

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.

Print Name: Valentin Gamez

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: Maia Warren

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: Nathan Olson

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

Team Purpose

General Atomics – Electromagnetic systems (GA-EMS) tasked the team with developing a Hold Down Release Mechanism (HDRM). HDRM's are used to hold components such as solar panels and satellites in a folded-up and stowed away form for transporting in a spacecraft. This allows those components to be larger than the spacecraft once unfolded, expanding the scope of what can be sent into orbit. Once these components are deployed from spacecraft, the HDRM must release the load reliably, on-command and safely for the discharged component to unfold and be used.

The purpose of this project is to remove the necessity for GA-EMS to outsource HDRM's for their satellites. This will allow GA-EMS to save money on their components and offer a product for them to further iterate beyond current HDRM technology. The largest stakeholder for this project is the entirety of GA-EMS, as they are funding the project. They expect a functional prototype by the end of the two-semester period. Additional stakeholders include the users and customers of GA-EMS, as they depend on GA-EMS to deliver their products and services at affordable prices.

Team Goals

General Atomics has provided milestones for the project such as a Kickoff Meeting, System Requirements Review (SRR), Preliminary Design Review (PDR), Critical Design Review (CDR), etc. Another goal will be to learn as much as possible through trade study performed to update the group on the latest technology regarding HDRMs with help from GA-EMS. The current GA-EMS CubeSat designs will provide technical advice to develop designs for the HDRM. They will also help with purchase assistance for mechanical components as needed and allow access to 3D printers to create custom components. The final goal of the first semester will be to create a demo.

The team members are willing to commit as much time and effort as the project requires to produce a project worthy of receiving an A. The group has made it a goal to dedicate a minimum of six hours a week to complete the project to General Atomics standards. The team has agreed to meet four times with the General Atomics team throughout the duration of the project.

Team Member Personalities/Roles

Nathan: Test Engineer, Project Manager

The Meyers Briggs personality test determined that Nathan is ISFJ-T (75% Introverted, 74% observant, 56% feeling, 67% Judging and 58% turbulent). As being determined heavily judging and observant according to the test, it may lead to effective managing of the team when it comes to understanding the tasks at hand and devising a plan to accomplish them. These aspects may also lead to success as the test engineer, as it requires organization and methodical planning to ensure the testing is done correctly.

Valentin: CAD Engineer, Manufacturing Engineer

The results of the Myers Briggs personality test showed that Valentin is ENTJ-T (57% Extraverted, 66% Intuitive, 55% Thinking, 60% Judging, 51% Turbulent). Valentin has an associates solid works certification, making him a good fit for the CAD Engineer role. Valentin will oversee CAD development and ensure that all CAD related deadlines are met. With prior experience and training in the machine shop, the role of Manufacturing Engineer will also be taken up by Valentin. The responsibilities of this role include overseeing anything manufacturing related.

Maia: Financial Manager, Logistics Manager

The Myers Briggs personality type test gave Maia INFJ-T; Advocate- Introverted 52%, Intuitive 62%, Feeling 79%, Judging 64%, Turbulent 92%. Based on her two roles, her responsibilities include managing communication within the team and between the team and clients (General Atomics), as well as keeping track of meeting minutes and facility/resource usage. Maia's role will also be in charge of overseeing purchases, contacting the front office for budget management and recording all purchases so the Bill of Materials may remain updated.

Ground Rules

To ensure that productivity is high, and conflict is low, a set of ground rules is required to ensure everybody is performing at the same level. Firstly, the team will meet weekly at a place and time specified at the previous weekly meeting. At least a day's notice is required if a member is unable to attend. The team is expected to stay on task for the entire duration of the meeting out of respect for one-other's time and work. Outside distractions are highly discouraged and are interpreted as a sign of unprofessionalism.

All group decisions and relevant actions must be discussed by the team and be agreed on by all members. This includes, but is not limited to, submitting deliverables, purchasing materials, and contacting GA-IMS representatives or Professor Pete. This is especially important for this project, as the team is working directly with GA-IMS to develop a product, any form of contact with them needs to be with the entire team's approval and consent. All important decisions will be logged accordingly in the meeting minutes.

All members are expected to abide by all the rules and act with integrity, responsibility and honor in a professional manner. Team members are expected to complete their assigned tasks on-time and with professional quality. If a team member is unable to abide by the rules or complete their tasks accordingly, they understand the repercussions that may be imposed on their grade. Members will be held to these rules by an honor policy and an understanding that their team member's grades and success in this course are directly related to each-other's actions.

Potential Barriers and Coping Strategies

Whilst working in a team environment it is highly likely the team will face a variety of obstacles. For a team to succeed they must recognize any potential barriers and prepare for accordingly. A few barriers teams should expect to face include personal issues/ obligations, conflicting mindsets, and miscommunication. If not handled properly these issues may result in the downfall of a team, however, if handled correctly will lead to a strong and capable team.

Personal issues/ obligations may be sudden and result in failure to meet deadlines. The best course of action when dealing with personal issues would be to communicate as much as

possible. This will allow for the team to adapt to each situation and adjust accordingly. With effective communication a team can easily find a solution to any issue. To avoid escalating the issue of conflicting mindsets, team members must be respectful to other team members and their ideas. They must also be willing to compromise when necessary.

In the past, a common problem teams have faced involved a team member not contributing to the project. It is important to understand that there are a variety of reasons a team member may not be putting in their work. Approaching the situation irritably and inconsiderately may escalate the issue rather than resolving. It is best to communicate any concerns with respect to the team member and work with them towards finding a solution. At times all it takes is sitting down and having a respectful conversation.