SAM HOUSTON STATE UNIVERSITY
COLLEGE OF SCIENCE AND ENGINEERING TECHNOLOGY
DEPARTMENT OF AGRICULTURAL SCIENCES
COURSE SYLLABUS
AGET 4385 -W
APPLIED ELECTRONICS/HYDRAULICS IN AGRICULTURE
3 CREDIT HOURS
FALL 2017
MAJORITY ON-LINE CLASS

Location of Lab : Wiiliam R. Harrell Agricultural Engineering & Technology Center
Lab Time : Wed 1:00 TO 2:50 PM

INSTRUCTOR: Joe E. Muller, Ph.D., Professor – Ag Engineering Technology
OFFICE: Wiiliam R. Harrell Agricultural Engineering & Technology Center
CONTACT INFORMATION:
AETC (936) 294 4877
FAX . (936) 294-3660
E-mail: jemuller@shsu.edu

ALL CLASS ANNOUNCEMENTS AND CORRESPONDENCE WILL BE SENT AND ALL ONLINE ASSIGNMENTS MUST BE RECEIVED VIA THE SHSU ON-LINE COURSE MANAGEMENT SYSTEM USING STUDENT BLACKBOARD ACCOUNTS.

ASSIGNMENTS WILL NOT BE ACCEPTED VIA E-MAIL !

OFFICE HOURS: as posted or by appointment

COURSE DESCRIPTION: The AGET 4385 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 planning, servicing and repairing electrical and hydraulic systems will be provided through on-line study, group projects, demonstrations, computer software simulation programs, 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 and write technical reports.
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. Discuss safety concerns associated with use of hydraulic and electronic equipment is industrial applications.
12. Apply appropriate schematics, manuals, trouble-shooting techniques, and safely use test equipment to analyze, diagnose, service and/or repair hydraulic equipment.
13. Write service reports and/or recommendations.
14. Utilize Automation Studio software to plan, design, and simulate hydraulic, electronic, and electro-hydraulic circuits.

TEXTS (required) Fluid Power with Applications 7th edition ISBN # 978-0-13-513690-4

Minimal Technical Requirements:
Please go to this link to view SHSU Online minimal system requirements for any online course = http://online.shsu.edu/campus/support-desk/system-requirements.html

Webcam Requirements:

We suggest students use the embedded web camera in their laptop or any standard web cam purchased and manufactured within the last 5 years.

From our experience, any web camera that has drivers that meet or exceed Windows 7 standards will work just fine.

Any web camera that ONLY has drivers for Windows Vista or below will not work.

Automation Studio Minimum Requirements:
http://www.famictech.com/support/installation-guide.html

- Operating System Professional Edition (32-bit or 64-bit): Windows Vista SP2, 7 SP1, 8, 8.1, 10 or Windows Server 2008 SP2, 2008R2 SP1, 2012 and 2012R2. *It is not recommended to install Automation Studio™ on a server machine*.
- Microsoft Office not required, but if present, must be 32 bit for 32-bit installation of Automation Studio™ or 64 bit for 64-bit installation of Automation Studio™, except for Microsoft Office 2016. In case only Microsoft Office 2016 is installed, there is no restriction and any combination between Automation Studio™ and Microsoft Office is possible.
- CPU: Intel Core 2 Duo 1.83 GHz or equivalent. Recommended: Intel Core i7.
- Automation Studio™ takes advantage of multi-core processors.
- Memory: 2 GB more than the amount required by the operating system. Recommended: 3 GB for the 32-bit version and 8 GB for the 64-bit version.
- Graphic Card: Video memory 512 MB and up, with a screen resolution of 1024 x 768 minimum.

- Disk space: 2.5 GB of free space (without considering the catalogues).

DEPARTMENT OF AGRICULTURAL SCIENCES ATTENDANCE POLICY:

1. Regular and punctual attendance for labs is expected of each student 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 federal guidelines.
3. If a student misses two or more labs, the student's grade may be reduced by one letter grade. Additional penalties will be up to the discretion of the professor.
4. Two 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 **do not negate** student's responsibility to complete any missed assignments or tests in a timely manner

COURSE EVALUATION:

This is a "W" course, which means that at least 50 percent of your course grade will derive from writing and on-line activities designed to help you master course objectives. Writing in this course is one of the tools your instructor will use to help you learn course material. Some writing activities will require you to draft and revise your work, with or without instructor feedback. Other assignments may not receive a grade but are designed to assist you in critical reflection of the course material. You should approach writing in this course as a tool to use as part of your learning as well as a tool your instructor will use to assess your level of learning. The majority of test questions, on-line assignments, and lab reports will require you to utilize critical thinking skills and to communicate technical subject matter information in written form.

Regular on-line discussions, tests, quizzes, technical reports and final exam	60.0%
Lab attendance and performance, lab assignments, and written reports	40.0%

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

1. No exams or assignments will be given at alternative times unless arrangements are made with the professor before the scheduled activity occurs.
2. Professor will track number of on-line views through performance dash-board. Points will be given for posts and replies in discussion forms and on-line activities.
3. 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.
4. Final Exam is comprehensive.

ADDITIONAL COURSE ASSIGNMENT FOR STUDENT TAKING COURSE FOR GRADUATE CREDIT

Each class member taking this course for graduate credit will be responsible for identifying a topic relevant to new and emerging technologies of electronics and/or hydraulics in agricultural applications. The student is to research the development of the topic 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 eight pages double-spaced with standard margins. Eight pages excludes any pictures, charts, graphs, references and bibliography.

Each class member taking this course for graduate credit will then be responsible to give a class 15 to 20 minute presentation and laboratory demonstration if appropriate over the topic to the rest of the AGET 4385 students. The presentation should be presented as if it was given to an advanced high school, adult education, or on-job continuing education training class.

ACADEMIC DISHONESTY and 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. Students are prohibited from making offensive remarks, sleeping, talking at inappropriate times, wearing inappropriate clothing, or engage in any other form of distraction. Inappropriate behavior in the classroom shall result in a directive to leave class. Students who are especially disruptive also may be reported to the Dean of Students for disciplinary action in accordance with university policy.

Both individual and group on-line learning and assessment activities will be utilized in this class. However, all students are expected to engage in all academic pursuits in a manner that is above reproach.

All 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.

Cellular telephones, text messengers, any communication function on laptop computers, and/or any other similar devices must be turned off before face to face class and/or lab sessions or any individual student assessment activity begins. Such devices may not be used even for their calculator functions. Arrangements for handling potential emergency situations must be arranged before the class or lab period begins at the discretion of the instructor. Unless permission has been granted by the instructor or included the instructions, the use of any device that performs communication functions during any student assessment or on-line activity is strictly prohibited. These devices should not be present or should be stored securely in such a way that they cannot be seen or used. Even the visible presence of such a device during an assessment activity may result in a zero. The use of these devices during an assessment or test is considered de facto evidence of cheating and could result in a charge of academic dishonesty.

Students will be required to install and use the **ProctorFree Software** to take some on-line tests, quizzes and other assessemment activites. In addition, students will be required to have and use a Web Cam to monitor performance during some on-line activites. Failure to comply with this policy

could result in loss of grade, expulsion from the classroom or lab, or with multiple offenses, failure of the course. (see student code of conduct)

TOBACCO POLICY: In order to promote a healthy, safe, and aesthetically pleasing work, educational, and living environment, Sam Houston State University (SHSU) will endorse a smoke free and tobacco free environment. Tobacco products include cigarettes, cigars, pipes, smokeless tobacco, and all other tobacco products. This policy applies to all faculty, staff, students, employees of contractors, and visitors of Sam Houston State University on the premises of the univrsity.

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. It 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.

STUDENTS WITH DISABILITIES POLICY:

It is the policy of Sam Houston State University that individuals otherwise qualified shall not be excluded, solely by reason of their disability from participation in any academic program of the university. Further, they shall not be denied the benefits of these programs nor shall they be subjected to discrimination. SHSU adheres to all applicable federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodations for students with disabilities. Any student with a disability that affects his/her academic performance should contact the Office of Services for Students with Disabilities in the SHSU Lee Drain Annex (telephone 936-294-3512, TDD 936-294-3786) to request accommodations. All disclosures of disabilities will be kept strictly confidential. NOTE: No accommodation can be made until you register with the Services for Students with Disabilities. For a complete listing of the university policy, see:

http://www.shsu.edu/dept/academic-affairs/documents/aps/students/811006.pdf

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 an on-line course/instructor evaluation form toward the end of the semester.