

2023 Michigan Tech Concrete Canoe



What is Concrete Canoe?

Concrete Canoe is a competition sponsored by ASCE in which over 200 teams across the world design and construct a canoe made of concrete. These teams compete against each other in both a regional and national competition. A lot goes into each canoe, including consideration towards reinforcement, hull shape, components of the concrete mix, aesthetics, and so much more. More information on the competition can be found on Page 3, "Concrete Canoe in a Nutshell."



The 2022-23 Team with Card Shark

Concrete Canoe 2022-23

Taking risks is what creates progress. With a year of competition under most of our members' belts, the team lived by this idea last season. The team created a new leadership/team structure, redesigned the hull from the ground up, and added post-tensioning cables to the canoe for the first time in team history. This doesn't even touch the various improvements in curing, demolding, and aesthetics that our team strives for every year. These risks brought to mind the concept of a casino, where visitors strike a balance between risk and reward. We believed that we found that balance with our canoe, *Card Shark*. These risks allowed us to innovate and learn while refining our canoe to a higher level. By stepping outside our comfort zone, the team went all in with *Card Shark*.

Concrete Canoe 2022-23 Regionals

The 2022-23 regionals competition took place at Wayne State University in Detroit, Michigan. The team placed 3rd in the presentation and final product categories. Along with a 1st place finish in the paper category and a 2nd place finish in the race category, the team was able to secure a 2nd overall finish in the regionals competition, falling to Youngstown State University. Fighting through rain, cold, and mud, the team showed true tenacity and had a great time competing and talking to all the other teams there. With a 3rd place finish in the 2021-22 season and a 2nd place in the 2022-23 season, this group is excited to finally get that 1st place finish and qualify for nationals.



The 2022-23 Team at Regionals at Wayne State

2022-23 Regionals Breakdown	
Presentation	3 rd
Final Product	3 rd
Technical Paper	1 st
Overall Races	2 nd
Women's Slalom	2 nd
Men's Slalom	2 nd
Final Placement: 2 nd Place	

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The 2023-24 Team

This season, the team saw a large influx of new members, due to both the team's recent 2nd place finish as well as Michigan Tech giving us plenty of opportunities to talk to incoming students about the club. Additionally, the team decided to put a larger emphasis on recruiting and knowledge transfer than last season as many of our experienced members will be graduating after this season. Because of the growth of the size of the team as well as the plan to steadily transfer knowledge from returning members to new members, the team decided upon a farm theme. Just as a farmer grows corn, the team plans to grow new recruits into knowledgeable and experienced members. At the same time, we plan to grow the club as a whole, with more recognition and support from the university. If all goes as planned, the team should be the cream of the crop this season.

The concrete-canoe-making process is a never-ending quest for perfection. This season, the team changed the hull design to be shorter and slimmer in response to paddler feedback from last season. The team is also looking at different curing and demolding methods, which is something that we have struggled with over the last two seasons. We also plan to continue to implement post-tensioning in our canoe. Last season was the first time in team history that post-tensioning was used in the casting process, and the team hopes to use it again in a more effective manner.



The 2023-24 Team at Paddling Practice

2023-24 Regionals and Nationals

This season, the upcoming regionals competition is being hosted by the University of Akron in Akron, Ohio, and will see schools in the Eastern Great Lakes region. Last season, the University of Michigan, Western Michigan, Ohio State, Lawrence Tech, Youngstown State University, and many more attended, and the team hopes to meet them again this season. The national competition is being hosted by BYU in Provo, Utah. Despite the challenges ahead of us, our team hopes to perform our absolute best to emerge on top and bring the team to nationals for the first time in the team's post-Covid era.

Contact Us!

We'd Love to Talk About What We Do!

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Donate to Us!

<https://www.mtu.edu/givenow/?desig=The%20Concrete%20Canoe%20Team> OR Scan the QR Code Below OR Write us a Check (more info on Page 4!)



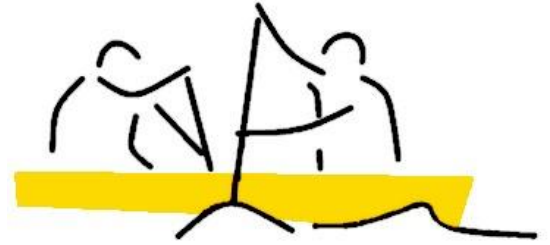
Check Us Out on the Web!

<https://cege.mtu.edu/asce/canoe/index.html>
mtu_concrete_canoe on Instagram

Concrete Canoe Competition in a Nutshell

Concrete Canoes? Nope, We're Not Kidding!

Each year the Michigan Tech Concrete Canoe Team, along with 200 other teams around the nation, designs and builds a concrete canoe which we take to a regional competition. Michigan Tech is a part of the Eastern Great Lakes Conference, which includes teams from the University of Michigan, Michigan State, and Western Michigan University, among others. The winner of the regional competition then goes on to compete at the prestigious national level. Every year we choose a theme that resonates with the attitude throughout the team. The name of the boat, aesthetic design, display and presentation all tie into the chosen theme. The team works throughout the year and last year put in over 1000 man-hours before the regional competition.



Wait...How Can Concrete Float?

Traditional concrete is a mix of cement, water, sand, and gravel. To make the canoe we use very small (less than 1mm in diameter) recycled hollow glass spheres, instead of sand and gravel. This results in concrete that is actually lighter than water! This is important because at competition the canoe is submerged in water and must rise back to the surface in order to be eligible to race the canoe.

So, What Happens at Competition?

There are 4 parts to competition which are judged by a panel of seasoned engineers:

1. *Technical Paper:* The team writes a professional-quality design paper detailing the engineering behind our concrete mix proportions, management techniques, testing procedures, construction methods, innovations and sustainability.
2. *Technical Presentation:* A group of presenters summarize the Technical Paper into a presentation which can be no longer than five minutes. The challenge is to condense an entire year of work into a concise and dynamic presentation.
3. *Races:* There are five races: two-person Women's Sprint, two-person Men's Sprint, two-person Women's Slalom, two-person Men's Slalom, and a four-person Coed Sprint. Michigan Tech has historically finished first in races at regionals and among the top ten in races at nationals.
4. *Final Product:* The canoe is presented and judged for aesthetics and compliance against the official rules of competition which detail dimensions and materials allowable in construction. The judges also review how well the team's tabletop display, canoe stand, and cross-section relate to the theme and contribute to an overall aesthetic.

We truly love what we do! We put a lot of dedication and hard work into producing outstanding canoes each year, and we have fun doing it. We'd like to thank our current sponsors, families, and friends for their amazing support, and we hope that you will consider partnering with us this year!



Concrete Canoe Team

Sponsorship Opportunities

The Michigan Tech Concrete Canoe Team has been growing larger, more experienced, and more successful over recent years. With constant improvements, this trend shows no sign of stopping. These results would not be possible without the dedication of team members and the support of our trusted sponsors.

We are personally asking you to assist us in our **goal of \$18,480 for the 2023-2024 competition year** in order to support another nationally ranked canoe. 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	\$100-\$250	- Company/Family name displayed on Race Day t-shirts
Gold	\$250-\$500	<i>Silver sponsorship benefits</i> - Michigan Tech Concrete Canoe baseball cap
Platinum	\$500+	<i>Gold sponsorship benefits</i> - Team picture sent to company/family - Company/family name displayed with canoe at MTU

Michigan Tech has a strong tradition of taking the entire team to competition. Every member takes time out of their busy lives to contribute to the team throughout the academic year, and we believe that they have the right to participate in competition and see their hard work realized. However, that does put a strain on our budget. Our estimated expenses are detailed below:

ESTIMATED EXPENSES FOR 2023-2024 SEASON	
Regional Competition at University of Akron (25 registrations @ \$100/person, transportation, lodging)	\$7,000
National Competition at Brigham Young University (20 registrations, transportation, lodging)	\$6,500
Construction Expenses (Reinforcement, display, stands, cables and other equipment for tensioning)	\$1,750
Lab Improvements (PPE, tools)	\$250
Mix Expenses (Ingredients used in mix, equipment needed to mix concrete)	\$2,000
Paddling (Renting out pool, trailer equipment, paddles)	\$980
2023-2024 ANNUAL FUNDRAISING GOAL	\$18,480

Past experience has taught us the cost of canoe and display construction is a mere fraction of the expenses throughout a season. This year will be no different. With regionals being held in Akron, Ohio and nationals being held in Provo, Utah, the team is projected to spend over \$10,000 in competition expenses alone.

Interested? Here's how you can help!

Make an online donation designated to "The Concrete Canoe Team":

<http://www.mtu.edu/givenow/?desig=The%20Concrete%20Canoe%20Team>

OR

Send a check, made out to *The Michigan Tech Fund – Concrete Canoe*, to:

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

If either of these methods do not work for you, or if you are interested in a donation in-kind, please contact the team.

Please do not hesitate to ask any questions! Contact information can be found below or at our team website at <https://cege.mtu.edu/asc/canoe>. Additionally, feel free to check out our Instagram (mtu_concrete_canoe). Once again, we truly do love what we do, and we thank you for your time and consideration. We look forward to hearing from you, and if you are in Houghton, feel free to stop on by and see the team's progress!

Sincerely,
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