

SAM HOUSTON STATE UNIVERSITY
COLLEGE OF ARTS AND SCIENCES
COURSE SYLLABUS
AGR 564-05
ADVANCED ARC WELDING PRINCIPLES AND PROCEDURES
3 CREDIT HOURS
FALL 2007
LOCATION OF CLASS MEETING: AMC Rm101 and LAB
Th 12:20-5:20 P.M .

INSTRUCTOR: Joe E. Muller, Ph.D., Associate Professor – Ag Mechanization

OFFICES: Thomason Bldg, Rm 309 and, Agricultural Mechanization & Technology Center, Rm 100.

CONTACT INFORMATION:

Thomason Bldg (936) 294-1218

AMC (936) 294 4877

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E-mail: jemuller@shsu.edu

OFFICE HOURS: as posted or by appointment

TEXTBOOK: (Required). Welding, Deere and Company, Moline, Illinois

ADDITIONAL REFERENCES:

The Procedure Handbook of Arc Welding, Lincoln Electric Company
Modern Welding Technology, Cary & Helzer, 6th Edition, Pearson, /Prentice Hall
Publishing Co.
Current Manufacturer's and Distributor's Literature

COURSE OBJECTIVES:

The primary objectives of this course are to survey state-of-the-art metal cutting and joining processes and materials that are currently utilized in the industry. The opportunity for the development of understanding and skills in gas tungsten arc welding (GTAW), gas metal arc welding (GMAW), shielded metal arc welding (SMAW), and plasma arc and oxy-fuel cutting and welding processes will be provided. In addition welding metallurgy hardfacing, and destructive and non-destructive weld testing will be covered.

COURSE OUTLINE:

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| Unit I | Introduction <ol style="list-style-type: none">1. Properties of metals and other fabrication materials2. Metal joining processes3. Criterion for selection of a process |
| Unit II | Oxy-fuel Joining Processes <ol style="list-style-type: none">1. Operation and safety review2. Brazing and bronze welding3. Skills development |
| Unit III | Shielded Metal Arc Welding |

1. Operation and safety review
2. Out-of-position welding techniques
3. Low- hydrogen and other selected electrodes
4. Skills development

- Unit IV Gas Metal Arc Welding
1. GMAW operation and safety
 2. Selecting electrodes and shield gases
 3. Skills development

- Unit V Gas Tungsten Arc Welding
1. GTAW operation and safety
 2. Selecting electrodes and shield gasses
 3. Skills development

- Unit VI Metallic Cutting Processes
1. Oxy-fuel cutting
 2. Plasma cutting
 3. Skills development

- Unit VIII Hardsurfacing Processes
1. Ox-fuel hardfacing procedures
 2. Arc Welding hardfacing procedures
 3. Skills development

COURSE FORMAT:

This course is a combination of lecture, demonstrations, student presentations, and supervised practice.

COURSE ASSIGNMENTS:

Each class member will be responsible for identifying a modern or emerging metallic cutting, welding, or surfacing process. The student is to research the development of the process and the current status, the materials, equipment, procedures and recommended applications and develop a research paper. Advanced approval of the topic area is required and will be granted on a first-come first-served basis. Information is to be written up in approved research paper format. Report is to be typed or computer generated. Paper should be a minimum of ten pages excluding any pictures, charts, graphs, references and bibliography.

Each class member will be responsible to give a class presentation over their research paper complete with a demonstration of the application or process if feasible. The presentation should be presented as if it was given to advanced high school, adult education, or on-job continuing education training class.

COURSE EVALUATION:

Exams	50 %
Laboratory activities and assignments	20 %
Research Paper	20 %
Presentation	10 %

INSTRUCTOR EVALUATIONS:

You will be asked to complete a course/instructor evaluation form toward the end of the semester.

DEPARTMENT OF AGRICULTURAL SCIENCES ATTENDANCE POLICY:

1. Regular and punctual attendance is expected of each student in the Department of Agricultural Sciences at Sam Houston State University.
2. Each faculty member will keep a written record of student attendance.
3. If a student misses four or more classes, the student's grade may be reduced by one letter grade. Additional penalties will be up to the discretion of the professor.
4. Three unexcused or unjustified tardies or early departures are considered one absence.
5. Excused absences must be documented by the student with a letter of confirmation from the sponsoring student organization, professor or doctor. Exemptions will include participation in departmental activities when prior approval is attained from the Department Chair or the sponsoring professor.

ACADEMIC DISHONESTY:

All students are expected to engage in all academic pursuits in a manner that is above reproach. Students are expected to maintain complete honesty and integrity in the academic experiences both in and out of the classroom. Any student found guilty of dishonesty in any phase of academic work will be subject to disciplinary action. The University and its official representatives may initiate disciplinary proceedings against a student accused of any form of academic dishonesty including, but not limited to, cheating on an examination or other academic work which is to be submitted, plagiarism, purchasing papers collusion and the abuse of resource materials. Any such action will result in failing that exam, research paper, assignment, or the entire course, and a letter of explanation placed in the student's file.

DISRUPTIVE CONDUCT:

Students will refrain from behavior in the classroom or lab that intentionally or unintentionally disrupts the learning process and, thus, impedes the mission of the university. Cellular telephones and pagers **must be turned off before** class begins. Students **are prohibited from using tobacco products**, making offensive remarks, reading non-class materials, sleeping, talking at inappropriate times, wearing inappropriate clothing, or engaging in any other form of distraction. Inappropriate use of lap-top computers during class or lab will not be tolerated. Inappropriate behavior in the classroom or lab shall result in a directive to leave. Students who are especially disruptive also may be reported to the Dean of Students for disciplinary action in accordance with university policy.

VISITORS IN THE CLASSROOM:

Unannounced visitors to class must present a current, official SHSU identification card to be permitted in the classroom. They must not present a disruption to the class by their attendance. If the visitor is not a registered student, it is at the instructor's discretion whether or not the visitor will be allowed to remain in classroom.

AMERICANS WITH DISABILITIES ACT:

It is the policy of Same Houston State University that no otherwise qualified disabled individual shall, solely by reason of his/her handicap, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination under any academic or Student Life program or activity. Disabled students may request assistance with academically related problems stemming from individual disabilities by contacting the Director of Counseling Center in the Lee Drain Annex or by calling (936) 294-1720. If you have a disability that may adversely affect your work in this class, then I encourage you to register with the Counseling Center and to talk with me about how I can best help you. All disclosures of disabilities will be kept strictly confidential. NOTE: no accommodation can be made until you register with the Counseling Center.

STUDENT ABSENCES ON RELIGIOUS HOLY DAYS POLICY:

Section 51.911(b) of the Texas Education Code requires that an institution of higher education excuse a student from attending classes or other required activities, including examinations, for the observance of a religious holy day, including travel for that purpose. A student whose absence is excused under this subsection may not be penalized for that absence and shall be allowed to take an examination or complete an assignment from which the student is excused within a reasonable time after the absence.

University policy 861001 provides the procedures to be followed by the student and instructor. A student desiring to absent himself/herself from a scheduled class in order to observe (a) religious holy day(s) shall present to each instructor involved a written statement concerning the religious holy day(s). This request must be made in the first fifteen days of the semester or the first seven days of a summer session in which the absence(s) will occur. The instructor will complete a form notifying the student of a reasonable timeframe in which the missed assignments and/or examinations are to be completed.