Industry Involvement in Engineering Innovation in Health

> Engineering Innovation in Health (EIH) develops technical solutions to pressing health challenges. We welcome projects that will benefit from a collaborative working team of industry professionals, UW students, and faculty.

About Engineering Innovation in Health

> EIH is a yearlong program to develop working, cost-effective solutions to health challenges that are positioned to make a clinical impact in a wide range of specializations. The program operates by teaming clinicians, engineering faculty, and undergraduate and graduate engineering students to solve real-world, unmet health challenges.

> The projects and deliverables are managed within the design course sequence in the College of Engineering. EIH follows a need-based design philosophy that begins with an unmet health or healthcare need. The entire first quarter (Oct-Dec) is dedicated to developing a thorough understanding of the clinical need by considering a holistic range of factors that contribute to the project's impact, including stakeholders, market opportunity, FDA regulations, and reimbursement. The actual design, prototyping, and evaluation of engineering solutions occur in the winter (Jan-Mar) and spring quarters (Mar-June).

> The success of the projects depends on engaged industry and engineering faculty mentors. Example end goals of projects include:

1. A working prototype of a cost-effective and innovative solution
2. Data towards a publication or application for continued funding

> If you are interested in submitting a project for our program, we would like to hear from you!

Benefits

> By participating in EIH, you have the opportunity to:
- Work closely with a diverse, multidisciplinary group of UW students and faculty from engineering, health sciences, and business.
- Develop innovative technical solutions that bring value to your company.
- Vet a solution to a challenging problem, perhaps one that you don't have the resources to pursue in-house.
- Generate a deeper understanding of a health challenge, market, current solutions, IP, and regulatory strategy that engages a comprehensive set of stakeholders.
- Strengthen your relationship with the UW for recruiting student talent and for engaging in future projects.

- Leverage world-class infrastructure and facilities at UW
- Receive a nonexclusive commercial license to any project intellectual property developed by the student team or UW employees

Involvement

Participating companies pay a $15,000 sponsorship fee and designate an employee lead to mentor the team. The mentor is expected to interact with the students on a regular basis to provide feedback and engage in the design process. The typical time commitment for a mentor (or team of mentors) involves meeting with the student teams 4-5 times (or more) per 10-week quarter and attending final presentations at the end of each quarter.

Submitting Your Project Proposal

The EIH process starts with industry sponsors or clinicians submitting a project idea that focuses on an unmet health challenge and ultimately ends with a working prototype solution, which can take the form of a device, process, or application. The project application asks you to describe the unmet health challenge, how the challenge is currently addressed, and your vision for how the project might move forward. Please email completed applications to Jill Dalinkus (jmd4@uw.edu). If you have further questions or would like to brainstorm potential projects, we would be happy to chat further.

Need-Based Approach

We follow a need-based approach to design and innovation. As such, **the most successful projects for this program are based around an unmet clinical need rather than a specific device.** We challenge students to understand the need and explore a diverse set of solutions. For example, rather than "building a device to intra-operatively measure tendon force", we challenge students to "improve the accuracy and repeatability of tendon transfer surgeries". Examples of prior projects include:

Need: Quickly quantify blood clot strength in trauma patients
Solution: Microfluidic diagnostic system to form and measure clot mechanical strength

Need: Prevent parastomal hernias in patients with gastrointestinal stomas
Solution: An easily adjustable, rigid hernia belt

Project summary

Title: _____

Proposed by: _____

Potential clinical partners: _____

Clinical/industry specialty: _____

What is the unmet clinical need?

Describe how this challenge affects clinical practice, patient health, or quality of life:

1) What is the magnitude of this clinical need (e.g., prevalence, annual cost, social impact)?
2) Who is affected by this challenge (population that would benefit from a solution to this problem)?
3) Would a solution to this problem lead to potential cost-savings? What is the economic incentive to solve this problem?

As a reminder, please try to describe the overarching clinical problem and AVOID describing a technical solution or design concept that you may already have in mind (this will be done in an unbiased approach with the students).

What are the current solutions, if any, for this problem?

Describe current solution(s) for this need, if they exist. How do these current solutions meet or not meet the clinical needs? Do you know of other solutions that have been tried (e.g., not commercialized or discontinued)? Why were they not adopted? How much do the current solutions cost?

What are the future pathways you envision for this project?

We like to identify projects that have the potential to live-on beyond our year-long class – either through further research, open-source designs, commercialization pathways, or direct clinical implementation. Please describe what testing or outcome measures could be used to evaluate a future prototype. If the project is successful, what do you foresee as the next step in translating it to clinical practice or future development? Are there possible funding options to support future activities?