

AG. 230 AGRICULTURAL STRUCTURES

COURSE DESCRIPTION: A course preparing students to maintain, evaluate, design, and build agriculture structures using approved construction techniques.

UNITS OF INSTRUCTION	MINUTES OF INSTRUCTION
Concrete and Masonry	235
Leveling and Land Management	470
Carpentry	2,350
Electrical Wiring	705
Siding	235
Safety	235
TOTAL MINUTES	4,230

A. Concrete and Masonry

1. Select materials for concrete construction
2. Determine quantity and cost of materials for a job
3. Determine the water-cement ratio for a job
4. Plan and construct forms for concrete
5. Identify the use of air-entrained concrete
6. Order ready-mixed concrete
7. Identify the techniques for curing concrete
8. Determine moisture content in sand
9. Make a slump test
10. Mix concrete on the job site
11. Place concrete in forms
12. Finish concrete slabs
13. Mix masonry mortar
14. Lay concrete block

B. Leveling and Land Measurement

1. Set up leveling instrument
2. Take rod readings
3. Determine difference in elevation of two or more points
4. Record field notes for differential leveling
5. Measure distance with steel tape

6. Determine percent of slope
7. Determine land area
8. Use the hand level
9. Read legal land descriptions
10. Lay out foundations, footings, and batter boards

C. Carpentry

1. Identify structural parts of a farm building by name
2. Read plans and working drawings
3. Figure a bill of material
4. Select wood framing, roofing, and insulation materials
5. Use carpentry hand tools and measuring instruments
6. Use power tools for carpentry construction
7. Layout the framing of a building
8. Layout and cut rafters and braces
9. Apply glue, nails, bolts, screws, and construction fasteners
10. Evaluate insulation materials and building design for energy efficiency

D. Electrical Wiring

1. Understand the National Electrical Code requirements for wiring; especially for harsh environments found in agricultural structures
2. Describe the relationship of volts, amps, and ohms in terms of Ohm's Law
3. Plan an electrical circuit
4. Determine electrical power requirements
5. Read the kilowatt hour meter
6. Identify the function of overcurrent and ground fault protection
7. Measure electrical circuits for voltage, current flow, resistance, and wattage
8. Install electrical circuits
9. Trouble-shoot electrical circuits

(NOTE! IF A STRUCTURE IS WIRED AS A PART OF THE STUDENT ACTIVITIES FOR THIS UNIT, THE WORK SHOULD BE DONE UNDER THE SUPERVISION OF A CERTIFIED ELECTRICIAN.)

E. Siding

1. Identify different types of siding used when building agricultural structures
2. Identify the tools and equipment needed to hang siding
3. Demonstrate the ability to properly hang siding

F. Safety

1. Identify safety problems that may occur while working on agricultural structures
2. Identify safety equipment needed while working on agricultural structures
3. Demonstrate safe practices while working on agricultural structures