

# Spring 2025 ECE 445 Team Contract

**Instructions:** The content of this document should be specific to your goals and needs. Ideas for the content of each section are provided as suggestions.

<b>Project No. and Name</b>	<b>Team 19, Water Blaster</b>
Member Name, netID	Clark Taylor, clarkmt2
Member Name, netID	Jaejin Lee, jaejin2
Member Name, netID	John Lee, junhee2

ECE 445 is a project-based course. The course includes both team and individual grades. Project teammates generally all get the same grade for team assignments based on the expectation that all team members do their fair share of the work involved. The purpose of this contract is to lay out the tasks needed for the successful completion of the project and distribute them in a fair and efficient way to the team members. It will also discuss how the teammates will work together during the project and address any issues that come up. A contract that promotes good teamwork that leads to a successful project should:

- Acknowledge that each team member has commitments and responsibilities outside of ECE 445
  - Encourage open communication about challenges that team members are facing, both in and out of ECE 445
  - Give team members the benefit of the doubt and the opportunity to explain themselves when something goes wrong and resist jumping to judgment

## Project Description:

For our project, we will develop an electric water blaster. At a high level, it will have a 12V DC electric pump. The pump will fill the tank and pressurize the water up to 60 PSI. A solenoid valve will control the release of water to allow it to fire powerful bursts. Our project will make use of an array of sensors to detect internal leaks and the current water level of the tank. The water blaster will also feature an OLED display which will display the current state (filling, firing, idle, etc) of the water blaster to the user so they can understand what is happening at all times. The OLED display will also display the fill level of the water blaster so the user knows how many bursts of water remain in the tank. There will also be buttons below the OLED to allow the user to navigate through the menus and make adjustments to the firing logic of the water blaster. We plan to power the water blaster through an off-the-shelf battery, likely from electric tools due to its more durable and high output characteristics.

## Project Goals:

If our project is successful we will have a completed and functional Water Blaster. The goal is to be able to fire bursts of water upwards of 20ft. We would also like to have a leak-resistant frame and adequate waterproofing. The water blaster should feature a screen that displays the current state and real-time information from the sensors. There should also be a user interface to control certain aspects of the water blaster and affect the firing settings. It should also be able to track the amount of water stored inside of the water blaster.

## Expectations (ground rules) for each member:

We expect all members of our group to show up to work sessions. We also expect all team members to show up to these meetings adequately prepared and notify the other group members should their availability change. We would like all group members to respond quickly to messages and work collaboratively. All group members should complete assigned work within a timely manner and should an issue arise that would affect the completion it should be shared as soon as possible so other group members can fill in when needed or come together to problem solve. It is also expected that group members put forward their best effort when working on their assigned projects.

## Roles:

In general, we plan to assign roles based on subsystems. This will allow for us to be experts in one aspect of the design and then collaborate when it comes to the main control board. This should allow for each member to take a deeper dive into a subsystem and schedule and plan the design and manufacturing for that component, and then have larger collaborative meetings where we discuss the integration of multiple components with one another in the final shell.

**Project Meeting Time(s):** Currently the team plans to meet with the TA at our pre-scheduled meeting time and then schedule additional meetings based on the group's availability. We currently have quite varied schedules and plan to set meeting times 1 week in advance. This will allow for us to schedule component/system-level meetings and coordinate with our higher-level design meetings. This should allow for the team to have a more flexible schedule while still being productive on all fronts of the design and manufacturing.

### Agenda:

Every group member will participate in setting the agenda for the meetings and the agenda will be shared before the meeting to ensure preparedness. We will have additional brief check-in meetings to review progress. The team will aim for consensus when making decisions if consensus cannot be reached, a majority vote will be taken. We may also appoint a team member as a record keeper to document items.

## Process and penalties for dealing with team issues:

First occurrence: The team members breaking a ground rule will be given the opportunity to explain their actions and other team members will listen to them without jumping to conclusions.

Intervention: If the problem persists, the team will have a group meeting to discuss the problem and ensure everyone gets to speak which will facilitate the discussion.

Escalation: If the problem cannot be resolved with just the group members, the TAs and professors will be involved in further mediation.

Additional violations: If repeated violations happen, penalties may include reduced grades or other consequences determined by the instructors.

## End-of-term agreement on using final peer assessment for grade adjustment:

We believe that this contract is valuable for positive collaboration between all team members. The contract is not just a formality but a commitment to the team's success.

Signatures:



*I affirm that I participated in generating this team charter and that I will abide by its contents to the best of my ability. Furthermore, I understand that failure to meet the expectations expressed here can lead to the stated consequences.*

netID: clarkmt2      (digital) Signature: ***Clark Taylor***      Date: 2/14/2025

netID: \_\_\_\_\_jaejin2\_\_\_\_\_      (digital) Signature: Jaejin Lee  
Date: 2/14/2025

netID: junhee2      (digital) Signature: John Lee      Date: 2/14/2025

**# Electric Water Blaster**