

Industrial Controls *Program Proposal*



Presented to the South Dakota
State Board of Education
May 2012
For Implementation
Fall 2012



Mitchell Technical Institute
1800 E. Spruce St. • Mitchell, SD 57301



Mitchell Technical Institute

Program Title: Industrial Controls

Length of Program: 12 Month Online Certificate

Number of Students: 12

Projected Start Date: Fall 2012

Executive Summary:

Mitchell Technical Institute is requesting approval to offer a 12 month certificate in Industrial Controls. The rationale for this request is based on several factors. MTI has received funding through a Trade Adjustment Assistance (TAA) grant to develop and deliver an online program that will focus on energy controls. Mitchell Technical Institute's faculty and advisory committee members have also discussed several times that the HVAC and electrical industries are in need of more training in the area of controls.

The Industrial Controls certificate option will allow MTI graduates to receive advanced skills in the controls area. For example, a student who has received a degree in HVAC may enroll in the certificate option and earn an associate degree in Industrial Controls/HVAC.

MTI also recognizes the need for additional training for technicians already working across the region. It is becoming more common for companies to provide a wide selection of services, including building automation, HVAC controls, alternative energy controls, and security systems. While they may have veteran employees who are excellent technicians, there can be a need for more advanced training in the controls area. Therefore, the online certificate will also appeal to experienced electricians, heating and cooling technicians, commercial and industrial maintenance personnel, and anyone with experience working with electricity. This self-paced, interactive online certificate option will allow these technicians to complete the courses when they want, where they want, and at their own pace.

Identification and Description of Program:

The certificate option will provide students with the technical training to strengthen their ability to succeed in the field of industrial controls. Controls are at the heart of regulating any electronic or electrical system. This program will build upon their knowledge base of electrical fundamentals and teach them specialty skills like process controls, automation, and the electronic management of routine electrical tasks. MTI's outstanding reputation in teaching automation and controls forms the foundation for this online program. This program is for experienced electricians, heating and cooling technicians, commercial and industrial maintenance personnel, and graduates of an approved technical program seeking a supplemental AAS degree.

Students who enroll in this program will complete courses in Electronic Theory, Digital Fundamentals, Industrial Wiring, Basics of Motor Theory, Introduction to Motor Controls, Programmable Logic Controllers, and Introduction to SCADA Software. They may complete the entire program in one year. Individuals who successfully complete the program will be awarded a certificate or AAS depending on their qualifications and prior educational credentials.

This self-paced, interactive online certificate option will allow students to work when they want, where they want, and at their own pace. This option does qualify for federal financial aid, provided a student remains enrolled in a minimum of six credits per semester and meets other financial aid criteria.

Objective and Purpose of the Program:

The electronic control 12 month online option will be dedicated to offering students the experience and overall training to become a successful employee. Completers will be able to:

- Apply reasoning and critical thinking to solve problems and seek information
- Use computer technology within a field of study

- Manage Energy controls solutions
- Follow safety practices and procedures
- Demonstrate the basic DC Circuit and AC Circuit operation including Ohm's Law
- Understand electronics and logic circuits
- Apply fundamental concepts of industrial wiring with an emphasis on installation procedures
- Demonstrate an understanding of the mechanical and electromagnetic control systems for AC and DC systems
- Complete projects using solid state devices in commercial and industrial applications
- Identify SCADA Software to include Wonderware and WAGO

Methods of Attaining the Objectives of the Program:

Mitchell Technical Institute already delivers a successful Automation Controls/SCADA program with highly qualified instructors who will assist with developing the technical curriculum. A full-time instructional designer, hired with funds from the TAA grant, is working with instructors to make sure that the curriculum is being developed appropriately for successful online delivery, and the necessary student services such as financial aid, technology support, and other support systems are in place to help assure their success.

Pending approval, MTI will develop marketing materials and recruit students. MTI will hire instructors and, with assistance from an advisory committee, will finalize course syllabi, purchase equipment and supplies, develop schedules, secure resource materials, and interview staff to hire.

MTI provides assurance that it possesses the resources and staff necessary to:

- Develop marketing materials and recruit students

- Recruit and supervise qualified staff
- Assess the abilities of students for good program and course placement
- Develop and administer budgets
- Make available textbooks and other instructional resources
- Evaluate programs and staff
- Assist students in finding jobs
- Secure input from industry through advisory committees
- Maintain membership in professional organizations and provide time and fiscal resources for professional development
- Provide financial aid and scholarships
- Provide services to disabled and nontraditional students
- Utilize best practices in online course delivery
- Provide technical support for online customers

Description of the Labor Market:

MTI has been in discussion with industry representatives about the need for employees to have the opportunities to advance their skills and develop a better understanding of the controls world. HVAC companies are working with control systems that are computerized and monitor the climate control for large industrial facilities, businesses and homes. In manufacturing the consensus is that controls will bring increased productivity, significant savings, improved quality, better safety and a more competitive edge. Electrical companies are installing and maintaining home and commercial security systems and electronic remote controls for heating, cooling, and lighting.

Employment opportunities are growing across the country, as the industries are undergoing changes in their operations and the consumers are becoming savvy about the importance of controls in their day to day lives. Growth rates will vary by

occupational specialty but it is clear that controls have become an integral part of our world.

Population Served:

The program is available to any applicant who has successfully completed the admission requirements set by Mitchell Technical Institute. MTI does not discriminate in its educational programs on basis of race, color, creed, religion, age, sex, disability, national origin or ancestry. The program will draw its students from South Dakota and surrounding states, and the opportunities for employment will favor that same geographical area. This program will be appealing to career electricians or HVAC technicians looking to enhance their skills. Recent technical graduates will also find it an excellent way to supplement their knowledge of advanced skills and controls.

Projected Three-Year Budget:

Due to the funding provided by the TAA Grant the startup costs for equipment and simulation software have been covered.

	2012-2013	2013-2014	2014-2015
Salaries/Benefits	\$56,000	\$58,000	\$60,000
Equipment	\$2,500	\$3,500	\$5,000
Supplies	\$3,000	\$3,000	\$3,000
Travel	\$2,500	\$2,500	\$2,500
Marketing	\$1,000	\$1,000	\$1,000
Total	\$65,000	\$68,000	\$70,500

Program Competencies and Entry and Exit Points:

Entry point will be the fall of 2012. The exit point will be at the completion of required credit hours. Completers will have the opportunity to receive a certificate in Industrial Controls. If students have previously received an AAS degree in either ECM or HVAC, they may add a third-year option in Controls, providing they have completed all the General Education requirements. Students must maintain an overall GPA of 2.0 to graduate. The curriculum is competency-based and will be reviewed and approved by a program advisory committee. Additionally, MTI will adhere to any future guidelines or certifications set by the industry.

Statement of Non-Duplication:

At the present time we are not aware of a similar degree or certificate offered in South Dakota.

Curriculum Design and Research:

The coursework will be delivered in an online setting. Due to the fact that some of our students will be employed and will be taking these certificate courses after working hours and on weekends, MTI has decided to offer the course work over three semesters.

Fall Semester

<u>Course Title</u>	<u>Credits Hours</u>
Electrical Theory	2
Electronics Theory	2
Digital Fundamentals	1
Industrial Wiring	2
Successful Online Experience	1
Total Credits	8

Spring Semester

<u>Course Title</u>	<u>Credits Hours</u>
Basics of Motor Theory	2
Intro to Motor Controls	3
Successful Online Experience	1
Total Credits	6

Summer Semester

<u>Course Title</u>	<u>Credits Hours</u>
PLCs	3
Industrial Control Devices	2
Total Credits	5

Wage Factor

In addition to the manufacturing applications of controls, there have been significant achievements in such areas as communications, transportation, service industries, and consumer products. The students that complete this certificate or the AAS option could work in a variety of settings. The value of this employee is in their expanded knowledge base. Paired with an already strong foundational knowledge of electrical or HVAC skills, the employee will most likely be compensated at a higher rate after completing this coursework. Therefore, the wage factor will vary.

According to the Bureau of Labor Statistics, these types of employees earn the following median wages:

Electrical and Electronics Installers and Repairers
2010 Median Pay \$49,170 per year
\$23.64 per hour

Industrial Machinery Mechanics and Maintenance Workers
2010 Median Pay \$44,160 per year
\$21.23 per hour

Heating, Air Conditioning, and Refrigeration Mechanic
2010 Median Pay \$42,530 per year
\$20.45 per hour

CIP Code

Suggested CIP Code 15.0399

Electrical & Electronic Engr-Related Tech/Technician, Other. Any instructional program in electrical and electronic engineering related technologies not described elsewhere in this group of instructional programs.

Appendix

Letters of Support



May 10, 2012

Mitchell Technical Institute
1800 East Spruce
Mitchell SD 57301

Vicki,

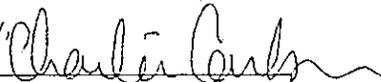
I'm happy to hear that MTI is pursuing an online electronic controls class. In our industry electronic controls are becoming a large part of our daily service activities. Without proper training our shop and field service technicians would struggle to solve even some of the simplest problems with electronic control systems which are widely used in the air conditioning systems of commercial buildings as well as equipment we use on a daily basis fabricating sheet metal duct work.

The training that is made available currently to our staff is for the most part factory service training which is quite expensive for our company. On top of the training expense we also pay for our personnel to travel to a major city usually to attend the specialized training. With a course offering in digital control fundamentals I feel we could possibly save some expense by having our employees learn the basics online at their own pace. We would then be able to see if they were qualified to advance into service of these types of systems without the expense of travel and lodging.

Online training would also benefit our current staff by allowing them to train when they have time in their busy schedules. Our employees value their time and anytime they can train without traveling is time well spent. I personally could see a few individuals in our current staff that may want to take advantage of this type of training to help them advance in our company.

All of our current technicians currently do some sort of online training each year and this trend will continue. Mitchell Technical Institute needs to offer online courses to stay current and be the logical choice for anyone trying to better themselves by furthering their education.

Please keep me informed as to when you have the online course operational so I can inform our staff of the training opportunity.

Sincerely, 

Charlie Carlson / Service Manager

MAIN OFFICE:
218 EAST FIRST AVENUE
P.O. BOX 1200
MITCHELL, SD 57301-7200
605/996-7548
FAX 605/996-3131

DIVISIONS:
700 WEST CHEROKEE
P.O. BOX 112
SIOUX FALLS, SD 57101-0112
605/336-3175
FAX 605/334-9620

4310 PENDLETON DRIVE
P.O. BOX 2861
RAPID CITY, SD 57709-9616
605/341-1940
FAX 605/341-2412

13609 "C" STREET
P.O. BOX 45264
OMAHA, NE 68145-0264
402/597-6949
FAX 402/597-0020

Dependable Service Since 1919