

Byte Academy MedTech Syllabus

Prerequisites: All levels, no prior medical or technology experience required.



In our MedTech program, students cover the entire [Software Engineering Syllabus](#) as well as the Medtech Syllabus outlined below. The MedTech focus will begin in Phase 2 of the three phase program. In Phase 3, students apply their MedTech knowledge by going in depth on a medical area of choice with a final project. All phases will focus on preparation for a career in MedTech and building a powerful MedTech portfolio. Curriculum is supplemented with regular guest speakers in the field.

1. Intro to Medical Technology and Key Concepts in Full-Stack and Backend Development

- What is MedTech?
- Breakdown: different areas of MedTech - wearables, genomics, healthcare, etc.
- Current MedTech landscape; company and nonprofit “players” and the types of tech jobs available at each
- Workshop: How one would architect the software of specific Medical Technology companies, given their applications
- Workshop: Applying data structures and algorithms to specific Medical Technology problems

Students learn about the major sub-fields of MedTech, as well as the most common career opportunities in each subfield. They prepare for the coding and system design questions they may be asked in interviews by applying these topics to problems faced by specific companies and organizations.

2. Big Data, APIs, Python Libraries, and Statistics in Healthcare

- Workshop: Contributing to Open Source projects
- Fundamentals of statistics; Python statistical analysis libraries
- Big Data storage and analysis
- Natural language processing in Python, with MedTech applications
- Machine learning in Python, with MedTech applications
- Workshop: Working with healthcare APIs

Students learn about specialized tools used by medical technologists, in the context of their medical/healthcare applications. They will also be taught methods for discovering other tools and continuing to learn, essential aspects of being a software developer. The most active Open Source projects are excellent opportunities to build expertise.

3. How to Identify Medical Technology Software Applications

- The scientific method and its relationship to how academic research and market research are performed
- Workshop: Identifying unmet needs in Medical Technology
- Workshop: Devising and validating hypotheses about how to address these unmet needs
- Workshop: Iterating on your ideas
- Workshop: How to pitch your ideas

Students learn how tech is guided by business development in the medical field. These concepts will be particularly useful for those intending to work at an innovation lab, a new initiative within a larger company, at a startup and/or launch one's own company. Students will be expected to apply business development concepts in the marketing of their final project on Demo Day. These techniques will give final projects real world relevancy and make the students better at discussing final projects at interviews.

4. User Interfaces and User Experiences in Medical Technology Applications

- General principles of UI and UX
- Specific UI/UX tradeoffs which tend to be appropriate for different subfields of Medical Technology
- Workshops: Analyzing and discussing the effectiveness of UI/UX in Oscar Health, research software, and other Medical Technology applications
- Workshops: Analyzing and discussing the effectiveness of UI/UX in student projects, for students that would like their projects discussed in this fashion

Students learn how user interfaces (UI) and user experience (UX) impact user interactions, with examples in medical software. A comprehensive survey of fullstack Medical Technology should provide students with enough exposure to UI/UX to gauge their level of interest, and encourage them to continue forward if they wish.