

# WE'VE GOT YOUR CAREER COVERED!

## Ag Power Course Descriptions

### **APT 101 Welding I (3 cr hr)**

Welding I is a course designed for the agriculture and agriculture-related students. This course will be a study of welding methods and electrodes used in maintenance welding. Oxygen acetylene brazing, and cutting will be covered. Cast iron welding will also be learned. Threading operations, equipment maintenance, and soldering techniques will be taught. Prerequisite: None

### **APT 125 Outdoor Power Equipment (3 cr hr)**

This course is designed to acquaint the learner with the theory, operation, maintenance, and repair of outdoor power equipment. Emphasis will be on the power plant for this equipment. Light duty single cylinder, 4-cycle engines will be highlighted. Maintenance, repair, and overhaul procedures for these engines will be covered in depth within the course. Prerequisite: None

### **APT 127 Tractor and Auto Air Conditioning (3 cr hr)**

Tractor and Auto Air Conditioning is a course designed to give the student knowledge of the basic air conditioning theory and operation as well as the proper maintenance and service procedures. Each student will have the opportunity to diagnose and repair air conditioning components. A major emphasis will be on safety and the correct use of the air conditioning special tools. Prerequisite: None

### **APT 137 Agriculture Seminar (1 cr hr)**

Agriculture Seminar is designed for those students wishing to improve their skills in Work Ethics, Customer Relations, and all other aspects of job related skills. Employee/employer relations are studied with the intent to use these skills on the job. Prerequisite: None

### **APT 138 Applied Hydraulics & Pneumatics (3 cr hr)**

This course is designed for the students to study the physical laws and principles governing the behavior of fluids used in mobile hydraulics and pneumatics. Considerable time will be spent on all types of hydraulics and pneumatics components and their applications in various systems. The students will perform general maintenance, repairs, and testing of the individual components. Prerequisite: None

### **APT 141 Fundamentals of Engines (3 cr hr)**

Fundamentals of Engines is designed for those students wishing to increase their knowledge of the internal combustion engine such as principles of operation of two- and four-stroke engines, design, construction, repair and maintenance. Prerequisite: None

### **APT 146 Diesel Electrical Systems (3 cr hr)**

Review of basic electrical theory and operational components for 6, 12, and 24 volt systems. Basic breaker point systems and troubleshooting will be covered. Batteries, cranking motors, charging systems, lighting, and accessory systems will be covered, along with all switches, relays, electrical circuits, and wiring diagrams. The student will be required to demonstrate safe service and repair procedures for all electrical components. Prerequisite: TIN 129 Applied Electricity/Electronics

### **APT 224 Occupational Work Experience (3 cr hr)**

This course is designed to provide students with additional job-related agricultural technician skills while working at an approved dealership. Minimum requirements for the course include at least one hundred (100) work hours per credit hour, supervision by the employer and the instructor, and a log of work performed. Prerequisite: Instructor's permission

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### **APT 226 Tractor Maintenance & Repair (2 cr hr)**

Tractor Maintenance & Repair is designed for those students wishing to increase their knowledge of maintaining and repairing tractors, i.e. performing maintenance checks at intervals as specified by the manufacturer, noting any minor repairs that need to be made, and performing those tasks which are minor in nature. Prerequisite: None

### **APT 236 Agricultural Seminar (1 cr hr)**

Agricultural Seminar is designed for second year APT students wishing to improve their skills in work ethics, customer relations, and all other aspects of job related skills needed to work effectively and efficiently with peers, managers, and customers. Prerequisite: APT137 and work experience or high school equivalent.

### **APT 244 Ag Power Trains (3 cr hr)**

Theories of operation and design of agricultural drive trains, the clutch, standard transmissions, hydraulic assist transmissions, hydrostatic drives, torque converters, differentials, final drives, power take-offs, and special drives are all covered in this course. The student will be required to apply what they have learned, working on actual lab projects. Prerequisite: None

### **APT 245 Shop Practice I (3 cr hr)**

Shop Practice I is a course designed for the students who are pursuing an Associate of Applied Science degree in Ag Power Technology. Several phases of the Ag shop operation will be used, such as shop planning, filling out work orders, organization, scheduling, safety procedures, and the use of equipment safely. Prerequisite: Instructor's permission

### **APT 246 Ag Machinery Operation (3 cr hr)**

Ag Machinery operation is designed for those students wishing to increase their knowledge of various ag machinery used in the local farming operation, such as sit up and adjustment of tillage equipment, the set up and operation of tractors, combines, hay and forage equipment, and planting systems. Prerequisite: None

### **APT 247 Electrical Accessories Diagnosis & Repair (3 cr hr)**

This course is designed for advanced agricultural electronics. Diagnosis, repair, and troubleshooting techniques will be emphasized. Lighting circuits, electronic fuel injection, climate controls, and electronic over hydraulic controls are examples of topic areas covered. The students will develop skills through hands-on practice and lecture. Competency profiles are used to determine the progress of each student's skill development. Prerequisites: TIN 129 Applied Electricity/Electronics and APT 146 Diesel Electrical Systems

### **APT 248 Diesel Fuel Systems (3 cr hr)**

Diesel Fuel Systems is a course designed to enable the students to perform basic diagnostics of the fuel systems used in the agricultural industry. It will cover such systems used on John Deere, Case IH, Ford New Holland, and AGCO. Service procedures will be done on fuel system components such as fuel tanks, filter, lift pumps, injection pumps, injectors, lines, pipes, and fittings. Prerequisite: None



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