MURRAY STATE UNIVERSITY
COURSE SYLLABUS OUTLINE

SCHOOL OF AGRICULTURE

COURSE NUMBER: AGR 576                  CREDIT HOURS: 3

I. TITLE:
   Agricultural Electrification Systems

II. CATALOG DESCRIPTION:

   This course is the study of the basic principles of electricity, the fundamentals of wiring and selection, the operation and economics of agricultural electricity equipment. (Spring, odd years) Prerequisites: AGR 170.

   *To receive graduate credit for this course, a student must be admitted to graduate studies prior to registering for the course.*

III. PURPOSE:

   To provide students with a basic understanding of electricity and basic wiring skills used in the agricultural industry.

IV. COURSE OBJECTIVES:

   A. To become familiar with basic electrical theories, terms, and safety procedures.
   B. To become familiar with electrical tools, wiring, the national electrical code and electrical symbols.
   C. To provide the experience necessary to develop skills in becoming an electrician, especially in the area of troubleshooting.

V. CONTENT OUTLINE:

   A. Introduction to Agricultural Wiring
   B. Electrical Fundamentals
   C. Farm Electrical Systems
   D. Farm Building Services
   E. Farm Main Service Entrance
   F. Overcurrent Protection
   G. Voltage Drop
   H. Feeders
   I. Farm Wiring Methods and Materials
   J. Equipment and Bonding
K. Farm Lighting  
L. Standby Electrical Power Systems 
M. Phase Converters  
N. Transformers  
O. Heating and Cooling  
P. Electric Motors  
Q. Motor Control  
R. Cord-and-Plug-Connected Equipment  
S. Reading Wiring Diagrams and Blueprints  
T. General Farm Wiring  
U. Wiring for Livestock Housing  
V. Dairy Farm Wiring  
W. Feeding System Wiring  
X. Swine Housing Wiring  
Y. Poultry Farm Wiring  
Z. Grain Drying and Storage Wiring  
AA Irrigation System Wiring  

VI. INSTRUCTIONAL ACTIVITIES:  
A. Demonstrations  
B. Schematics and Electrical Blueprints  
C. Audio-visual Presentations  
D. Resource People  
E. Field Trips  

VII. FIELD AND CLINICAL EXPERIENCES:  
Each class will have one major electrical project to wire. Previous projects have included residential and agricultural wiring.  

VIII. RESOURCES:  
A. Electrical panels, circuit boards, etc.  
B. Textbooks on reserve  
C. TVA, Army Corp of Eng, Shawnee Steam Plant and Other Resource personnel  
D. Field involvement (when possible)  

IX. GRADING PROCEDURES:  
90 - 100 = A  
80 - 89 = B  
70 - 79 = C  
60 - 69 = D  
Below 60 = E
There will be 3 to 4 one-hour exams worth 100 points each. Each exam will be announced at least one week in advance. The final exam will be comprehensive. Labs will count for 50%. All tools, meters, etc., will be provided by MSU. Students must furnish safety glasses for lab work.

X. **ATTENDANCE POLICY:**

Please refer to the most current copy of the *Murray State University’s Undergraduate Bulletin and Graduate Bulletin.*

XI. **ACADEMIC HONESTY POLICY:**

(Adopted by the MSU Board of Regents)
Cheating, plagiarism (submitting another person’s material as one’s own), or doing work for another person which will receive academic credit are all impermissible. This includes the use of unauthorized books, notebooks, or other sources in order to secure or give help during an examination, the unauthorized copying of examinations, assignments, reports, term papers, or the presentation on unacknowledged material as if it were the student’s own work. Disciplinary action may be taken beyond the academic discipline administered by the faculty member who teaches the course in which the cheating took place.

NOTE: The School of Agriculture Faculty have adopted and implemented an Academic Honesty Policy in addition to the University Honesty Policy, which can be found in the current *Undergraduate Bulletin and Graduate Bulletin.* The policy sets guidelines regarding acts of dishonesty and the procedure to follow should an event occur. It is each Agriculture student’s responsibility to obtain and read a copy of this document. The School’s Academic Honesty Policy can be obtained by asking for a copy from any Agriculture Faculty member or the Secretary.

XII. **TEXT AND REFERENCES:**

A. Texts
   - *National Electrical Code, 1993*
   - *Fundamentals of Electricity for Agriculture; 2nd Edition* by Gustafson

B. References
   1. Fundamentals of Electricity
   2. Basic Electricity
   3. Agricultural electrification

XIII. **PREREQUISITES:**

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XIV. **STATEMENT OF AFFIRMATIVE ACTION AND EQUAL OPPORTUNITY:**

Murray State University endorses the intent of all federal and state laws created to prohibit discrimination. Murray State University does not discriminate on the basis of race, color, national origin, gender, sexual orientation, religion, age, veteran status, or disability in employment, admissions, or the provision of services and provides, upon request, reasonable accommodation including auxiliary aids and services necessary to afford individuals with disabilities equal access to participate in all programs and activities. For more information, contact Sabrina Y. Dial, Director of Equal Opportunity, Murray State University, 103 Wells Hall, Murray, KY 42071-3318. Telephone: 270-809-3155 (voice), 270-809-3361 (TDD).

XV. **MSU SCHOOL OF AGRICULTURE CELL PHONE POLICY**

The School of Agriculture recognizes that in today’s world cell phones are a familiar and often necessary form of communication for students.

It shall be the policy of the School that no cell phone usage shall be allowed in class and/or labs without the prior consent of the course instructor. This shall include verbal calling, incoming calls, email, text messaging, and use of cell phone calculators on tests and quizzes.

Cell phones must be kept off and out of sight (i.e. secured to a person’s belt or kept in a bag or purse away from desks and lab counters).

Should a student’s cell phone be visible, ring, or other form of unauthorized usage that is interruptive to the class or lab, the student may be asked to leave class and not return for that class/lab period.

Upon prior consent of the instructor, a student may obtain permission to have their phone on in case of an emergency or in critical family situations.

This policy also includes pagers and other electronic equipment such as blackberries and/or computers/laptops.