

NDSU's Biomedical Devices: A Global Affair



EWERT

The field of biomedical devices is incredibly broad. These devices can be used for a variety of areas in the body, from eyesight to spine biomechanics to cardiovascular systems. Pace makers, pain management systems, insulin pumps and defibrillators are just a few common examples.

“Anything you can think of where health of humans is involved and where a mechanical or electrical device can help, that’s biomedical devices,” says **Dan Ewert**, Ph.D., chair and professor of the Department of Electrical and Computer Engineering at *North Dakota State University*.

Biomedical devices, one of the targeted growth sectors in the *Greater Fargo Moorhead Economic Development Corporation’s* Smart Growth Initiative, are an area of interest at NDSU. According to Ewert, biomedical engineering has been around campus since the 1960s. Yet it spans far beyond the classroom. Medtronic, the world leader in medical technology, not only teams with Ewert to teach a class on cardiovascular engineering, it actively recruits students from NDSU’s program.

It’s an area Ewert hopes will continue to grow. “We’re already working with these companies,” he says. “What we’d like to do is to have companies come and deposit their dollars here in research and development.”

There are several ways Ewert hopes to accomplish this. Plans are currently in the works for a joint biomedical program with the University of North Dakota in Grand Forks as well as a Center of Excellence in biomedical engineering, which was approved last November.

“The Center of Excellence is for the design, development and commercialization of biomedical devices,” Ewert says. “We’ll be able to educate graduate engineers in this area and attract companies to develop biomedical devices in our region.”

Another piece is the development of spin-off companies through a program known as Bison Ventures. The NDSU sponsored program allows teams of students and faculty to work together on technological innovations in hopes of developing new companies. These companies, which combine teams of engineering and business students, would be housed at the business incubator of *NDSU Research & Technology Park, Inc.*

The Bison Ventures process is making waves outside the Red River Valley. Ewert and his colleagues are currently looking for ways to open up additional markets. The Chinese, for example, have expressed an interest in scholarships for Chinese students to come to the area and participate in the Bison Ventures process.

“To be competitive, we have to jump out there and start cooperating with these various entities,” Ewert says. “I believe if we don’t, we’ll lose. The world is highly competitive.”

For Ewert, the situation is a global affair. “Our competition is global,” he says. “We need to educate our engineers differently than we used to. The students need not only technical competence, but also product development and project management skills. On top of that, they need soft skills and awareness of global concepts. They need to know how to do business in countries like China or Italy.”

An important part of this, according to Ewert, will be the organization of government, industry and academics. “It isn’t enough for a university, a company or regional government to do something,” he says. “We have to do it together. The real trick will be finding ways to work synergistically between those three entities.”

Ewert sees the GFMEDC’s Smart Growth Initiative as a step in the right direction, as much needed investment in our economy. When asked if he sees it working in Fargo Moorhead, his answer is a resounding yes.

“Mayo Clinic wasn’t a building, it was a cornfield. They built a clinic and look where it is today,” he says. “You can build institutions and processes of quality anywhere, you just have to have the right people and the right environment. The only thing that limits us is our own thinking.”