2023 BMES DESIGN COMPETITION

OFFICIAL TEAM PACKET

PRACTICING MEDICAL DESIGN TO PREPARE TO CHANGE THE WORLD

Providing a friendly competition space for innovative students to create biomedical solutions

Date & Time: Saturday, April 22, 2023, 9 am - 4 pm

Location: Biomedical Engineering Building 107 W Dean Keeton St, Austin, TX

Contact Information : designcomp.texasbmes@gmail.com

OVERVIEW:

This Biomedical Engineering competition is a chance to have fun and build something and challenge yourself as innovators. It is a low stakes event to learn and just build something. Give it your best effort!

Requirements:

1) **You must design a prototype of a device that solves an aspect of the prompt.**
    a) The device may be comprised of software, hardware, and/or mechanical parts
    b) It does not have to be super complex! It is better to answer the question and create a well developed and thought out solution that answers the given prompt
    c) The prototype must be physical - please refrain from designing only a code or app

2) **You must submit a preliminary investigation report by 11:59 pm on Monday, April 10, 2023.**
    a) Report details will be sent out soon.

3) **You must present with most of your team on the Presentation day which is Saturday, April 22, 2023.**
    a) Teams will present a powerpoint to the judges

PROBLEM STATEMENT:

Key Questions To Ask

1. Is there a clear objective?
2. Is the objective relevant to the needs of the potential user?
3. Will this solution work? Acceptable to the potential user? Economically feasible?
4. Does the prototype have feasible potential to become an end-product?
5. Does the team's solution demonstrate a significant improvement to previous/alternative solutions?
6. Has the solution been tested to see if it will perform under the conditions it will be used under?

BACKGROUND:

With the rise of natural disasters such as earthquakes, hurricanes, tsunamis, etc, natural disaster response has become an integral part in saving lives of those affected. In natural disaster responses, the dangers range anywhere from crush injuries to explosions and electrocution. These make a disaster site a danger to all involved in terms of safety and accessibility. Current responses are limited in that they don't completely eliminate risks to emergency personnel and victims while at times being unable to aid victims effectively. **Present a device that increases safety and accessibility to healthcare and emergency services in response to natural disasters.**

BUDGET:

Refunded Budget Max: $50

Total/Max Spending: $120

Note that this means that your entire device cannot exceed $120. This cap ensures fairness for all teams.

COMPETITION FORMAT:

- 10 Minute Powerpoint present with 5 minutes of Q & A. Prototype must be present and can be used as a prop.

JUDGING CRITERIA:

- Judges will be expected to objectively assign scores to each individual team
- Based on merits in ambition, innovation, implementation, and presentation of project
- Please notify us if you have any questions or suggestions

RESOURCES:

- Professors!
- Databases: https://guides.lib.utexas.edu/az.php
- Librarians: https://www.lib.utexas.edu/about/directory/hannah-chapman-tripp
- Hospitals/Dell Medical School: https://dellmed.utexas.edu/units/oncology
- Asking BMES design team for help or direction!
- Interviewing people

TENTATIVE RUBRIC:

Category	1	2	3	4	5
I. Research Problem: Demonstrates need. Clear criteria for proposed solution. Explanation of constraints.					
II. Design & Process: Explores alternatives to answer the need. Identifies a solution. Develops a prototype/model.					
III. Execution: Construction and Testing: Prototype demonstrates intended design. Prototype has been tested in multiple conditions. Prototype demonstrates engineering skill and completeness.					
IV. Presentation: Clarity. Contribution and understanding by all members.					
V. Creativity: Project demonstrates significant creativity in the categories above.					

TIPS:

- You are on a campus with a lot of very smart professors and people! Ask their opinion and meet up with them, especially the BME professors: they do not bite.
- Feel free to interview people outside of UT, even the general public! Asking questions and learning the perspective of the people who you want to engineer for is invaluable.
- Plan ahead, have accountability and consider backup solutions, but don't overthink it.
- Try to work with your strengths and delegate tasks accordingly, but feel free to branch out and try something new!
- Refer to the rubric since the judges will generally use that to evaluate you.