

# AGRICULTURAL EQUIPMENT (AEQ)

---

## AEQ 1071 INDUSTRIAL SAFETY

**Description:** Designed to acquaint students with standard industry practices and emergency procedures and develop an awareness of job hazards. Students will prepare for a CPR/First Aid exam and receive some bulk handling equipment training (forklift/skid steer).

**Credit Hours:** 1

**Max credits per semester:** 1

**Max credits per degree:** 1

**Grading Option:** Graded

## AEQ 1103 SMALL ENGINES

**Description:** A complete course in gasoline engine operation. It consists of operational theory and nomenclature including the internal components and its air, fuel, lubrication, and cooling system. This course will emphasize small and multi-cylinder gas and diesel engines.

**Credit Hours:** 3

**Max credits per semester:** 3

**Max credits per degree:** 3

**Grading Option:** Graded

## AEQ 1153 EQUIPMENT PRINCIPLES

**Description:** Students will be exposed to the basic principles of agricultural equipment including power trains, hydraulics, fuel systems and electricity. Alternative devices will be studied.

**Credit Hours:** 3

**Max credits per semester:** 3

**Max credits per degree:** 3

**Grading Option:** Graded

## AEQ 1171 FARM EQUIP & SAFETY

**Description:** An orientation into the safe operation of tractors, combines, balers, skid loaders, and other common farm equipment. Students will be expected to demonstrate their ability to safely operate several types of equipment.

**Credit Hours:** 1

**Max credits per semester:** 1

**Max credits per degree:** 1

**Grading Option:** Graded

## AEQ 1203 WELDING

**Description:** Develop fundamental skills and procedures for oxy/acetylene, arc, and wire feed welding in flat position. Included will be basic blueprint interpretation and weld symbols, with metal cutting and preparation techniques.

**Credit Hours:** 3

**Max credits per semester:** 3

**Max credits per degree:** 3

**Grading Option:** Graded

## AEQ 1313 INTERMEDIATE WELDING

**Description:** (Pre req: AEQ 1203 or equivalent) Develop skills in vertical, horizontal and overhead position arc and wire feed welding. Plasma Arc Cutting and a small assigned construction project are included. Use of a spool gun and TIG equipment will be introduced.

**Credit Hours:** 3

**Max credits per semester:** 3

**Max credits per degree:** 3

**Grading Option:** Graded

## AEQ 1501 INTRODUCTION TO ELECTRIC CODE

**Description:** Introduction to Nebraska state electrical law and the National Electric Code as they pertain to the working electrician.

**Credit Hours:** 1

**Max credits per semester:** 1

**Max credits per degree:** 1

**Grading Option:** Graded

## AEQ 1503 DC CIRCUIT ANALYSIS

**Description:** Fundamentals of DC electricity as applied to series, parallel, and series-parallel circuits. Diagnosis and troubleshooting of circuits with test equipment.

**Credit Hours:** 3

**Max credits per semester:** 3

**Max credits per degree:** 3

**Grading Option:** Graded

## AEQ 1513 AC CIRCUIT ANALYSIS

**Description:** Fundamentals of AC electricity including alternating current theory, waveform quantities and characteristics, and network analysis. Diagnosis and troubleshooting simple circuits with proper test equipment.

**Credit Hours:** 3

**Max credits per semester:** 3

**Max credits per degree:** 3

**Grading Option:** Graded

## AEQ 1651 HARVEST OPERATIONS

**Description:** The course will primarily focus on grain harvest operations. Grain combine setup and operation will be emphasized. Students will gain an understanding of factors influencing harvest efficiency including estimating harvest losses. Combine yield monitor operation will also be included.

**Credit Hours:** 1

**Max credits per semester:** 1

**Max credits per degree:** 1

**Grading Option:** Graded

## AEQ 1713 CARPENTRY

**Description:** Learning basic tools and techniques of carpentry as it would pertain to a farm and ranch, including selection, use and maintenance of hand and power tools; selection of wood construction materials; construction of joints; application of finishes; and using these basic skills to follow a plan in the construction of a functional project.

**Credit Hours:** 3

**Max credits per semester:** 3

**Max credits per degree:** 3

**Grading Option:** Graded

## AEQ 2103 AG CHEMICAL APPLICATION

**Description:** A course to provide career based training for a commercial applicator of pesticides, fertilizers and other agricultural chemicals. A foundation for the safe and effective use of agricultural chemicals will be emphasized. Students will gain experience and knowledge in the calibration, operation and maintenance of agricultural chemical application equipment. Preparation for obtaining a commercial pesticide applicator license will be included.

**Credit Hours:** 3

**Max credits per semester:** 3

**Max credits per degree:** 3

**Grading Option:** Graded

### **AEQ 2211 HYDRAULICS**

**Description:** Basic study of hydraulic concepts, applications, and operation as applied to power equipment systems. This class also includes study of the diagnosis of power equipment with the emphasis on hydraulic problems.

**Credit Hours:** 1

**Max credits per semester:** 1

**Max credits per degree:** 1

**Grading Option:** Graded

### **AEQ 2213 ADVANCED WELDING**

**Description:** (Pre req: AEQ 1313 or equivalent) Students will develop skills using a spool gun and TIG welding, and additional arc and wire feed welding on a wide variety of metals. The second eight weeks is devoted toward preparation for American Welding Society certification.

**Credit Hours:** 3

**Max credits per semester:** 3

**Max credits per degree:** 3

**Grading Option:** Graded

### **AEQ 2303 EQUIP PREVENTATIVE MAINTENANCE**

**Description:** A study of economic principles and principles of operation, adjustments, repair, maintenance, and tune-up of farm vehicles (automotive, tractors, and powered farm equipment vehicles).

**Credit Hours:** 3

**Max credits per semester:** 3

**Max credits per degree:** 3

**Grading Option:** Graded

### **AEQ 2323 PRECISION FARM TECH**

**Description:** A comprehensive overview of precision farming techniques used in crop production including: GPS systems and applications; yield monitors and map interpretation; grid/zone soil sampling and soil sensors; remote sensing techniques; variable-rate equipment and strategies, and GIS software utilization.

**Credit Hours:** 3

**Max credits per semester:** 3

**Max credits per degree:** 3

**Grading Option:** Graded

### **AEQ 2404 MECHANIZED IRRIGATION SYSTEMS**

**Description:** Prerequisites: AEQ 1501, AEQ 1503, AEQ 1513. Fundamentals of mechanized irrigation systems focusing on center-pivot components. Technical service and operation will be emphasized. Application of industrial electrical components and controls.

**Credit Hours:** 4

**Max credits per semester:** 4

**Max credits per degree:** 4

**Grading Option:** Graded

### **AEQ 2413 DIESEL ENGINE**

**Description:** A study of cost effective maintenance programs for agriculture power equipment. Included is nomenclature, operational theory, adjustment and maintenance of agriculture gasoline and diesel engines. Lab includes the disassembly of a diesel engine.

**Credit Hours:** 3

**Max credits per semester:** 3

**Max credits per degree:** 3

**Grading Option:** Graded

### **AEQ 2522 METAL FABRICATION**

**Description:** Prerequisite: AEQ 2213. Students will develop advanced metal-working skills with AC aluminum TIG welding, additional wire feed welding with aluminum, and programmable welding with development of programming, service, and equipment maintenance. Further skills will include basic use of metal lathe and precision measurement. The second eight weeks will include preparation for American Welding Society (AWS) aluminum certification (D1.2), a second opportunity for AWS steel certification (D1.1), and some small welding project planning and construction.

**Credit Hours:** 2

**Max credits per semester:** 2

**Max credits per degree:** 2

**Grading Option:** Graded

### **AEQ 2604 WELDING APPRENTICESHIP**

**Description:** (Pre req: approval by Academic Lead) The apprenticeship provides job experience in your field of study at an approved work location. Official agreements are entered into between the student, employer, and the college. The internship must last a minimum of 8 weeks averaging at least 40 hours per week. A written journal of daily work activities plus a 10 minute PowerPoint presentation are required upon completion. Students must submit a list of learning objectives prior to the apprenticeship and include discussion of these within their presentation. The student and employee will also complete a survey at the conclusion of the apprenticeship.

**Credit Hours:** 4

**Max credits per semester:** 4

**Max credits per degree:** 4

**Grading Option:** Pass No Pass

### **AEQ 2801 REINKE CERTIFICATION**

**Description:** Prerequisites: AEQ 1501, AEQ 1503, AEQ 1513. Students will complete the Reinke Platinum PLUS Certified Technician training program. The course is an on-line training program developed by Reinke with integrated exams at the end of each training module. Students will be expected to complete the training sessions on their own time; however, faculty assistance will be available. To receive a Pass for the course, students must meet performance standards established by Reinke.

**Credit Hours:** 1

**Max credits per semester:** 1

**Max credits per degree:** 1

**Grading Option:** Pass No Pass