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New Master's in Bioengineering

01.08.2010 | Science, Engineering The University of Dayton's master's degree in bioengineering approved today by Ohio Chancellor Eric Fingerhut will help fill the need for bioengineers and give the Dayton region a new program that also will support state and regional economic development efforts, according to School of Engineering Dean Tony Saliba.

Ohio Gov. Ted Strickland has identified Ohio's biomedical industry as one of four growth industry clusters in the state and the Bureau of Labor Statistics indicates the biomedical engineering field is in the top tier of projected growth potential.

"This program has been designed to minimize overlap with current bioengineering and biomedical programs around the state, many of which are aligned with medical schools," Saliba said. "Rather than emphasizing pharmaceutical or medical research, our program will teach students how to apply bioscience and bioengineering principles to areas such as materials, sensors, imaging, therapeutic devices and instrumentation."

According to Don Comfort, assistant professor of chemical and materials engineering and co-author of the program proposal, the program will have a special emphasis on the following:

- Biomaterials and biomechanics: deals with materials in living structures or biomedical devices and the application of mechanical principles to living organisms and biomaterials.
- Biosystems engineering: applies engineering principles to the study of cells and cellular systems, such as organs, to improve the understanding of these systems or to develop products that interface with these systems.
- Bioengineering instrumentation: the study of devices and computer systems used for studying biological systems, such as biological sensors and biological imaging.
- Bioprocess engineering: applies biochemical engineering principles to aid with development, design and production of biological compounds.

The School of Engineering will start accepting applications immediately for the fall 2010 semester that starts Aug. 25. For more information about or admission to the program, call 937-229-2627.

The 30-hour program will be housed in the School of Engineering's department of chemical and materials engineering. The continuing development and delivery of the program will be a collaborative effort among all of the School of Engineering's programs and the College of Arts and Sciences. Saliba said more than 25 faculty members from both schools will be available to teach the courses.

"We look forward to working with the School of Engineering to help fulfill this need for future bioengineers," said Paul Benson, dean of the University of Dayton College of Arts and Sciences. "This program reflects the overarching need in higher education to bring together scientists and engineers to collaborate in educating those who will help implement technologically the fruits of bioscience and bioengineering research."

Students will be able to conduct research in the University's Biomechanical Analysis, Biochemical and Bioenergy, Tissue Regeneration and Engineering at Dayton (TREND), and Nanoscale Engineering, Science and Technology (NEST) labs.

"We also are working with Kettering Medical Center in the area of biomedical imaging and with the orthopedic residence program at Grandview Medical Center in the biomaterials area," Saliba added. "These laboratories, along with those on campus, will provide opportunity for students to engage in thesis research or special projects."

Students also will have the opportunity to perform bioengineering research at Wright-Patterson Air Force Base's Air Force Research Laboratory or with industry partners in the area.

"In addition to Don Comfort, I would like to thank Tom Eggemeier and Ed Mykytka in the graduate school; School of Engineering faculty Don Moon, Denise Taylor, Khalid Lafdi, Bob Wilkens, Malcolm Daniels, Partha Banerjee, Qiwen Zhan, Margie Pinnell, Kim Bigelow and Doug Hansen; and Don Polzella, Carrissa Krane, Jayne Robinson, Mark Masthay and the rest of the College

of Arts and Sciences faculty and staff who contributed to this effort," Saliba said.

The University conducts about \$18 million in bioscience and bioengineering research. It also participates in the Ohio Board of Regents Economic Growth Challenge/Innovation Incentive Program, which provides funds to the University to support research in bioscience and bioengineering.

For more information, contact Shawn Robinson, associate director of media relations, at 937-229-3391 or srobinson@udayton.edu.