

BOSTON UNIVERSITY

Boston University College of Engineering

BTEC PROJECT HIGHLIGHT

Antifibrotic Drug Delivery in Tissue Expanders for Post Mastectomy Patients



Sarah Hanifin, Savanna Jacovini, Isabella Turolla (BME '25)

For their senior design project, the student team developed an antifibrotic drug delivery solution for capsular contracture. More than 100,000 women in the United States undergo mastectomy procedures for breast cancer treatment each year. Capsular contracture is a common complication for patients receiving radiation treatment following a mastectomy procedure. This fibrotic response can make further breast reconstruction efforts challenging, leading to discomfort and unfavorable aesthetic outcomes. To remedy this issue, the students aimed to develop a hydrogel technology for drug delivery. Specifically, they tested sodium alginate hydrogels using the SpectraMax plate reader in BTEC, comparing the drug release profiles of different hydrogel concentrations. BTEC allowed this group to explore a novel approach to a currently unresolved issue in women's health.





upcoming events

BTEC x BMES Design Competition Apr 26 at 12, LSE B03



Senior Design Day May 2 at 9:30, Photonics Center, 2nd Floor

Engineering Materials in 3D Workshop July 25, BTEC

Engineering Fabrics Workshop Aug 1, SILab

BTEC INNOVATION EXCELLENCE

Behold Juice by Jiayou "Leon" Lin (SHA '24)

Lin's Behold Juice won first place and \$25,000 at the Hospitality Innovation Competition sponsored by BU's School of Hospitality Administration! Behold Juice is an all-natural citrus juice alternative that is identical in taste to fresh-squeezed juice but has a longer shelf life. Lin used the Dynamic Light Scattering particle size analyzer in BTEC to characterize the colloidal stability of his synthetic juice samples. Winning this award will help Lin achieve his goal of having Behold Juice carried by food distributors nationwide.



SILAB PROJECT HIGHLIGHT

HIVE: Affordable Full Body MoCap by Fadi Kidess (ECE '25)

HIVE is a full body motion capture system with 12-point tracking that uses 9-axis inertial measurement units to track changes in body positions. Achieving this level of accuracy at a lower price point (lunder \$500) will make motion capture technology accessible to independent filmmakers and game developers. The HIVE system additionally includes haptic feedback at the tracking points making virtual reality scenarios more immersive and future medical applications possible.





BTEC ASSISTANT HIGHLIGHT

Yash Patel (BME '25)

Yash Patel began working at BTEC during his sophomore year. He led the development of BTEC's mammalian cell culture capabilities and contributed to expanding the overall wet lab capabilities. Yash enjoys designing and running hands-on workshops to teach students instrumentation techniques and wet lab protocols. He provided training and mentorship to participants, fostering a collaborative environment focused on real-world biomedical engineering challenges. As a member of the WISE Circuits Lab, Yash applied his experiences to the exploration of new applications for custom integrated circuits (ASICs), bridging biological and electronic systems engineering.

ENGINEERING STUDENT INNOVATION FUND

For information on how to apply for funding scan the QR code to the right.

PAST EVENT HIGHLIGHTS

Lutron Lighting Innovation Competition

The Lutron Lighting Innovation Competition took place at SILab in February. Thirteen teams entered and were judged on creativity and build quality. The winning project, **Minecraft Redstone: In Real Life!** by **Nick Gerasev, Nick Lin (MechE '26), Ezan Khan (ECE '26), and Harrison Che (CS '26)** was a replica of several blocks from the minecraft game.

BTEC Tech Workshops

In the new **Cell Culture workshop**, undergraduate and graduate students practiced sterile lab protocols, cell passaging, hemocytometry, and plating.

BTEC Entrepreneurship Seminar

In April **Edward Damiano, PhD**, Research Professor at BU, gave a seminar talking about his journey as the **founder-CEO of Beta Bionics**, Inc., developing the bionic pancreas technology.

11th Annual Dean's Imagineering Competition

This year-long design competition gives students the opportunity to express their creativity and entrepreneurial ideas with a view toward impacting society. Ten teams brought their designs to the final stage of the competition. The first place winner was **HIVE**, highlighted above. **U-Password Development**, a local password manager system, by **Charlie Van Hook (ECE '27)** took second place.

AIAA, TREC, and EWB Clubs at SILab

The American Institute of Aeronautics & Astronautics (AAIA) club built their plane and glider for the Design, Build, Fly competition. The Terrier Ride Engineering Club (TREC) has been building their model amusement park ride after club-wide SILab safety training. The Engineers Without Borders (EWB) hosted Boston Green Academy high school students at SILab for safety training and help with their engineering projects.

Diane Joseph-McCarthy, Executive Director BTEC Kavon Karrobi, BTEC Manager Katie Kelso, SILab Manager For more information, email: **btec@bu.edu**





