



Concrete Canoe in a Nutshell

Normally each year, Michigan Tech and 200 other Concrete Canoe teams around the nation design and construct a concrete canoe for competition. The winners of regional competitions advance to compete at the prestigious society-wide national. There are many design steps involved in constructing a concrete canoe; structural analysis is performed on the hull design to inform the mix and reinforcement committees of strength benchmarks that will allow the boat to maintain its structural integrity during races. Additionally, a display table is designed for use at competitions to display the process of that years project and how the team constructed the boat. Teams also build stands to support the boat during display-day and judging. Both the display table and stands are designed to tie into the annual theme and contribute to the overall competition score.

In the 2020-2021 competition the COVID-19 pandemic caused the competition rules to change , removing the physical construction of a boat from the competition for safety reasons and added additional requirements to the make up for the change in competition.

For this 2021-2022 competition the rules have changed to return the physical construction of a boat to the competition as well continuing some of the additional requirements from last year.

One of the added requirements from the previous year is the requirement of teams to complete two enhanced focus areas (EFAs) that improve any aspect of the team and provide team-longevity. In the 2020-2021 competition the michigan tech concrete canoe team made fine element analysis and statistical analysis our two enhanced focus areas, as these could be

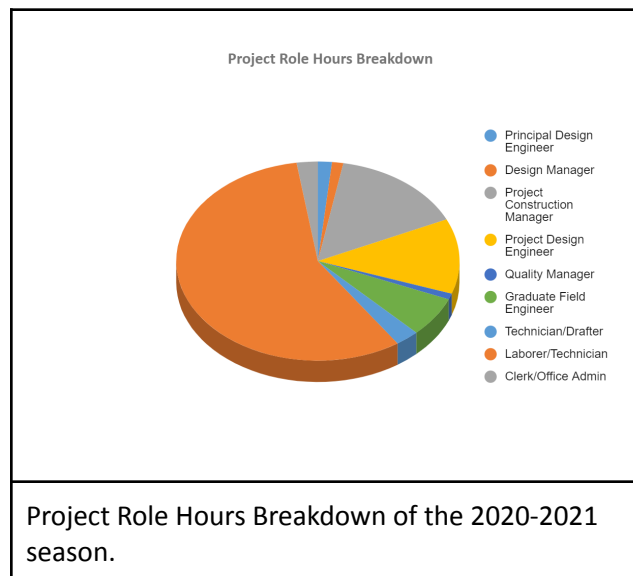
completed virtually and their results will continue to help the design teams going forwards.

Another returning change from last years competition is the John Craig legacy competition, where the submission features Concrete Canoe alumni!

Michigan Tech Concrete Canoe 2020-2021

In the 2020-2021 season, the Michigan Tech Concrete Canoe Team was inspired by the launch of the NASA Mars Perseverance Rover and which connected to the perseverance of the Michigan Tech team members throughout the challenges of the 2020-2021 season.

The team put in roughly 700 hours of work for the whole project in 2020-2021 competition, Time spent at paddling practice was not included in the 700 hours.



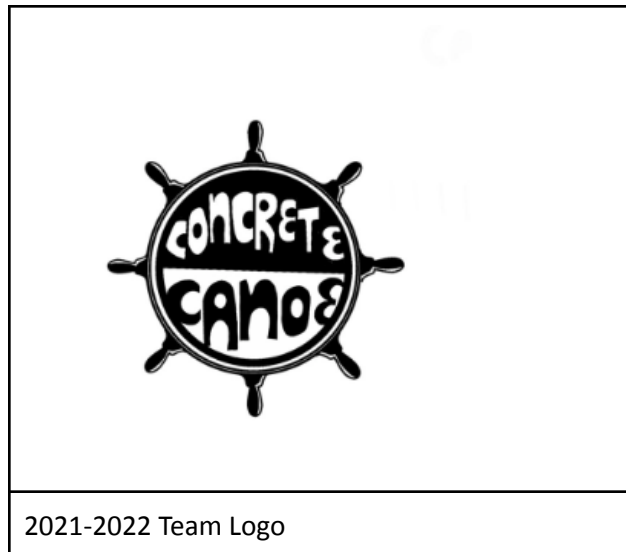


Last year, the Michigan Tech Concrete Canoe Team decided to carry forward their research and development, and specifically focus on improving aspects of the 2020-2021 season for the following two (EFAs):

1. Statistical optimization of the mix and reinforcement scheme using Minitab, a software new to the team
2. Improvement of previous year's FEA and the controlled demolition testing of the 2019-2020 boat, *Dozer* to confirm model predictions.

Aptly named *Voyager*, last year's canoe utilized many features of the previous season's canoe, *Dozer*. The hull design committee was able to keep the benefits of the hull design from *Dozer* while increasing stability, resulting in a well-rounded design.

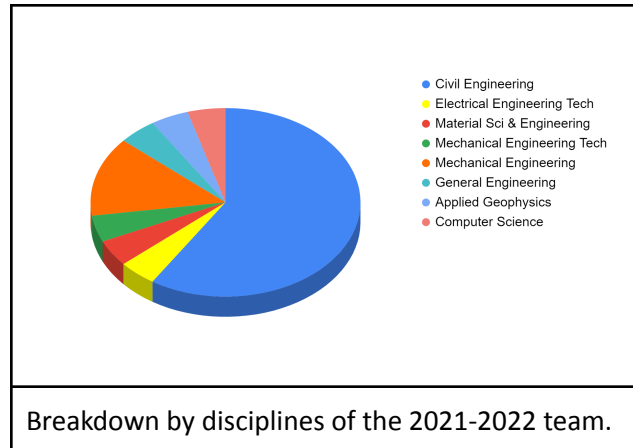
The Regional competition in 2021 was a virtual conference hosted by Ohio Northern. We placed 2nd in the competition for our presentation and paper.



2021-2022 Team Logo

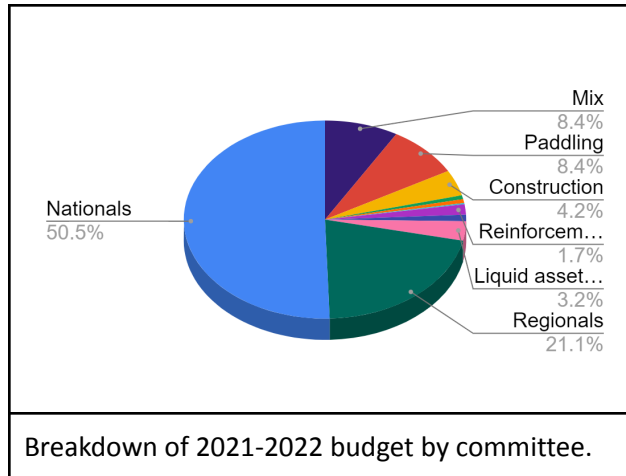
Meet the 2020-2021 Team

The construction of a concrete canoe requires extreme dedication and numerous different skill sets. Our team is very fortunate to have over 20 members spanning eight different majors who bring different talents to ensure we are able to produce a national competition worthy boat!



2021-2022 Season

Every year, a new theme to base the season around is chosen by team members. The name of the boat, aesthetic design, display, and presentation all tie into the chosen theme; this year's theme is "Nautical Myths/Monsters". The nautical explorers of the past had superstitions about their vessels such as bananas being bad luck on boats and stories of monsters beneath the waves like the kraken but they did not let this stop them from traveling to the ends of the earth and exploring the world. While modern technology has disproved many of the myths and monsters of the water, the Michigan Tech Concrete Canoe team is inspired to achieve their goals and bypass any obstacles, monster or otherwise.



Breakdown of 2021-2022 budget by committee.

2022 Regional Competition

The North Central Student Conference regional competition is being hosted at Ohio University in Athens, Ohio. This will be the first in person competition since the 2019-2020 competition was cancelled due to the beginning of the COVID-19 pandemic. Some of our team members have not seen a fully realized concrete canoe competition so we are very excited to give these members the opportunity to experience competition.

Categories	Maximum Points
Project Proposal	25
Enhanced Focus Area	5
Technical Presentation	20
Final Product Prototype	25
Race Demonstration (5 events)	25
Total Possible	100

Scoring card for 2022 competitions

2022 Society-Wide Competition

The 2022 society-wide national competition will be held in Ruston, Louisiana at Louisiana Tech University. If the project goes to plan this year Michigan Tech should be in the bayou at the national competition in June!



Sponsorship Opportunities

The Michigan Tech Concrete Canoe Team has not only been growing in members, but growing in terms of research and development, where we are finding more innovative and creative methods to construct our canoe. Our successes over the years would not be possible without the dedication of team members and the support of our gracious sponsors.

We are personally asking you to assist us in our **goal of \$19,000 for the 2021-2022 competition year** to support another successful year. Donations of technical expertise, products, or funding of any sort will help lead us to this achievement. As tokens of our appreciation for your generosity, you will be recognized in the following ways based on your level of donation:

Level of Sponsorship	Donation Level	Recognition
Silver	\$50-\$250	- Company/Family name displayed on Competition t- shirt
Gold	\$250-\$500	- Company/family name displayed on Competition t-shirt
Platinum	\$500+	- Company/family name and logo displayed Competition t-shirt - Company/family name and logo displayed all year with the team's canoe on campus

What will my donation be used for?

Michigan Tech has a strong tradition of taking as many members of the team to competitions as we can because each and every person puts in *hours* of time throughout the academic year and we want our team to be able to put their hard work on display. This year, the regional competition will be hosted by Ohio University in Athens, Ohio. Since the last two years have had the regional competition either altered or canceled, the return of the normal regional competition format has made the team very excited to be able to construct a boat for this competition. This year the society-wide competition will be hosted by Louisiana Tech University in Ruston, Louisiana.

Sponsorship Opportunities

ESTIMATED EXPENSES FOR 2021-2022	
Regional Competition at Ohio University (transportation, lodging)	\$2,000
Society-Wide Competition at Louisiana Tech University (transportation, lodging)	\$7,000
Improvements (PPE, tools, toolbox, supplies, hull design hardware and software)	\$4,000
Paddling (prototype, new trailer hitch, pool reservations, equipment upgrades)	\$6,000
2021-2022 ANNUAL FUNDRAISING GOAL:	\$19,000

Interested? Here is how you can help!

1. Make an online donation: <http://www.mtu.edu/giving/>
 - a. Click on "Make a Gift"
 - b. Select the option "Please direct my gift as indicated below"**
 - c. List "The Concrete Canoe Team" in the box**

OR

2. Send a check, made out to *The Michigan Tech Fund-Concrete Canoe*, to:

**The Concrete Canoe
Team Michigan Tech
University
Civil and Environmental
Engineering 1400 Townsend
Drive
Houghton, MI 49931**

Do not hesitate to ask any questions about the team, and if you are curious about our progress you are invited to get in contact with us to see our progress! Contact information can be found below or please visit the team website at cee.mtu.edu/asce/canoe/index.html. Please consider becoming a sponsor of the Michigan Tech Concrete Canoe Team. Thank you for your time and consideration, and we look forward to hearing from you!

Sincerely,

Senior Captain Lauren Cole lecole@mtu.edu (269) 364-4416	Junior Captain Henry Summers hdsommer@mtu.edu 248-912-5204
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