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Clemson University partners with IIT Delhi

30 August 2018 | News

Clemson is joining with the Indian Institute of Technology Delhi to create the Center for Innovative Medical Devices and Sensors.

Clemson University researchers has said that a new partnership with one of India's top engineering universities will lead to new medical devices, sensors and startup companies while helping educate leaders and entrepreneurs for the global health care industry.

Clemson is joining with the Indian Institute of Technology Delhi to create the Center for Innovative Medical Devices and Sensors.

The long-term vision for the center includes exchanges of faculty members, students and post-doctoral researchers, and to eventually establish joint courses. Some of the first projects will focus on solutions for diabetes and other chronic health issues common to both countries.

Researchers plan to focus on technology that is close to going from the lab to the marketplace, a concept that scholars call translational research. The devices that researchers develop could lead to biomedical startups — and the lucrative jobs that come with them — in South Carolina and India, they said.

An advantage to cross-border research is that new technology will be designed to meet regulatory requirements in multiple countries, smoothing the transition to markets around the globe, said Delphine Dean, who is the Gregg-Graniteville Associate Professor of Bioengineering at Clemson.

The collaboration is the latest in a growing number of links between South Carolina and India, a connection that could help

build both economies, she said.

“If a company wants to have a landing base to do FDA testing, South Carolina is a great area to do it in,” she said. “We have a lot of resources at the state level, and I think it will help drive economic development. When you go visit IIT Delhi, they know Clemson and they know South Carolina.”

Dean is coordinating the center with Sandeep K. Jha, an assistant professor in the Centre for Biomedical Engineering at IIT Delhi.

Jha said the joint center with Clemson will be a win-win for both institutions and that they will develop several vital technologies by working together.

“The research and continual development in the field of medical sensors and devices is the need of the hour,” he said. “Most of the conventional technology related to health care and diagnostics have gradually been shifted towards automation, miniaturization and cost-effectiveness.

“In this regard, a research collaboration with Clemson University to develop cutting-edge medical technology would be beneficial for India, as it imports the majority of its medical devices and technologies. Medical devices and sensors could also help to meet several critical needs of South Carolina.”

For Clemson students, the opportunity to visit labs and do research in India will encourage global-scale thinking.

“If I were an undergrad, I’d think this was a great opportunity,” Dean said. “You go enjoy an experience in India and then you get your engineering degree. Then you’re a hot commodity for a job.”

IIT Delhi students will be visiting Clemson primarily for research, graduate studies and specialized bioengineering programs. Those programs include the Master of Engineering program and Green MD, an initiative focused on medical device recycling and reprocessing.

One of the attractions for IIT Delhi students is that they will have a chance to work with Clemson faculty who have extensive experience in translational research, said Brij Khorana, the chief scientific adviser for the College of Engineering, Computing and Applied Sciences at Clemson.

“By working with these Clemson faculty members, they will have the opportunity to gain entrepreneurial skills and participate in startup businesses here, and then perhaps some of these students can go back to India and help with the health care industry there,” Khorana said. “Over time, this collaboration can just grow and grow.”

Some of the students’ work will be on the main campus and some will be in Greenville at the Clemson University Biomedical Engineering Innovation Campus. The campus, called CUBEInC, is at Greenville Health System’s Patewood campus.

Clemson’s close connection with clinicians at GHS and the Medical University of South Carolina will be appealing to IIT Delhi students, Dean said. Clinicians play a crucial role in guiding research, ensuring that it reflects what happens in real-world hospitals and clinics.

Martine LaBerge, chair of the department of bioengineering at Clemson, said the new center will create a unique environment for health care education and research.

“The Center for Innovative Medical Devices and Sensors sets the stage for integrative learning and inventing experiences,” LaBerge said. “Students will learn the leadership, entrepreneurial and technical skills they will need to support and enhance a knowledge-based economy.”

The collaboration between Clemson and IIT Delhi brings together two institutions noted for their work in engineering and health care.

IIT Delhi was the third highest-ranked Indian university in the latest QS World University Rankings. The institute also tied for No. 1 in engineering among Indian universities in the annual “Performance Ranking of Scientific Papers for World Universities” by National Taiwan University.

Clemson is renowned as the birthplace of the field of biomaterials and was among the first universities in the United States to start a bioengineering program, awarding its first Ph.D. in 1963. The university played a central role in creating the Society for Biomaterials.

Anand Gramopadhye, dean of Clemson's College of Engineering, Computing and Applied Sciences, said the center will enable transformative research and deepen the talent pool for the healthcare industry.

"By coming together, Clemson and IIT Delhi will be able to accomplish much more than we could apart," he said. "We are creating the conditions for a wider pipeline between academia and industry, as well as a healthier global society."