PURDUE UNIVERSITY | College of Engineering

Engineering Faculty Document
No.: 106-26
December 4, 2025

TO: The Engineering Faculty

FROM: The Faculty of the Weldon School of Biomedical Engineering

RE: New Engineering Concentration

The Faculty of the Weldon School of Biomedical Engineering has approved the following new Professional Master's Concentration from the College of Engineering. This action is now submitted to the Engineering Faculty with a recommendation for approval.

TITLE:

Concentration in Clinical Engagement and Biomedical Innovation

DESCRIPTION:

This concentration applies to these programs/major:

Programs:

- BME-MSBME

To earn this concentration, students will complete the following coursework:

- 9 credit hours in Clinical Engagement and Biomedical Innovation as described below. Additional courses are being developed or identified to allow additional options to fulfill this requirement in the future.

Required:

- BME 58500 Clinical Engagement and Translational Biomedical Engineering (2 cr)
  - *Note: this course is submitted for approval in parallel with the proposed concentration*
- BME 58501 Clinical Engagement and Translational Biomedical Engineering – Clinic (1 cr)
  - *Note: this course is submitted for approval in parallel with the proposed concentration*

At least one of the following is required; two can be taken to fulfill concentration requirements:

- BME 50500 Virtual Reality Anatomy for Engineering in Medicine (3 cr)
  - *Note: this course is submitted for approval in parallel with the proposed concentration*
- BME 55600 Introduction to Clinical Medicine (3 cr)
  - Currently offered in-person in West Lafayette and virtually in Indianapolis

One of the following is allowed to fulfill remaining concentration requirements if needed:

- BME 56100 Preclinical and Clinical Study Design (3 cr)

- BME 56200 Regulatory Issues Surrounding Approval of Biomedical Devices (3 cr)
- BME 58501 Clinical Engagement and Translational Biomedical Engineering – Clinic (1 cr)
    - *This course can be repeated for different clinical specialty areas*

Note, the following additional courses are being considered for future acceptance when/if approved as permanent courses:

- BME 57500 Advanced Biomedical Engineering Clinical Project (3 cr)
    - Project-based course under development in Indianapolis in partnership with BME, IUSM, and other clinical faculty mentors
- BME 59500 Entrepreneurship (3 cr)

RATIONALE:

This concentration provides core training in Clinical Engagement and Biomedical Innovation while maintaining flexibility to align with individual student interests and needs. Clinical experience is essential to prepare students for careers in medical technology, where they will be required to work in a clinical setting, identify and solve clinical problems, manage clinical trials, and, for some, become medical professionals. Through formal coursework and clinical experience, students will gain exposure to clinical practices, procedures, and unmet needs that can be addressed with engineering design and analysis. They will develop the ability to communicate effectively with medical professionals, understand clinical perspectives and treatment strategies, and identify opportunities where engineering solutions can improve patient care.

In addition to direct clinical exposure, the program will also include a focus on clinically-oriented coursework. This combination of classroom and clinical settings provides a unique opportunity for engineering students to combine theoretical classroom knowledge with practical learning in a real-world clinical environment. Engineering students following this new pathway will gain the clinical knowledge necessary to create advanced medical products and therapies and will be better prepared to pursue career pathways focused on meeting patient and clinician needs.

Head/Director of the Weldon School of Biomedical Engineering

Link to Curriculog entry: pending entry