

Program Overview

This program consists of practical knowledge and shop management skills to help you master installation, service, assembly, adjustment, repair, and operation of various types of machinery and tractors. You will also learn how to work with hydraulics, transmissions, electrical systems, and air conditioning.

Offered at:

New Richmond



Student Profile

As a student in the Agricultural Power and Equipment Technician program, you should be able to:

- Manipulate tools and equipment skillfully
- Communicate ideas verbally
- Be organized
- Be willing to work with precise limits and standards
- Walk and move around in shop and field assignments
- Lift and carry 50 pounds
- See and hear well (normal or corrected)
- Distinguish colors

Please discuss any limitations you may have with a Student Success Center counselor.

Preparation for Admission

The following experiences will help you prepare for this program:

- Agriculture
- Welding
- Keyboarding
- Electronics
- Drafting
- Auto Mechanics
- English, Speech
- Basic Math, Algebra
- Physics
- Computers
- Power Technology
- Machine Shop
- Print Reading

Program Outcomes

Employers will expect you, as an Agricultural Power and Equipment Technician, to be able to:

- Apply principles of gasoline and diesel engine operation.
- Repair hydraulic and electrical systems.
- Service and repair transmissions.
- Demonstrate skills in human relations, applied math, and communications.

Career Outlook

Agricultural Power and Equipment Technicians are in demand because they can handle a variety of mechanical situations. The typical positions available to you after graduation include:

- Equipment Mechanic
- Construction Mechanic
- Diesel Mechanic
- Lawn and Garden Equipment Mechanic

Curriculum

Number	Course Title	Credits
Occupational Specific Courses		
31461310	Introduction to 12-Volt Electrical Theory	1
31461311	Introduction to Power Trains	1
31461312	Introduction to Mobile Hydraulics	1
31461313	Introduction to Diesel Engines	1
32070326	Gas Engines	5
32070358	Power Trains 1 ▲	5
32070359	Mobile Hydraulics 1 ▲	5
32070360	12-Volt Electrical 1 ▲	4
32070361	Diesel Engines ▲	5
32070364	Power Trains 2 ▲	5
32070366	Mobile Hydraulics 2 ▲	5
32070367	12-Volt Electrical 2 ▲	5
32442307	Welding for Mechanics	<u>2</u>
		45
Occupational Supportive/General Studies Courses		
10890100	Success Strategies 1	1
10890112	Information Resources	2
32801361	Applied Communications 1	2
32801363	Applied Communications 2 ▲	2
32804373	Math 373	2
32804383	Math 383	2
32809371	Applied Human Relations	<u>2</u>
		13
	PROGRAM REQUIREMENTS	58

▲ This course requires a prerequisite and/or corequisite, and must be completed with a grade of "C-" or better.

Course Descriptions

31461310

Introduction to 12-Volt Electrical Theory - Credits: 1

This course is designed for the learner to understand basic 12-volt electrical circuits, wiring diagrams, starting, charging, and lighting systems. Classroom trainers will be used to apply electrical theory. Using hands-on activities, this course will help the learner to better understand basic 12-volt electrical systems.

31461311

Introduction to Power Trains - Credits: 1

This course will provide a general overview of clutches, sliding gear, and hydrostatic drives. Design, operation, adjustment, and maintenance will be discussed.

31461312

Introduction to Mobile Hydraulics - Credits: 1

This course will provide a practical understanding of mobile hydraulic components. Their design, application, operation and maintenance will be studied. A hydraulic training bench will be used in the classroom.

31461313

Introduction to Diesel Engines - Credits: 1

This course will provide the learner with a basic understanding of the diesel engine. The design and operating principles of the engine, cooling, fuel, and lubrication systems will be examined.

32070326

Gas Engines - Credits: 5

This course provides students with the theory of operation, repair, and adjustment of four-cycle gasoline engines. Attention is focused on the rebuilding, checkout, and specifications associated with these engines. Equipment is used to analyze engine performance in a lab setting. Service procedures are also included in the course.

32070358

Power Trains 1 - Credits: 5

This course will provide an in-depth study of hydraulically operated and controlled transmissions as they are found on various types of farm tractors. You will learn transmission operation by studying manufacturers' service manuals as well as a prepared text. Lab projects will allow hands-on training. COREQUISITE: 31461311 Introduction to Power Trains.

32070359

Mobile Hydraulics 1 - Credits: 5

This course will provide a broad, general, and practical coverage of fluid power components and their design, application, operation, and maintenance. You will learn hydraulics operation by studying manufacturer's service manuals as well as a prepared text. Lab projects will allow hands-on training. COREQUISITE: 31461312 Introduction to Mobile Hydraulics.

32070360

12-Volt Electrical 1 - Credits: 4

This course is designed to study the construction, operation, adjustments, and repairs of electrical components used in tractors and farm implements. Classroom and lab activities will include reading and interpreting wiring diagrams, troubleshooting electrical circuits, and performing repairs on alternators, generators, starters, and regulators. Monitors are also included in this course. COREQUISITE: 31461310 Introduction to 12-Volt Electrical Theory.

32070361

Diesel Engines - Credits: 5

This course provides the student with both a theoretical and practical background in the basic operating principles of diesel engines. The course includes practical experience in rebuilding, testing, troubleshooting, and tuning diesel engines. Additionally, the student will gain experience in the proper use of tools and equipment. If prerequisite courses have not been completed, student must have consent of instructor to enroll. COREQUISITES: 32070326 Gas Engines and 31461313 Introduction to Diesel Engines.

32070364

Power Trains 2 - Credits: 5

This course provides an opportunity to work on clutches, transmission torque amplifiers, torque converters, differentials, final drives, and power take-off units. Lab time is spent on disassembly, parts identification, operation, and repair of these units. COREQUISITES: 32070358 Power Trains 1 and 31461311 Introduction to Power Trains.

32070366

Mobile Hydraulics 2 - Credits: 5

This course provides an in-depth study on how the basic fluid power components are incorporated into a tractor hydraulic system. This lecture- and lab-based course includes demonstration and practice opportunities. If prerequisite courses have not been completed, student must have consent of instructor to enroll. COREQUISITES: 32070359 Mobile Hydraulics 1 and 31461312 Introduction to Mobile Hydraulics.

32070367

12-Volt Electrical 2 - Credits: 5

This is an advanced electrical course to meet the demands of today's newer equipment. Learners will receive training on electronic service tools, pulse width modulation solenoids, can bus controllers, and terminator networks. Additional topics will include yield monitors and auto guidance systems. COREQUISITES: 31461310 Introduction to 12-Volt Electrical Theory and 32070360 12-Volt Electrical 1.

32442307

Welding for Mechanics - Credits: 2

Instruction in safe setup and operation of oxyacetylene cutting (OAC), SMAW (Stick), GMAW (Mig), FCAW, and/or GTAW (Tig) welding in applications related to general industry practices. Selection of appropriate welding processes with a specific emphasis on typical repair situations including metal identification will be stressed.

Graduate Employment Information

(WITC Graduate Survey Responses 2005-2006)

Number of graduates	13	Number employed	7	% employed in WITC district	67%
Number of responses	12	Percent employed	78%	Range of yearly salary	\$23,000-\$40,000
Number available for employment	9	Employed in related field	6	Average yearly salary	\$31,609

career vision