

SAM HOUSTON STATE UNIVERSITY
COLLEGE OF ARTS AND SCIENCES
COURSE SYLLABUS
AGR 481
ADVANCED AGRICULTURAL MECHANICS
3 CREDIT HOURS
SUMMER 08
LOCATION OF CLASS MEETING: AG MECH CENTER
CLASS AND LAB TIME 14 DAYS ARRANGED STARTING 7/7/08

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

OFFICES: Thomason Bldg, Rm 313-E and Ag Mechanics & Technology Center, Rm 100.

CONTACT INFORMATION:

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COURSE DESCRIPTION: A study of basic requirements for the development of safe and efficient agricultural mechanics laboratories, agricultural service centers, and fabrication shops. Skills covered include fabrication and maintenance of metal, wood, and masonry equipment and structures and the selection, operation, and maintenance of power shop tools and equipment. Agricultural projects are designed and constructed in the laboratory. AGR 162 or a strong background in agricultural mechanization is required as a prerequisite.

COURSE OUTLINE AND OBJECTIVES : Agriculture 481 is a lecture/laboratory course. Approximately two hours lecture and three hours laboratory will be held each class day. The lecture portion of the course will be devoted to technical information, demonstrations, and problem solving activities. The laboratory portion will provide students opportunities to develop and apply skills and techniques needed by persons planning to teach agricultural sciences, enter into agricultural production, or attain employment in related occupations that require agricultural mechanization construction and maintenance training as they complete laboratory exercises and construct agricultural projects.

Unit 1 - Introduction

- Orientation
- General laboratory and safety rules
- Review of equipment and facilities
- Promoting agricultural mechanics- contests, shows, and fairs

Unit 2 – Safety, Shop Design and Management

- Rules, procedures, and housekeeping
- Documentation of Instruction and tort liability
- Design and utilization of facilities
- Space requirements and desirable features
- Equipment arrangement, color-coding, and safety zones
- Electrical requirements
- Tool selection and management
- Personal protection equipment
- Fume extraction equipment

Unit 3 – Metal Construction

Arc welding

- Welding safety

- Arc welding demonstration and supervised practice

- Selection and identification of metals

G.T.A. and G.M.A. welding

- G.T.A. equipment and supplies

- G.T.A. demonstration and supervised practice

- G.M.A. equipment and supplies

- G.M.A. demonstration and supervised practice

Oxy-fuel brazing, and cutting

- Oxy-gas torch cutting demonstration and supervised practice

- Brazing and bronze welding procedures, demonstration and supervised practice

- Hard surfacing procedures, demonstration and supervised practice

Plasma arc cutting

- Plasma arc process and equipment

- Plasma arc cutting demonstration and supervised practice

Metal working tools

- Selection of machines and tooling supplies

- Set-up, adjustment, and operation

- Safety procedures

Pipe bending

- Calculating developed length of pipe

- Setting up the bender

- Operation and safety

Unit 4 – Wood and Concrete Construction

Concrete

- Properties of concrete

- Selection of ingredients for concrete

- Calculation of quantities of concrete

- Reinforcement of concrete

- Forming, placing, finishing, and curing concrete

Building Construction

- Types of buildings

- Building materials

- Cost estimates

Stud Frame Construction

- Structural components

- Parts of a roof section and specific terms

- Calculating length and number of common rafters

- Calculating board feet of lumber and cost

Power Woodworking Equipment

- Selection of machines and tooling supplies

- Set-up, adjustment and safe operation

Plywood

- Characteristics and types

- Grades

- Selection for type and grade for specific uses

Unit 5 – Construction Management

- Plans and Bill-Of-Materials

- Sketches and plans

- Computing a bill-of-materials

- Lay-Out and Construction

- Cost estimates

COURSE ASSIGNMENTS:

1. Group projects will be constructed as a part of the laboratory experiences provided.
2. Students will be responsible for a detailed, scale drawing and lettered or typed bills-of-materials for an assigned project. Plan and bills-of-materials will be due on the day the final exam is scheduled.
3. Students will be required to maintain a notebook that contains class notes.
4. Students will be required to wear industrial quality eye protection (safety glasses), to observe all rules for safety, and to dress in appropriate laboratory attire at all times.
5. Students are to furnish a tape measure, industrial quality eye protection, and leather welding gloves.

LABORATORY: Demonstrations will be given as needed on a group or an individual basis. Much of the laboratory time will be spent on the construction of group projects to allow students to apply skills and understandings in a practical setting under direct supervision.

Safety glasses are to be worn at all times. Points may be subtracted from laboratory grade for repeated failure to wear proper eye protection.

Housekeeping and proper use of tools and equipment will be stressed. It is expected that students will clean the entire laboratory at the conclusion of each period. The laboratory will not be considered clean until all tools and equipment are properly shut-down and stored.

PERSONAL SAFETY: Each student is to provide industrial quality eye protection (safety glasses), leather welding gloves, a steel tape measure, and proper shoes and clothes for metal fabrication and welding.

Industrial quality eye protection is to be worn at all times you are in the laboratory and all other safety rules and procedures are to be followed.

Handling Hot Metal: *Consider all small pieces of metal to be hot. Do not lay hot metal on tables, other work areas, or in scrap metal storage bins during lab.*

COURSE EVALUATION:

Regular exams, quizzes, problem sets and final exam	70.00%
Lab Activities	30.00%

Grade will be based on daily individual participation and progress, housekeeping and safety practices, and project plan and bill-of-materials

A = 90 – 100, B = 80 – 89, C = 70 – 79, D = 60 – 69, F = < 60

No exams or assignments will be given at alternative times unless arrangements are made with the professor before the scheduled activity occurs.

1. At the discretion of the professor, up to a 10 % penalty may be assessed for late exams or assignments. At the discretion of the professor, a 100% essay make-up exam may be given.
2. Final Exam is comprehensive.

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. Students will be expected to sign in for class and labs to comply with new federal guidelines.
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 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.

INSTRUCTOR EVALUATIONS:

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