MURRAY STATE UNIVERSITY
COURSE SYLLABUS OUTLINE

SCHOOL OF AGRICULTURE

COURSE NUMBER: AGR 672 CREDIT HOURS: 3

I. TITLE:

Advanced Agricultural Metal Processes

II. CATALOG DESCRIPTION:

Advanced applications of the principles of SMAW, OAW, GSAW, and GTAW. Other metal processes include hard facing, powder coating, plasma cutting, testing welds, symbols, and certification procedures.

AGR 170 and AGR 372 (or approval of the instructor).

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

III. PURPOSE:

To develop a working knowledge of the metallurgy theory and to provide welding skills in advanced agricultural metal processes.

IV. COURSE OBJECTIVES:

A. To become professional with metal working systems used in agriculture.
B. To advance skills needed in equipment and maintenance.
C. To prepare students to work in a safe and professional manner.
D. To prepare students for certification in the welding area.

V. CONTENT OUTLINE:

A. Review SMAW theory and practice.
B. Review OAW theory and practice.
C. Review of brazing and soldering.
D. Review of oxy-acetylene cutting.
E. Gas tungsten arc welding (GTAW) (TIG) theory and practice.
F. Gas metal arc welding (GMAW) (MIG) theory and practice.
G. Carbon arc torch.
H. Hard facing.
I. Plasma arc cutting.
J. Cast iron welding.
K. FFA contest procedures in welding.
L. Testing welds.
M. New and emerging technologies.
N. Certification guidelines and symbols.
O. Curricula and data sources in the field – AWS, NEMA, etc.

VI. INSTRUCTIONAL ACTIVITIES:

A. Labs
   1. Demonstration
      a. Lecture
      b. Audio-Visual presentations
      c. Computer programs

VII. FIELD AND CLINICAL EXPERIENCES:

None

VIII. RESOURCES:

A. Handouts
B. Textbooks on reserve
C. Resource people (when applicable)
D. Computer
E. Field trips to local industry
F. Labs exercises

IX. GRADING PROCEDURES:

90 – 100 = A
80 – 89 = B
70 – 79 = C
60 – 69 = D
Below 60 = E

A. There will be 3 one-hour exams announced at least one week in advance. The final examination will be comprehensive.
B. Final grade will be 50% lecture and 50% lab, based upon homework, hour exams, final exam, work habit, lab exercises, and attendance.
C. Each student is responsible for providing his or her own lab clothes and gloves (high top shoes and coveralls recommended). Protective leathers will be provided.
D. There will be at least one research paper on current innovations, equipment, etc., in the field of metallurgy. All papers are due on the assigned dates. Late papers will lose points based upon number of days late. All papers must follow guidelines covered in class. Papers will count as a test.

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

Up to two excused absences, no deductions (as long as work is made up). Unexcused absences will result in a zero grade for that lab/lecture.

**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:**

Welding Skills and Practices by Giachino and Weeks
Workbook required.

**XIII. PREREQUISITES:**

AGR 170 and AGR 372 (or approval of the instructor).

**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.