This document is a program of study for Agricultural Mechanization programs at the secondary level. This program of study is considered a framework not a curriculum. From this framework educators may use this as a tool to provide structure for developing learning modules, unit plans or daily lesson plans that meet the tasks or standards within the program of study. This program of study is based on research, experience and many resources. The goal is to train a workforce that is skilled, knowledgeable and able to meet the needs of the industry today and well into the future.

Farm equipment dealers employ most of the farm equipment mechanics. Often called service technicians, these workers service, maintain and repair farm equipment as well as smaller lawn and garden tractors sold to suburban homeowners. Many of today’s farms use more sophisticated equipment and advanced business practices than ever before. Specialized farm machinery has grown in size, complexity, variety and does everything from tilling the land to milking the cows. Modern equipment uses more electronics and hydraulics, making it difficult to perform repairs without some specialized training. Mechanics work mostly on equipment brought into the shop for repair and adjustment.

Technical training is becoming more important because of the development of more complex farm machinery and because of recent efforts to standardize skills within the occupation. Employers prefer to hire farm equipment mechanics that have completed a 1- or 2-year postsecondary training program in agricultural or farm mechanics at a vocational school or community college. Mechanics need knowledge of computers and must have the aptitude to read circuit diagrams and blueprints in order to make complex repairs to electrical systems.

Sales representatives are an important part of manufacturers’ and wholesalers’ success. Regardless of the type of product they sell, their primary duties are to interest wholesale and retail buyers and purchasing agents in their merchandise and to address any of the client’s questions or concerns. They also advise clients on methods to reduce costs, use their products and increase sales. Sales representatives market their company’s products to manufacturers, wholesale and retail establishments, government agencies and other institutions.

**Assumptions of This Program of Study**

Graduates of this program of study must receive high quality training in order to meet the needs of business and industry. In addition, the skills taught should include the seamless integration of academic concepts with technical competencies, providing the linkage from conceptual to contextual learning. Furthermore, the skills taught should offer the requisite aptitudes for job advancement, security and portability.

Agriculture mechanics and sales representatives need high quality training in order to meet the needs of business and industry. In addition, the skills taught should include the seamless integration of academic concepts with technical competencies, providing the linkage from conceptual to contextual learning. Furthermore, the skills taught should offer the requisite
aptitudes for job advancement, security and portability. The following knowledge and skills are essential for a career in this field.

- **Sales and Marketing** – Knowledge of principles and methods for showing, promoting and selling products or services. This includes marketing strategy and tactics, product demonstration, sales techniques and sales control systems.
- **Customer and Personal Service** – Knowledge of principles and processes for providing customer and personal services. This includes customer needs assessment, meeting quality standards for services and evaluation of customer satisfaction.
- **Mathematics** – Knowledge of arithmetic, algebra, geometry, calculus, statistics and their applications.
- **Administration and Management** – Knowledge of business and management principles involved in strategic planning, resource allocation, human resources modeling, leadership technique, production methods and coordination of people and resources.
- **English Language** – Knowledge of the structure and content of the English language including the meaning and spelling of words, rules of composition and grammar.
- **Economics and Accounting** – Knowledge of economic and accounting principles and practices, the financial markets, banking and the analysis and reporting of financial data.
- **Production and Processing** – Knowledge of raw materials, production processes, quality control, costs and other techniques for maximizing the effective manufacture and distribution of goods.
- **Mechanical** – Knowledge of machines and tools, including their designs, uses, repair and maintenance.
- **Computers and Electronics** – Knowledge of circuit boards, processors, chips, electronic equipment and computer hardware and software, including applications and programming.
- **Physics** – Knowledge and prediction of physical principles, laws, their interrelationships and applications to understanding fluid, material and atmospheric dynamics; and mechanical, electrical, atomic and sub-atomic structures and processes.

High-quality programs should meet the following standards:
- Promote positive working relationships
- Implement a curriculum that fosters all areas of skill development
- Use appropriate and effective teaching approaches
- Provide ongoing assessments of student progress
- Employ and support qualified teaching staff
- Establish and maintain relationships and use resources of the community
- Provide a safe and healthy learning environment
- Implement strong program organization and supervision policies that result in high-quality teaching and learning
- Integrate academic skills and aptitudes necessary for postsecondary education, gainful employment and a foundation of lifelong learning
Academic Rigor

Research shows that career success requires the same level of college-prep courses as postsecondary success requires. The Department of Education’s focus is to ensure that every student graduates prepared for college and a career. In order to be successful in this program of study, students should follow the academic sequence as determined by Pennsylvania’s high school reform efforts.

Resources Used for This Program of Study

- MAVCC (Multistate Academic Vocational Curriculum Consortium) http://www.mavcc.org/
- NOCTI (National Occupational Competency Testing Institute http://www.nocti.org/
- O*NET http://online.onetcenter.org/
- Pennsylvania Department of Labor & Industry High Priority Occupations http://www.portal.state.pa.us/portal/server.pt/community/high_priority_occupations/12910
- VTECS (A Consortium of Innovative Career and Workforce Development Resources) http://www.vtecs.org/

CIP Code

01.0201 Agricultural Mechanization

Pennsylvania CIP

An instructional program that prepares individuals in a general way to sell, select and service agriculture or agribusiness technical equipment and facilities including computers, specialized software, power units, machinery, equipment, structures and utilities. This program includes instruction in agriculture power units, the planning and selection of materials for the construction of agriculture facilities, safe mechanical practices associated with water conservation, erosion control and data processing systems.

Integrate Academic Career Education and Work Standards for Student Success

As students participate in career exploration activities and rigorous studies from elementary grades through graduation, they learn to appreciate the relationship between their classroom learning and the skills needed within the workplace. The academic and workplace skills within the Academic Standards for Career Education and Work are expected to be addressed within classrooms and achieved by all students throughout Pennsylvania. No student should leave secondary education without a solid foundation in these Standards.

http://www.portal.state.pa.us/portal/server.pt/community/state_board_of_education/8830/state_academic_standards/529102
CEW Standards Tool Kit for teachers to implement CEW Standards
www.pacareerstandards.com

Pennsylvania Approved Certifications

http://www.portal.state.pa.us/portal/server.pt/community/instructional_resources/7392/industry-recognized_certifications_for_career_and_technical_education_programs/507887

The Program of Study Documents

- Crosswalk Template for Task Alignment (excel) – Agricultural Mechanization, General – Instructions: Indicate the number code(s) of your school’s program competency or competencies aligned to each program of study competency.
- Crosswalk Template for Task Alignment (pdf) – Agricultural Mechanization, General – Instructions: Indicate the number code(s) of your school’s program competency or competencies aligned to each program of study competency.
- Scope and Sequence Template (word) – Enter secondary technical Program of Study courses. Postsecondary courses will be determined when the Statewide Articulation Agreement for this Program of Study is complete.
- Scope and Sequence Template (pdf) – Enter secondary technical Program of Study courses. Postsecondary courses will be determined when the Statewide Articulation Agreement for this Program of Study is complete.
- PA Academic Standards/Eligible Content Alignment (excel) – Agricultural Mechanization, General Task List – Crosswalk of PA Academic Standards/Eligible Content for Reading, Writing, Speaking and Listening (RWSL), Math, and Science aligned to Program of Study Secondary Competency List. (coming soon)
- PA Academic Standards/Eligible Content Alignment (pdf) – Agricultural Mechanization, General Task List – Crosswalk of PA Academic Standards/Eligible Content for Reading, Writing, Speaking and Listening (RWSL), Math, and Science aligned to Program of Study Secondary Competency List. (coming soon)

For more information, contact:

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