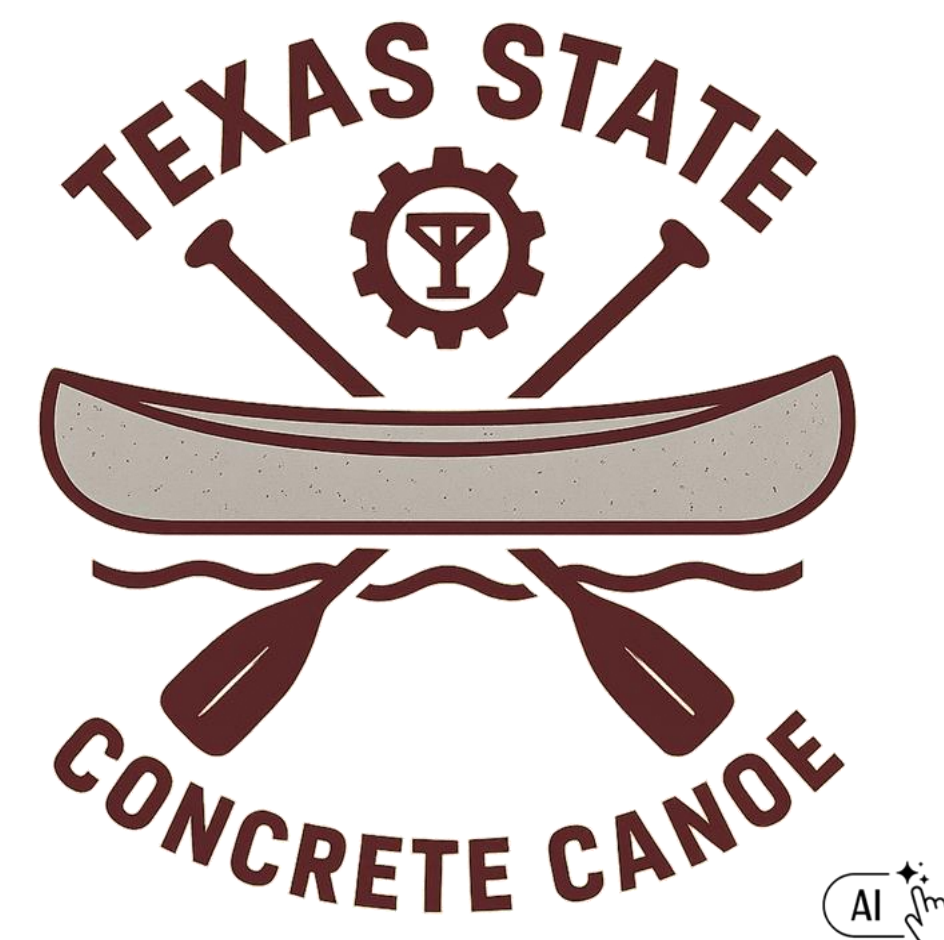


Group C1.06 - Texas State Concrete Canoe

Ama Afrane, Louis Smith, Adan Guerra, Daniel Tobon, Jorge Rodriguez

Texas State University Ingram School of Engineering – Dr. Dong



Project Overview

The team will Design a Concrete Canoe that will compete in the 2026 ASCE Concrete Competition against former universities. As the Design team we are focused on structurally design a lightweight and durable canoe that meet up to ASCE standards.

Design Alternatives

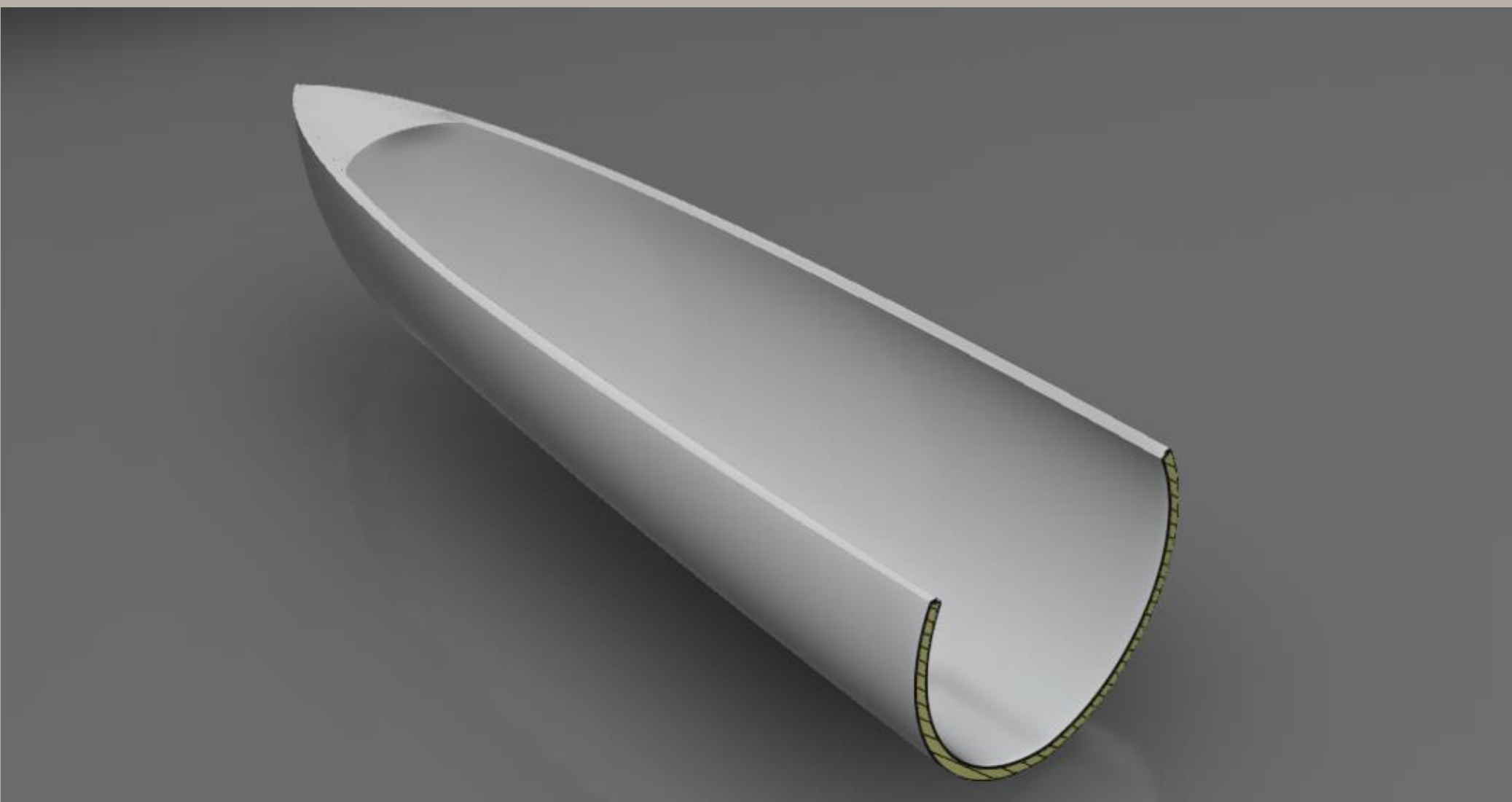
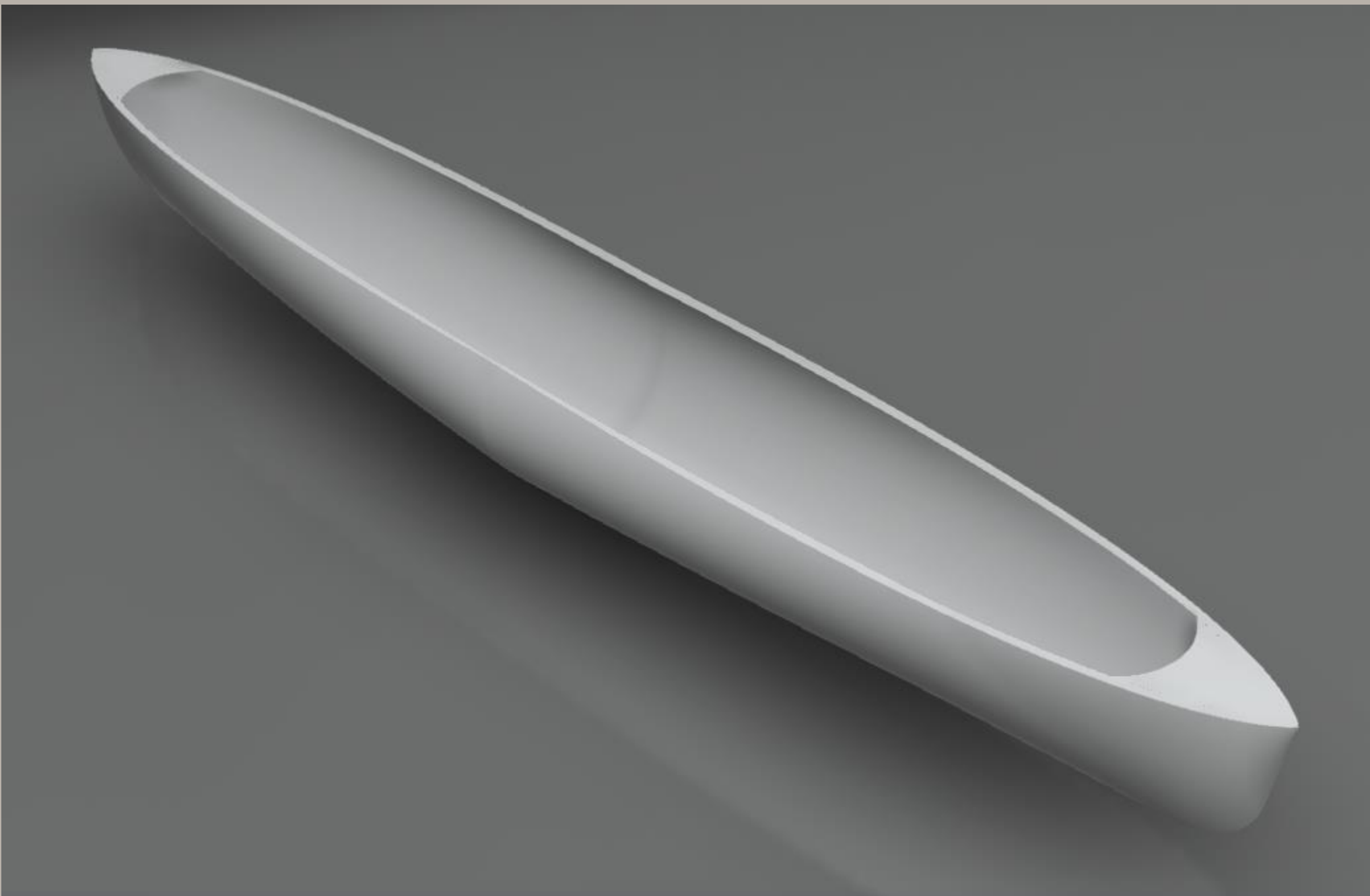
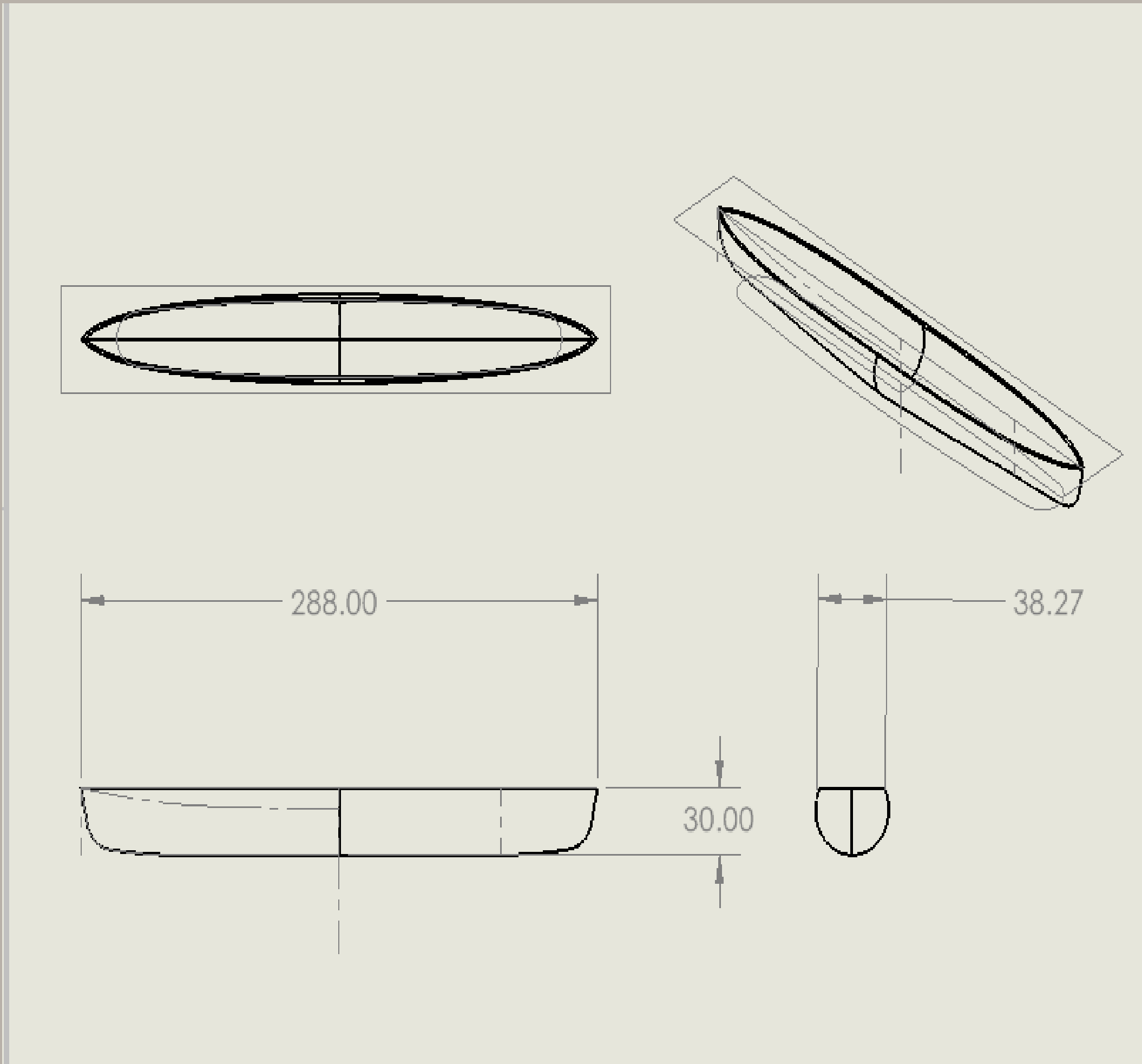
Categories	Design 1	Design 2
Length	19.5 (ft)	19.5 (ft)
Height	2.5 (ft)	2.5 (ft)
Width	3 (ft)	3 (ft)
Hull design	Semi-Round	V-shaped
Wall thickness	0.5 (in)	0.5 (in)
Bow stem	Flare	Flare
Gunwale	6 (in)	6 (in)

This project has us design two different models that will both have a different in performance but have symmetrical dimensions.

Summary Sustainability

The Texas State Concrete Canoe has decided that the best way to be sustainable was through efficiency in design and building practices. Waste management is also considered through recycling.

Canoe Design



Cost

Proposed Project Total Hours		Mold Fabrication Labor Costs				
Work Scope	Hours	Role	RLR	DEC	HRS	Extended
Project Management	130	Principal Design Engineer	\$ 50.00	1.5	82	\$ 6,150.00
Hull Design	45	Design Manager	\$ 45.00	1.5	29	\$ 1,957.50
Structural Analysis	47	Project Construction Manager	\$ 40.00	1.5	55	\$ 3,300.00
Mix Design & Testing	334	Construction Superintendent	\$ 40.00	1.5	13	\$ 780.00
Mold Construction	143	Project Design Engineer (P.E.)	\$ 35.00	1.5	86	\$ 4,515.00
Canoe Construction	179	Quality Manager	\$ 35.00	1.5	144	\$ 7,560.00
Project Proposal Preparation	192	Graduate Field Engineer (EIT)	\$ 25.00	1.5	0	\$ -
Presentation Preparation	101	Technician/Drafter	\$ 25.00	1.5	38	\$ 1,425.00
Display Preparation	139	Laborer	\$ 25.00	1.5	615	\$ 23,062.50
		Clerk/Office Admin	\$ 20.00	1.5	200	\$ 6,000.00
Total	1310					
					Labor Subtotal	1262 \$ 54,750.00
					Profit Multiplier (P)	18% \$ 9,855.00
						\$ 64,605.00
		Mold Fabrication Direct Labor Total (DL)				\$ 64,605.00

Proposed Project Expenses		Cost	
Materials / Other Cost			
Concrete Supplies		\$	100.00
Prolines 8 Pro Student Edition (Design Application)		\$	275.00
Padding Supplies		\$	100.00
Mold (lump sum cost)		\$	400.00
Display Costs			
Display Materials		\$	700.00
Printing		\$	200.00
Shipping / Travel Costs for Competition			
Vehicle / Fuel		\$	950.00
Accommodations/Hotel		\$	1,800.00
Outside Consultants		HRS	\$/HR
		60	180
		\$	10,800.00
Expenses Subtotal		\$	15,325.00
Markup (M)		10%	1,532.50
Proposed Project Expenses (E)		\$	26,125.00

DL Total	\$ 64,605.00
Expenses Total	\$ 26,125.00
Total Cost	\$ 90,730.00

This is the assumption price of what it takes to build a concrete canoe including hours worked on the project.

Team Photo



Team Members from left to right:
Ama Afrane, Louis Smith, Adan Guerra, Daniel Tobon, Jorge Rodriguez

Key Roles and Collaboration

- Adan Guerra – Project Manager
- Louis Smith – Lead Designer
- Daniel Tobon – Scheduling
- Ama Afrane – Progress Reporter
- Jorge Rodriguez – Progress Reporter

For this competition, we are thankful that we can collaborate with other groups from the university like ASCE, ASI, and QA/QC groups.

Health and Safety Program

As we contract this canoe we must follow some standard PPE rules in lab since it is our main priorities. As well for the competition we will be wearing life jackets.

Following Semester Schedule

For the following semester plan to construct this canoe and have it prepared for competition as well have some on field testing.