in the team. I understand that my grade will reflect my effort in the team

Print Name:

Alonso Garcia

Signature:



I agree to do an equal amount of work in the team.
I understand that my grade will reflect my effort in the team.

Print Name:

Naomi Echo

Signature:



Team Charter for Senior Capstone Design Project

1. Team Purpose:

This team was formed for the purpose of researching, testing, simulating, modifying, and building CWC-scale generators. Research will be done on electromagnetic, equations applied to generator design, and generator elements such as bearings and shafts to help lay a foundation for moving forward with this project. Initial testing will be done on existing generators using a dynamometer to fully characterize the generators performance. Simulations will be made and analyzed in software like ANSYS Maxwell and/or MotorCAD. We will then make modifications to existing generators to meet design requirements using the previous analyses and knowledge. Our own design will then be proposed within the design parameters and then built and tested. Our stakeholders are Professor David Willy, the Energy Club, and the future CWC Teams as our final design will be further modified by them for the DOE Collegiate Wind Competition.

We have been given a timeline for different expectations and goals to be met. For this first semester, by week 7, the research portion of the project will be completed, having all the necessary information to move forward with the project. By week 11 the initial testing of existing generators will be done and the results categorized. By week 14 the initial simulations will be made. By week 15 modifications will be made to existing generators, and our own design will be presented. The second semester will be the building portion of the project. By week 5 the modified generators will be rebuilt and tested. By week 10 our own design will be built for testing. By week 14, all further iterations will be built and tested. Throughout this whole process, our own standards of professionalism, efficiency, and communication will be upheld.

2. Team Goals:

During the duration of capstone our team will be fully committed to designing, building, and testing the best quality product possible. To do this, we will be communicating with our stakeholders often to make sure all of their requirements are met. This means that we will be taking all comments and criticism from our stakeholders very seriously so our product can achieve their standards. As a team we collectively would like to get an A in ME 476C and ME 486C.

In efforts to earn an A in this course we will be making sure our engineering process is thought out and complete. To achieve this, we will collaborate as a team and make sure all ideas are heard so we can make the best choices throughout the engineering process. Quality will be an important consideration when designing our product. Our goal is to create a high-quality product that can be easily manufactured while still reaching performance standards.

3. Team Member Personalities/Roles/Responsibilities: State each team member's personality style and what they can bring to the group. While some team responsibilities are shared by all members, collaborative teams work best when members also have unique roles and responsibilities. Consider these assignments carefully. Each of the following **administrative roles** must be assigned to a team member (for smaller teams, some people will have multiple roles):

Personalities style and what You can bring to the group (background information)

Naomi Echo

My personality style is very punctual, communicates a lot, confrontational, and is very receptive of other people's ideas/criticisms. I have an internship at Elemental Motors which has given me a large introduction in electric motors, machining, and electrical engineering. I believe these skills will be very useful as the manufacturing engineering of the project.

Kaitlyn Redman

I am a grounded person who values structure and stability, this can make me an asset to this group project. I have strengths in planning and organization, and I excel at creating clear plans and setting deadlines. I have logical problem-solving skills that will help me analyze and break down complex problems in order to come up with practical solutions. I am reliable and consistent, especially in detail-oriented work. I thrive as a planner, bringing quality and dependability to the team.

Javan Jake

Personalities style is creativity, curiosity, planning skills to ensure the project stays aligned with its goals. A unique role is to oversee budget, optimize materials usage, and establish cost effectiveness. With familiarity of 3D printing which could contribute to hands on creation and test design as a prototyping specialist. Having a business minor has equipped a solid foundation in financial and budgeting allowing to be a financial management. Handling money and ensuring financial resources are allocated which allows me to monitor project expenses and optimize costs.

Alonso Garcia

My personality style is communicating when any significant news pops up, being determined to finish an assignment no matter the learning curve it may bring, and staying as organized as possible so every process is smooth for me and others that I may be working with. What I bring to the group for this project is I work at a lab that specializes in topology optimization for fracture resistance, which includes computer-aided design (CAD) and programming. With this, it'll be helpful to analyze our final design for saving materials (cost) and structural integrity.

Christian Brown

My personality style is that I am very intuitive, my breadth and depth of knowledge allows me to problem solve and accurately guide the team through issues that come up. I am very hands-on with my work, being very good with tools and taking things apart and putting them back together. I'm also a quick learner, picking up on new things with relative ease, especially in hands-on scenarios. I ask a lot of questions to make sure things are correct and as clear and concise as possible.

Role Title	Role Description
Project Manager Naomi Echo	Manages tasks, develops overall schedule, runs meetings, reviews individual contributions, provides safe and welcoming team environment, does NOT make all decisions (rather facilitates discussion of the team to arrive at team decisions)
Logistics Manager Kaitlyn Redman	Manages internal and external communication (point of contact for client), documents meeting minutes, manages facility and resource usage
Financial Manager Javan Jake	Oversees all purchases, main contact with Front office for budget management, monitors and records all purchases for budget tracking, updates Bill of Materials
Test Engineer Christian Brown & Javan Jake	Oversees experimental design and testing, plans testing procedures, acquires necessary equipment for testing, runs all tests for team
Manufacturing Engineer Naomi Echo & Alonso Garcia	Coordinates fabrication of design (does NOT do all manufacturing themselves), reviews design at all steps, ensures design can be manufactured, finds outsourcing opportunities manufacturing can't be done in-house, develops schedule of manufacturing
CAD Engineer Christian Brown	Coordinates and oversees CAD development throughout project, creates protocol for revision management, manages CAD files, ensures CAD model matches physical design, does NOT do entire CAD package themselves

After the administrative roles have been assigned, now assign **technical roles**. For example, perhaps you are responsible for a particular sub-system or mathematical modeling tool. You'll want to assign multiple people to specific sub-systems or mathematical tools for redundancy and to share the workload.

GROUND RULES FOR EFFECTIVE GROUP DISCUSSIONS

4. Ground Rules:

The team will hold meetings on campus, with Thursday and Sunday identified as the primary meeting days. To ensure flexibility, the team has agreed to switch to online meetings through Teams calls when weather conditions become an issue. This approach allows the team to remain consistent and adaptable in their communication. Meeting agendas will be shared in advance to ensure discussions and progress are focused and productive.

To establish norms and ground rules to have a collaborative and respectful relationship within the team. Members will commit to being honest and upfront about their workload, and transparent in their communication. We have established a 24-hour response time to messages and requests, which is expected to maintain momentum and prevent delays. Discussion will focus on facts and effective agreements, emphasizing finding middle ground to resolve differences and moving forward together.

Discussions will be conducted with mutual respect with one another. Members will actively listen to one another, ensuring all perspectives are heard. The team will work together to address concerns, seek compromises that align with the projects and team's goals. Constructive feedback will be encouraged, and conflicts will be resolved professionally, focusing on solutions rather than assigning blame.

To hold one another accountable, the team will regularly review progress of agreed upon task and deadlines. Members will be expected to take ownership, accountability, and responsibilities in meetings and tasks. Participation and commitment will be monitored through consistent attendance, active engagement in discussion, and timely completion of assigned tasks. By adhering to these norms and maintaining open communication, the team will gain trust, accountability, and success.

5. Potential Barriers and Coping Strategies:

Some potential barriers for this semester may include falling behind or missing deadlines due to unexpected disruptions in our schedules. It's easy for things to pile up when life gets busy, and with the complexity of various assignments and projects, a missed deadline can snowball into additional stress. To mitigate this, staying organized with a shared calendar or planner which can help ensure that important tasks aren't overlooked. We can also start on the assignments earlier so that we can take our time to fix any mistakes.

Another significant barrier could be weather-related interruptions, particularly snow or severe winter storms which prevent us from meeting in person due to hindered abilities to commute to campus. If an in-person meeting is vital, then this can lead to delays in group work and discussions. We will need to have a backup plan such as zoom meetings or online communication to maintain the momentum needed to complete our project. We could also make sure to check the predicted weather and schedule our meetings around it.

A proactive approach, including clear communication with each other, can help reduce the impact of these potential barriers. Building a buffer of time for assignments can provide some breathing room in case unexpected barriers disrupt our plans. Establishing flexible strategies, such as zoom meetings, can ensure that our progress remains steady even during unpredictable times.

GROUND RULES FOR DIFFICULT GROUP DISCUSSIONS

Ideally, group discussions should be calm, focused conversations in which various ideas and opinions are considered, leading to useful, productive outcomes. But in the real world, many groups just can't pull this off. When members have conflicting interests, personal agendas, or aggressive personalities, meetings often deteriorate into angry conflicts, thereby wasting time and harming relationships.

If you anticipate that your group could head down this destructive path, try to get agreement on how the discussion will be conducted before leaping right into the issues. Unless they just enjoy anger and hostility, group members will usually agree to a reasonable set of Ground Rules. Then, if things start to get out of hand, the leader or facilitator can simply remind the wayward members of their previous agreement.

Although each group may have specific needs, the Ground Rules listed below are often useful. (These can apply to personal conversations as well.)

1. **Stay focused on the purpose and goals.** The group should clearly define what they hope to accomplish at the beginning of a discussion. This makes it easier to determine when people are getting off track.
2. **Listen when others are speaking.** During difficult discussions, people often mentally rehearse their next comment while someone else is talking, with the result that no one is really listening. When this happens, the conversation tends to turn into a pointless debate.
3. **Be sure that all viewpoints are heard.** Since most groups have both talkative and quiet members, efforts should be made to invite the quiet people to share their thoughts and keep the talkers from dominating the discussion.
4. **Consider different points of view.** People easily get "locked in" to their own opinions and don't even think about the possible merits of other ideas. Members need to be encouraged to think beyond their own point of view.
5. **Look for areas of agreement.** Argumentative group members often agree on more things than they realize. Before discussing disagreements, members should identify the things they do agree on.
6. **Discuss differences respectfully.** Hostile, insulting remarks add nothing to a group discussion and often permanently damage relationships. Members should be reminded about basic "good manners" for meetings.
7. **Remember that facts can be wrong, but opinions are just different.** Most of the time, people are not arguing about facts, but expressing differences of opinion. However, they often act as though their views are "right" and others are "wrong". It helps to recognize that they are simply different.
8. **Look for the good points in new ideas.** Useful ideas may get rejected when people are too quick to find flaws. By initially exploring the benefits of an idea, the group can avoid becoming overly critical.
9. **Focus on the future, not the past.** Disagreements can easily deteriorate into finger-pointing about past mistakes and problems, which accomplishes absolutely nothing. Use past experience to inform your decisions, but focus the discussion on future goals.
10. **Look for solutions, not someone to blame.** The worst debates about the past are those which involve placing blame. Any conversation focused on blaming is unproductive and should be turned into a search for solutions.
11. **Don't use group time for individual issues.** When two or three members start discussing their own issues in a group meeting, it just wastes everyone else's time. If this happens, the people involved should be politely asked to continue their personal discussion after the meeting.
12. **"Sidebar" any issues that are important but off---topic.** Occasionally, important matters are raised that have nothing to do with the goals of the meeting. To keep the group on task, but avoid losing the issue, create a "sidebar" where these topics can be listed and dealt with later.
13. **Agree upon specific action steps.** In most situations, members need to end the discussion with specific "next steps" that can be acted on after the meeting. Otherwise, the whole thing may turn out to be a waste of time.