BTEC X BMES Design Competition
This competition is focused on increasing access to healthcare technologies or incorporating diversity into a design to improve health outcomes.
Student projects should amplify the importance of diversity, equity, and inclusion and convey it to the larger community within an engineering design context.

Categories & Prompts:

1. Data Science, Precision & Predictive Medicine:
    a. Unbiased Diagnosis: Develop an AI/ML application that assists healthcare providers with making unbiased diagnoses. Patient data should be analyzed without racial, cultural, or economic biases.
    b. Predicting Health: Consider factors such as geography, demographics, health history, air quality, and/or climate to develop an AI/ML model that can predict healthcare outcomes on a population level
    c. Create your own project!
2. Molecular & Tissue Engineering & Drug Delivery:
    a. Tissue Engineering: Develop strategies to regenerate and/or examine damaged lung tissues due to COVID-19 using stem cell technology, microfluidics, and/or organ-on-a-chip models.
    b. Drug Delivery: Design less-invasive methods for delivering vaccines, focusing on accessibility in low-resource communities.
    c. Create your own project!
3. Biosensors, Medical Devices, & Diagnostics:
    a. Medical Devices: Create a noninvasive, at-home health monitoring device that utilizes biosensors to monitor a patient's health.
    b. Soft Robotics: Design a soft robotic rehabilitation device to strengthen motor control of a patient's hands. Support your design with proper evaluation of the biocompatibility, biomimicry, and biomechanical properties of the device as well as having necessary code or CAD drawings.
    c. Create your own project!

Required Deliverables for Final Presentation:

- Presentation slides
- Reference to scientific literature
- Sketches/Diagrams/Code
- Estimated Code
- Detailed explanation
- Proof-of-concept (Prototype would be preferable)

Safety Trainings
To use all of the BTEC, SILab, and EPIC spaces, you must have the proper safety training. These must be completed prior to the Initial Project Submission.

- BTEC Safety Trainings
- EPIC Safety Trainings
- SiLab Safety Trainings

Graduate Student Mentor Leads (2024-2025)

Once teams have been formed, team members can contact a Graduate Student Lead!

- Alex Howard
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- Dev Bhatt
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- Satviki Singh
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- Tian Wang
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Judging Criteria: 2024-2025

1. Overall presentation quality (20 points)
2. Originality of design (20 points)
3. Incorporation of diversity considerations in the design (20 points)
4. Execution/Implementation of the design (20 points)
5. Plan for adoption/commercialization of the technology/product (10 points)
6. How does/could the design amplify a sense of the importance of diversity, equity, and inclusion and convey it to the larger community (10 points)