

Benefits of Mechatronics

- Offers hands-on systematic training
- Conceptualizes and develops problem solving skills
- Enhances and refines individual technical skills
- Develops team building skills
- Develops interactive communication skills
- Develops and refines critical thinking skills
- Understands the interface between business and manufacturing operations
- Develops transferable skills, emphasizing the individual ownership and responsibilities for the process and finished product
- Prepares competitive worker for the global market



Motlow
State Community
College

A Tennessee Board of Regents Institution

Moore County Campus
P.O. Box 8500
Lynchburg, TN 37352-8500
931-393-1696 • 1-800-654-4877 ext. 1696
www.mscc.edu

Motlow
State Community
College

Dept. 110
P.O. Box 8500
Lynchburg, TN 37352-8500



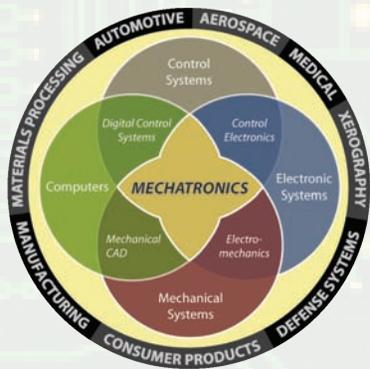
Mechatronics

at

Motlow State Community College

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growing community colleges*





Mechatronics Education



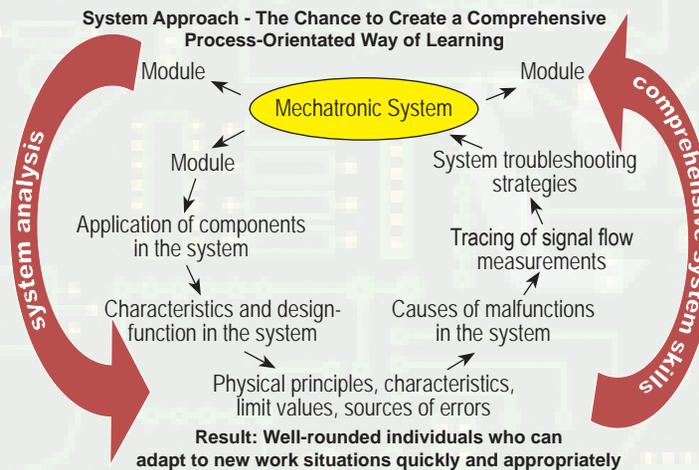
If industrial assessment indicates the need for Mechatronics training, MSCC will partner with Siemens for the Mechatronics certification programs. The first level of this program is a Level 1 Assistant Machine Operator. Further certifications in the program will include Associate Technician and Professional Designer.

Why partner with Siemens? The Siemens Mechatronics system is not product or process specific and lends itself to all industries, both manufacturing and service.

Siemens has been recognized as a world wide leader in technical education for over 100 years, is known for automated systems, and has a leading position in mechatronics and mechatronic system education. Siemens has nearly 500,000 employees worldwide and is active in more than 190 countries.

Under traditional methods of teaching mechatronics, students study electrical/electronics, mechanical, and computer technology separately one from another. Sometimes, there is a course or two at the end of the training which tries to pull all of these topics together.

The Siemens operator certification program uses a System Approach for teaching mechatronics. This method gives a chance to create a comprehensive, process-orientated way of learning.



What is Mechatronics?

Motlow State Community College President Dr. Marylou Apple has the vision of keeping and bringing new skilled jobs and cutting edge training into the counties that MSCC serves. One new program that will be a catalyst for this endeavor is Mechatronics. Motlow is currently in the planning and development stages of this program.

The term “Mechatronics” arose in Japan halfway through the 1970s. It originally described the use of microprocessors developed for the control of machines and equipment.

Today our products and systems have become increasingly complex, especially with the increase of computerized controls and software. We must have a skill-based workforce to manufacture and service the products of today and the future.

Just think of how our automobiles, washing machines, televisions, and even how our children’s toys have changed. All major industries such as automotive, aerospace, medical, material processing, manufacturing, defense systems, and consumer products are changing yearly or even month by month.

Mechatronics is an engineering science that aims at the functionality of a technical system. This program is accomplished by the close cooperation of mechanical, electronic, and data processing components.

With the mechatronics approach, each system is broken down into modules. Then the application of components in the system, characteristics and design function in the system, characteristics of components, limit values, and source of errors are studied thoroughly.

Once the system (machine, process, or product) is understood, then the student is taught skills to determine causes of malfunctions in the system, tracing of signal flow measurements, and system troubleshooting strategies. This teaching method gives the students the ability to develop comprehensive system skills and system analysis, enabling them to adapt to new work situations quickly and appropriately. Mechatronics training can be utilized in the entire educational and workforce system.

Many industries face a discontinuity in the transfer of knowledge between older and younger generations of workers. This has had a negative effect on the economic competitiveness and labor productivity in our U.S. companies. Mechatronics will target this gap in the skilled workforce. We must embrace mechatronics techniques to compete with the emerging industrial economies of the world.

Mr. Darrell Cantrell, Director of Mechatronics at MSCC, has completed the instructor training program with Siemens Technik Akademie in Berlin, Germany. Please contact him at dcantrell@mscc.edu for more details.