

## Graduate Certificate in Human Factors Engineering – Medical Devices and Systems

This 4-course certificate helps prepare you to...

- Make medical technology safe, effective, usable, and satisfying for clinicians and patients.
- Improve the quality of healthcare
- Prevent injuries and deaths due to medical error



Healthcare professionals interacting with medical technology as they deliver patient care.

### Did you know...

The rate of preventable deaths due to medical error is huge. A widely cited report published in 2016 suggests at least 250,000 patients die each year due to medical error, making it the third leading cause of death in the USA. A large percentage of these deaths are related to poor user interface design. Recognizing the medical error “epidemic,” the U.S. Food and Drug Administration (FDA) now requires the manufacturers to Class II and III devices to apply HFE through the device development process and validate that representative users can operate them safely. This requirement has increased the demand for professionals in the field of human factors engineering who have special knowledge about the design and evaluation of medical technology. The Human Factors Engineering Program at Tufts University can help prepare you to enter this exciting field.

### 2 required courses:

ENP 109 - Medical Fundamentals (learn about human anatomy, diseases, medical occupations, medical technology)  
ENP 110 - Human Factors in Medical Technology (learn FDA-mandated and medical device industry-standard HFE methods)

### 2 elective courses:

You may select two elective courses (100 level and above) from those offered by various departments including mechanical engineering (which includes human factors), psychology, computer science, occupational therapy, and biomedical engineering. Here is a partial list of course options:

Human Factors in Product Design  
Medical Devices and Innovation  
Inventive Design  
Industrial Design  
Assistive Technology

Human-Computer Interaction  
Human Robot Interaction  
Advanced Engineering Psychology  
Analytical Methods  
Design of Medical Instrumentation

Tech in Healthcare  
Cognitive Neuroscience  
Advanced Engineering Psychology  
Biomedical engineering  
Computer Interface Design

### If interested, please contact:

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Certificate webpage: <https://engineering.tufts.edu/me/current/certificate-programs/hf-medical-devices-and-systems>