Industry Guide: Medical Devices

The companies in this industry research, create and manufacture products designed to diagnose, prevent and treat patients, both human and animal. Major products include surgical and medical instruments, (such as surgical robotics, instrument devices, implantable devices, etc.) syringes, hypodermic needles, catheters, surgical appliances, supplies, and orthopedic devices, electro-medical equipment, in-vitro diagnostic substances, and irradiation apparatus. Other sources of revenue include lab equipment and furniture (centrifuges, hospital beds).

Demand is driven by population demographics, advances in medical knowledge and technology. Large companies have economies of scale in manufacturing and R&D. Small companies can compete successfully by specializing in a particular market segment, or through technical innovation. The industry is concentrated: the 50 largest companies account for about 60 percent of revenue.

The industry is heavily regulated by the FDA. Product defects can have serious consequences. Litigation over patents, licenses, and intellectual property rights are also common in an industry with rapidly evolving technology.

Positions in Medical Devices

The industry is technologically advanced, and new product development is a major activity for most manufacturers. Patents are valuable and patent disputes frequent. Large companies often buy small companies that have developed promising new technologies. There are many positions associated with engineering in this industry because this industry needs to produce innovative and meticulous devices to be able to diagnose and cure patients.

Sterility and safety are key in manufacturing. Quality control agents use precise instrumentation like calipers, micrometers, or microscopes to ensure that products are the appropriate thickness, length, and width. For many technically advanced products, manufacturing is labor-intensive. Companies that specialize in diagnostic and therapeutic devices generally emphasize technological innovation and precision. Many small manufacturers outsource manufacturing to facilities operated by contract manufacturers. Materials include stainless steel, silicone or latex rubber, plastic, aluminum, polymers, and natural fabrics.

Demand is driven by population demographics and advances in medical knowledge and technology. The profitability of individual companies depends on the ability to develop superior products. Large companies have economies of scale in manufacturing and R&D. Small companies can compete successfully by specializing in a particular market segment, or through technical innovation. The industry is concentrated: the 50 largest companies account for about 60 percent of revenue.

Courses Typical for Medical Devices

Not everyone employed in the industry graduated with one of these majors, but many MIT graduates come from these course areas.

Major Employers

These Companies Recruited Interns at MIT

Course 2
Course 10
Course 3
Course 6
ESD

Johnson & Johnson (J&J)
Baxter International
Abbott Laboratories
Olympus
Stryker
Boston Scientific

Typical Position Titles:
Product Developer
Product Quality Manager
Process Improvement Engineer
Manufacturing Engineer
Mechanical Engineer
Integration Engineer
Patent Lawyer/IP Attorney
This information comes from the Summer Experience Survey and MIT GECD's CareerBridge website and is not an exhaustive list and this doesn’t necessarily mean they are hiring interns now. Use this list as a place to start your search for an internship. Does MISTI offer Internships?

**Research is Great Experience**

**Valuable Experience Can be Gained at MIT**

UROPs and graduate research done at MIT can be very helpful to enhance your candidacy for a position. Many of the companies in this industry partner with labs at MIT on projects and research. Here are a few examples of labs with research sponsored by companies in the Medical Devices industry. The value in doing research isn’t strictly in the experience either. Many of the people you’ll meet here at MIT are well connected to important players at these companies.

**The Job Search and Interview Process**

Be prepared for both Technical and Behavioral Interviews. [Fierce Medical Devices](http://fiercemd.com) is a great site for daily industry happenings, job postings, and company directories.

**Salary Resources**


This salary information comes from the 2013 Graduating Student Survey. Average SB Pharmaceuticals (Biotech & Medical Devices) $65,000 Average SM Pharmaceuticals (Biotech & Medical Devices)$124,500

**Additional Resources**

**Professional Organizations**

- Medical Device Manufactures Association
- Medical Device and Diagnostic Industry
- Massachusetts Medical Device Industry Council

**Industry Journals or Trade Publications**

- Journal of Medical Devices
- Medical Device Registry
- FDA Medical Device Website

**GECI Services**

**Drop-in Hours:** Monday-Friday 11am-3pm

GECI Staff are available year round for appointments. To make an appointment, login to CareerBridge and select “Make Appointment” from the left side of the welcome page. You can also book by coming in to our office at E39-305 or by calling 617-715-5329

Check out our Calendar for Events and information on Employer Presentations! [http://gecd.mit.edu/calendar](http://gecd.mit.edu/calendar)