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LAWRENCE TECHNOLOGICAL UNIVERSITY

Mechatronics lets engineers speak each other's language



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BY JOHN GALLAGHER FREE PRESS [BUSINESS](#) WRITER

If you find engineering talk hard to decipher at times, [engineers](#) from different fields sometimes find it just as difficult to understand each other.

So a new field called mechatronics has been developing over the past 30 years or so to blend various engineering disciplines. Lawrence Technological University in Southfield aims to become one of the leading academic institutions in this growing and important pursuit.

Mechatronics represents the combination of mechanical, electronic and software engineering to create systems that run better and can be controlled more easily than before.

Typical applications include industrial robots, but can be as varied as Mars rovers, military tanks, farm tractors and the passenger car. The word itself is a combination of "mechanics" and "electronics."

At LTU, professor Vladimir Vantsevich heads a new program that may be the nation's only master's level degree program in mechatronics.

"You see, electrical and mechanical engineers, they speak different languages," Vantsevich said. "When you hire one student from our program, it means you buy one, get another for free. You get several engineers in one."

These mechatronics degree programs are common in Europe and Asia but still a rarity in the United States. But the demand is real and growing as [ground transportation](#) vehicles rely more than ever on sophisticated electronics and computer controls.

Vantsevich came to LTU after a nearly 30-year academic career in Belarus, where he specialized in designing driveline systems and control devices for multi-wheel drive vehicles.

At LTU, he proposed a master's level program in mechatronics in 2005, got it approved in 2006, welcomed his first five students last fall, and now has 30 or more students involved in the program.

Industry is showing a keen interest, too. To outfit the new mechatronics laboratory in LTU's engineering building, equipment and software valued at \$470,000 was contributed by Bosch, dSPACE, Eaton, Festo, Kistler Instrument, KUKA Robotics and National Instruments. Chrysler contributed nearly \$50,000 for academic support programs and donated hardware.

The goal of LTU's mechatronics program, Vantsevich said, is to help companies in robotics, aerospace, automotive and other industries find more American engineers who can bring this integrated approach to product design and production.

"What mechatronics is, is a natural way to design a new type of system, where mechanical and electrical systems live together without even knowing they live together, like one system," he said.