

Farm Power Technology

Program Proposal



Presented to the South Dakota
State Board of Education
November 2011
For Implementation
Fall 2012



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



Mitchell Technical Institute

New Program Proposal:	Farm Power Technology
Length of Program:	Two Year Associate Degree
Number of Students:	24
Projected Start Date:	Fall of 2012

Executive Summary:

It is the intent of Mitchell Technical Institute to offer the Farm Power Technology Program for an Associate of Applied Science Degree beginning the fall of 2012. The program is designed to develop competent and professional service technicians for entry level employment at agricultural power equipment dealerships.

Mitchell Technical Institute will be able to offer expertise in both staffing and curriculum to insure success for the delivery of this postsecondary program. MTI has existing curriculum and staff in many of the core courses. By combining courses that exist in the Agricultural Technology, Power and Recreational Vehicle Technology, and Precision Technology Specialist programs along with new program specific courses, this program will meet the needs of students and of our business and industry partners.

The Farm Power Technology associate degree program will prepare students for a position with companies that manufacture, service and sell agriculture power equipment and agriculture materials handling equipment. As a graduate students will have excellent employment opportunities as a service technician,

parts person, parts manager, service/warranty writer, or customer service/sales representative.

This program will be an excellent addition to the state's Agriculture Food and Natural Resources Cluster.

Mitchell Technical Institute

Application Overview

Program Title: Farm Power Technology

Number of Students: 24

Projected Start Date: Fall 2012

Identification and Description of Program:

This program will provide an opportunity for students to take classes in electronic controls, GPS, introductory diesel, drive trains, hydraulics, electrical systems, air conditioning systems, harvesting equipment, service management and customer service. The program will stress hands-on training and applied skills such as repair, diagnostic and troubleshooting skills that are critical for this industry. As part of the program, the students will be required to complete an internship at an Ag Power dealership or job site related to the program.

Objectives and Purpose of the Program:

The program will be dedicated to offering students the experience and overall education to become a successful Farm Power Technician. This program will provide attention to professionalism, communication and technical skills.

General Program Objectives:

- Receive OSHA 10 Certificate
- Communicate effectively through both written and oral means
- Demonstrate a professional work ethic and attitude
- Apply reasoning and critical thinking skills to solve problems and seek information
- Use computer technology with this field of study
- Work cooperatively

- Perform engine maintenance
- Demonstrate ability to troubleshoot and repair drive trains
- Master competencies that will allow air conditioning maintenance and repair
- Demonstrate technical ability to understand, operate, and service farm equipment
- Develop safe procedures and practices for all phases of service and repair of agriculture and outdoor power equipment
- Develop basic understanding of management skills for service and parts management, sales, and customer service
- Develop skills associated with computer based systems on agriculture equipment

Methods of Attaining the Objectives of the Program:

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, arrange classrooms, 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
- Provide tutoring for students needing extra academic help
- Provide access to library materials and computer labs
- Develop and administer budgets
- Make available textbooks and other instructional resources
- Provide career and personal counseling to students

- 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 a typical two-year technical institute climate
- Assist students with housing and provide daytime food service
- Provide services to disabled and nontraditional students
- Provide classrooms and laboratories
- Provide a variety of general education courses

Description of Labor Market Demand:

South Dakota's Ag economy is booming. The farm community realizes the need for efficient machinery and how it helps to increase productivity besides, perhaps enabling them to raise a second crop. Thus making agriculture even more attractive and in turn having a greater impact on our state's economy. Manufacturers are incorporating more and more technology in their products to meet this demand. At the local dealer level, where equipment is sold and serviced, the demand for technicians that understand this new technology and have the ability to repair it in a cost-effective timely manner, is at an all-time high. This program will meet the demand for the technician who can diagnose mechanical and electronic problems or hydraulic failures in the complex modern equipment used in today's agriculture sector.

Students who complete this associate degree option should not only see higher wages, but will have a wider scope of employment opportunities and have a

greater opportunity for advancement. The graduates will have employment opportunities as a service technician, parts person, parts manager, service/warranty writer, or customer service/sales representative at an Agriculture Power Equipment dealership.

Farm Equipment Mechanics and Service Technicians:

State and National Trends

United States	Employment		Percent Change
	2008	2018	
Farm equipment mechanics	31,200	33,400	+7%
South Dakota	Employment		Percent Change
	2008	2018	
Farm equipment mechanics	1,110	1,165	+5%

National Data Source: Bureau of Labor Statistics, Office of Occupational Statistics and Employment Projections
 State Data Source: South Dakota Department of Labor, Labor Market Information Center

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 not only be targeted at traditional-age college students, but will also be appealing to career changers and older workers looking to change or enhance skills.

Projected Three-Year Budget:

	2011-2012	2012-2013	2013-2014
Salaries/Benefits	\$25,000	\$60,000	\$120,000
Equipment	\$50,000	\$100,000	\$25,000
Supplies		\$20,000	\$20,000
Travel	\$1,500	\$1,500	\$1,500
Marketing	\$2,000	\$2,000	\$2,000
TOTAL	\$78,500	\$183,500	\$168,500

Program Competencies and Entry and Exit Points:

Entry point will be the fall of 2012. The exit point will be at the completion of coursework. Graduates will receive an Associate Degree in Farm Power Technology. 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 Nonduplication:

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

Proposed Curriculum Design

First Semester (Fall)

Service Center Fundamentals	3
Basic Engine Theory and Operations	2
Basic Engine Lab	2
Electrical/Electronic Systems	2
Diesel Engine and Control Systems	3
Math Elective	3
Communication Elective	3
Student Success	1
	19 Credits

Second Semester (Spring)

Advanced Service Center Fundamentals	3
Advanced Service Center Fundamentals Lab	2
Machinery Management	3
Welding	2
Advanced Diesel and Electronic Control Systems	3
Intro to Hydraulics	1
Computer Applications	3
Industrial Transportation (CDL)	1
OSHA 10	1
	19 Credits

Third Semester (Fall)

Powertrain and Drive System	3
Intro to GPS/GIS	2
GPS/GIS Principles Lab	4
Intro to Yield Monitor	3
Agricultural Chemical Equipment	1
Advanced Fluid Power Dynamics and Diagnostics	3
Social Science Elective	3
	19 Credits

Fourth Semester (Spring)

Guidance, Steering and Variable Rate Operations and Diagnostics	3
Advanced Electrical/Electronic Diagnostics	3
Ag Equipment Diagnostics	3
Successful Service Management	3
Psychology	3
Internship	6
	21 Credits

Wage Factor:

Location	Pay Period	2009				
		10%	25%	Median	75%	90%
United States	Hourly	\$20.90	\$25.82	\$29.94	\$34.33	\$39.21
	Yearly	\$43,500	\$53,700	\$62,300	\$71,400	\$81,600
South Dakota	Hourly	\$24.09	\$26.86	\$29.79	\$32.52	\$35.67
	Yearly	\$50,100	\$55,900	\$62,000	\$67,600	\$74,200

National Data Source: Bureau of Labor Statistics, Occupational Employment Statistics Survey
State Data Source: South Dakota Wage Information

CIP Code: 01.0205

Title: Agricultural Mechanics and Equipment/Machine Technology.

Definition: A program that prepares individuals to maintain and repair specialized farm, ranch, and agribusiness power equipment and vehicles. Includes instruction in the principles of diesel, combustion, electrical, steam, hydraulic, and mechanical systems and their application to the maintenance of terrestrial and airborne crop-spraying equipment; tractors and hauling equipment; planting and harvesting equipment; cutting equipment; power sources and systems for silos; irrigation and pumping equipment; dairy, feeding, and shearing operations; and processing systems.

Appendix A

October 20, 2011

Greg Von Wald
Mitchell Technical Institute
1800 East Spruce Street
Mitchell, SD 57301

RE: Ag Tech Program

Dear Mr. Von Wald:

I am writing this letter in support of the proposed Ag Tech Program at MTI.

I am the fourth-generation owner of Scott Supply Company, a single-location Case IH and New Holland farm equipment dealership in Mitchell. Our company is 95-years-old, and our motto is, "Where Service Means More Than The Sale Itself." We currently employ 18 service technicians. In March 2011, we completed a 15,000 square-foot addition to our service center.

A service technician's job functions are to service, repair, recondition, and assemble customer and dealership equipment, new or used; maintain and operate shop equipment and tools; and perform quality work as quickly and profitably as possible. The technicians we need to support our farm equipment business must have an understanding of diesel engines; powertrain and drive systems; electronics and hydraulics; welding; machinery maintenance; planting, spraying, harvesting, and other equipment diagnostics; and GPS technology. Service center fundamentals (record-keeping, maintaining a clean work area, and maintaining safe work habits) plus computer and communication skills are also a must. It is my understanding your Ag Tech Program would provide training and exposure in these areas. Producing trained, entry-level technicians with these skills would provide us (and others in our industry) a much-needed source of farm equipment technicians.

The future of agriculture is bright! Dealers are eyeing another exceptional year for farm equipment in 2012. According to the "2012 Dealers Business Trends and Outlook" in *Farm Equipment* magazine, "As usual, the biggest demand is for service technicians. More than 58% of dealers say they plan to add service staff in the next year vs. 56.4% in 2011." And technician availability remains one of dealers' greatest concerns. The program that MTI is initiating would help fill this demand, and I wholeheartedly endorse your efforts.

Thank you,



Chris Scott
Scott Supply Company