

SAM HOUSTON STATE UNIVERSITY
COLLEGE OF ARTS AND SCIENCES
COURSE SYLLABUS
AGR 487.01
AGRICULTURAL ENGINES AND TRACTORS
3 CREDIT HOURS
SPRING 2008
LOCATION OF CLASS MEETING: AG MECH CENTER RM 101
CLASS TIME: TU: 12:00 –12:50 LAB TIME TU: 1:00 – 4:20

INSTRUCTOR: Joe E. Muller, Ph.D., Associate Professor – Ag Mechanization
OFFICES: Thomason Bldg, Rm 309 and Ag Mechanics & Technology Center, Rm 100.
CONTACT INFORMATION:

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OFFICE HOURS: as posted or by appointment

COURSE DESCRIPTION: Principles of internal combustion engines; compression, ignition, lubrication, cooling and carburetion systems; and analysis and repair of agricultural tractors and their components are covered through classroom lecture, demonstrations, and hands-on laboratory activities.

COURSE OBJECTIVES: An understanding of the modern tractor and its systems is necessary for success in sales, customer relations, service, and operation of agricultural tractors and equipment produced today. Opportunity to develop knowledge and skills in servicing and repairing engines, and integrated electrical and hydraulic systems on agricultural equipment will be provided.

Upon completion of this course student should be able to:

1. Discuss current and future trends in the agricultural equipment industry.
2. Discuss operational principles and processes, and laws of thermodynamics for common types of internal combustion engines, including both 2-stroke and 4-stroke cycle engines with spark and compression ignition.
3. Define and use common terms used in the agricultural equipment industry.
4. Identify component parts in internal combustion engines and describe their function.
5. Read and understand manufacturer's service data and specifications.
6. Use common precision measuring tools and instruments to complete performance tests and evaluate components to make service recommendations and management decisions.

7. Develop parts list and labor requirement analysis for repair and maintenance jobs and make service recommendations and management decisions.
8. Prepare engines and power train parts and component for major overhaul.
9. Perform disassembly, major overhaul, and re-assembly.
10. Break-in an overhauled engine and adjust to meet manufacturer's specifications.
11. Discuss the principles of hydraulics and perform routine service and maintenance.
12. Discuss the principles of electronics and perform routine service and maintenance.

TEXTBOOK: (Required)

Engine and Tractor Power 4th. Edition, Goering and Hansen, ASABE, St. Joseph, MI.

Additional References:

Textbook on CD **Agricultural Power and Machinery**, Jacobs, Harrell, & Shinn, CEV Multimedia, Lubbock, TX.

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 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.

COURSE EVALUATION:

Three regular tests, quizzes, and one final exam	70%
Laboratory Participation, Assignments, and Notebooks	30%
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.

LABORATORY ACTIVITIES AND REQUIRED SUPPLIES:

Each student is expected to wear safety glasses and follow industry safety procedures. One or more tractor or equipment engines will be overhauled in the laboratory. Each student should maintain a lab notebook and to take notes and draw appropriate sketches and schematics to aid in the reassembly of the equipment. Students will keep the laboratory clean and in order. Lab will not be dismissed until all tools and equipment is returned to the proper storage location and the floor is properly clean and swept.

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.