

SAM HOUSTON STATE UNIVERSITY
COLLEGE OF ARTS AND SCIENCES
COURSE SYLLABUS

AGR 485

APPLIED ELECTRONICS/HYDRAULICS IN AGRICULTURE

3 CREDIT HOURS

SPRING 2008

LOCATION OF CLASS MEETING: AG MECH CENTER

CLASS TIMES: M and W 10:00 to 10:50 AM

LOCATION OF LAB MEETING: AG MECH CENTER

LAB TIME: W 12:30 TO 2:20 PM

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

OFFICES: Ag Mechanics & Technology Center, Rm 100. and Thomason Bldg, Rm 309

CONTACT INFORMATION:

AMC (936) 294 4877

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OFFICE HOURS: as posted or by appointment

COURSE DESCRIPTION: The course is to survey state-of-the-art applications of electronics and hydraulics in the agricultural industry. Emphasis will be placed on the use of electronics and hydraulics in agricultural tractors and equipment. An understanding of electronics and hydraulics is necessary for success in customer relations sales, service, and operation of agricultural equipment and structures. An opportunity to develop knowledge and skills in servicing and repairing electrical and hydraulic systems will be provided through lecture, demonstrations, student presentations, and observing hands-on applications.

COURSE OBJECTIVES: Upon completion of this course you should be able to:

1. Define basic principles of electricity, magnetism, and electromagnetic induction
2. Select and use electrical and electronic test equipment
3. Explain electron and hole theory of current flow as related to semiconductors, electronic components, integrated circuits, and microprocessing
4. Describe principles of operation of electronic sensing, measuring, controlling, actuating, processing, and displaying and data storing devices.
5. Discuss integration of electronic sensing, measuring, controlling, actuating, processing, and displaying and data storage systems in various agricultural applications.
6. Apply appropriate schematics, manuals, troubleshooting techniques, and test equipment to analyze, diagnose, service, and/or repair electronic equipment.
7. Define the basic principles of hydraulic power including Pascal's Law
8. Select and use hydraulic test equipment
9. Describe the principles of operation of commonly used fluid power pumps, motors, and controls
10. Discuss the integration of hydraulics, pneumatics, and electronics in various agricultural applications

11. Apply appropriate schematics, manuals, trouble-shooting techniques, and test equipment to analyze, diagnose service and/or repair hydraulic equipment

TEXTS (required)

Industrial Hydraulics Manual 5th Edition 2007 , Eaton Fluid Power Training Maunee, OH

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 , doctor, etc. Exemptions will include participation in departmental activities when prior approval is attained from the Department Chair or the sponsoring professor. Excused absences and/or approved participation in departmental activities **does not negate** students responsibility to complete any missed assignments or tests in a timely manner.

RESEARCH PAPER:

Each student will be randomly assigned to a student group. Each student group will be required to work as a team to develop a research paper over a subject related to the use of hydraulic and/or electronic technology in agricultural. To avoid possible duplication of specific topics, **advanced approval of topics by the instructor** is required by Feb 18th and will be granted on a first-come first-served basis. The paper is to have six typed pages of text plus a bibliography. At least five major references are to be listed. The bibliography and any tables, charts, pictures, etc. do not count as part of the six pages of text. The paper is expected to be neat as well as mechanically and grammatically correct. Up to 5 points extra credit will be given if the team utilizes the Sam Houston Writing Center for assistance. The research paper will be due on April 7th . A printed copy must be submitted in class and an electronic copy must be submitted thru Blackboard as a Turnitin Assignment. The system will check the paper for plagiarism and originality.

Each team member will also be required to evaluate each other's participation in the research and writing process and turn in a confidential report to the instructor by April 7th. An equal overall group project grade is normally given to each team member. However, if two or more members give a fellow team member less than desirable equal participation comments, that person's grade may be penalized accordingly.

CLASS PRESENTATION:

Each student team is expected to give a ten-to twelve minute presentation to the class over their research paper. The presentation should be approached as if the team is giving a presentation describing the new technology, product, or process to business colleagues or adults, or as a sales presentation to potential customers. Students are to contact the instructor prior to the presentation regarding any audio-visual equipment that may be needed.

Each student in the class will assume a supervisory role and evaluate the other group's presentations as if they were evaluating future employees. Each student will then turn in a recommended group presentation grade with justification along with their constructive comments for each student team. Comments will be summarized and returned to team members.

COURSE EVALUATION:

Three regular test, quizzes and one final exam	60.0%
Lab Activities	13.3%
Research Paper	13.3%
Class Presentation	13.3%

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.

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.