



Department of Agricultural Services & Development
AGSD 201 – Agricultural Power Units (Fall 2011)

Syllabus approved on: / /

- I. **Course Description:** *Fundamentals of internal combustion engine operation to include gasoline, diesel, and liquefied petroleum. Preventative maintenance and general servicing of tractor engine systems: intake & exhaust; fuel; lubrication; cooling; electrical; power trains; and hydraulic. Also covered are tractor tune-up; small engine operation maintenance & reconditioning; and plumbing & irrigation power systems.*
- II. **Prerequisites:** *None*
- III. **Expanded Course Content:** *Students will be exposed to the following during lecture: introduction & history of the internal combustion engine, mathematical & physics concepts related to the internal combustion engine, the spark ignition engine, the compression ignition engine, internal mechanisms of the internal combustion engine, fuels, carburetion & fuel injection.*
- IV. **Intended Student Learning Outcomes:**
1. *To develop an understanding of how the internal combustion engine functions.*
 2. *To expose students to a wide variety of agricultural & non-agricultural power units.*
 3. *To allow students to examine all facets of the systems which accompany the internal combustion engine.*
 4. *To develop an understanding of normal maintenance schedules for engines.*
 5. *To allow students to learn and utilize steps involved in troubleshooting engine systems.*
 6. *To engage students in activities that will strengthen their knowledge of internal combustion engine theory/operation, and will aid them in passing the information on to others.*
- V. **Required Text & Technology:**
1. *Engines: Fundamentals of Service. John Deere Publications.*
 2. *AGSD 201 – Agricultural Power Units Laboratory Manual, Online.*
- VI. **General Course Policies & Information:**
- Attendance & Punctuality is Mandatory. Contact the instructor **before** you miss.
 - Tests and daily quizzes may not be made-up if missed. Late assignments will be subject to grade reduction.
 - **Academic Honesty Policy:**
Tarleton State University expects its students to maintain high standards in personal and scholarly conduct. Students guilty of academic dishonesty are subject to disciplinary action. Academic dishonesty includes, but is not limited to, cheating on examination or other academic work, plagiarism, collusion, and the abuse of resource materials. The faculty member is responsible for initiating action for each case of academic dishonesty that occurs in his/her class (TSU catalog, p. 62). Academic honesty is expected. Cheating will not be tolerated and will result in automatic failure of the course. The University's Academic Integrity Policy will be maintained.
 - **Students With Disabilities Policy:**
It is the policy of Tarleton State University to comply with the Americans with Disabilities Act and other applicable laws. If you are a student with a disability seeking accommodations for this course, please contact Trina Geye, Director of Student Disability Services, at 254.968.9400 or geye@tarleton.edu. Student Disability Services is located in Math 201. More information can be found at www.tarleton.edu/sds or in the University Catalog.



VII. Evaluation:

Three exams and a final examination will be given throughout the semester. The regular and final exams will all be worth the same percentage of your grade. Thus, only 3 exam grades will be taken (unless the class decides to take a 4th in lieu of an outside project), the lowest exam grade will be dropped. If you are satisfied with the average of the first three exam grades, the final is not mandatory. For those who take the final, it will be administered Thursday, December 15th @ 8am, and will focus on assigned content. Your course grade will be calculated from the following:

Exam 1 -	15%
Exam 2 -	15%
Exam 3 -	15%
Final Exam -	15%
Laboratory Grade -	40%
Research Report, Quizzes, & Daily Work (OR 4th Test) -	15%

115% - The lowest exam grade will be dropped, if the final exam is taken.

At least one week's notice will be given before each exam. Exams will be given in the True/False, Multiple Choice, Fill-in-the-Blank, Listing, and Short Answer formats

VIII. Laboratory:

Safety:

- You must complete the following online safety training. (<http://www.tarleton.edu/safety/training/shopsafety/slide1.html>), at the beginning of your second lab meeting. Please print the validation page with your confirmation information and submit it on or before at the beginning of your second lab meeting. Failure to complete the training before this time will result in a failing grade for the lab.
- Proper safety equipment is to be worn at all times.
 - You are responsible for your own eye-wear & grease rags.

Attendance:

- No lab absences are allowed. All missed labs must be made-up during a regularly scheduled lab time. Contact your instructor before missing.

Course Schedule:

Date	Tuesday	Thursday
Aug. 30 & Sept. 1	Course Orientation	Introduction & History of Agricultural Power
Sept. 6 & 8	Power Mathematics & Physics	Power Mathematics & Physics
Sept. 13 & 15	Four Stroke SI Engine	Two Stroke SI Engine
Sept. 20 & 22	Rotary (Wankel) SI Engine	Exam 1
Sept. 27 & 29	Four Stroke CI Engine	Two Stroke CI Engine
Oct. 4 & 6	Forced Induction Systems	Engine Components
Oct. 11 & 13	Engine Components	Engine Components
Oct. 18 & 20	Exam 2	Agricultural Fuels
Oct. 25 & 27	Agricultural Fuels	Agricultural Fuels
Nov. 1 & 3	Open Topic – Student Choice	Open Topic – Student Choice
Nov. 8 & 10	Open Topic – Student Choice	Exam 3
Nov. 15 & 17	Open Topic – Student Choice	Open Topic – Student Choice
Nov. 22 & 24	Open Topic – Student Choice	No Class - Thanksgiving
Nov. 29 & Dec. 1	Open Topic – Student Choice	Open Topic – Student Choice
Dec. 6	Last Class Day	No Classes - Finals



Lab Schedule:

Date	Tuesday	Thursday
Aug. 30 & Sept. 1	Orientation Lab	Orientation Lab
Sept. 6 & 8	Engine Systems	Power Unit Measurement Tools
Sept. 13 & 15	Using the Multimeter	Engine Disassembly
Sept. 20 & 22	Troubleshooting	Engine Reassembly
Sept. 27 & 29	Power Unit Measurement Tools	Engine Measurement
Oct. 4 & 6	Engine Disassembly	Engine Systems
Oct. 11 & 13	Engine Reassembly	Using the Multimeter
Oct. 18 & 20	Engine Measurement	Troubleshooting
Oct. 25 & 27	No Lab – Homecoming	No Lab - Homecoming
Nov. 1 & 3	Field Trip (Dealership/Irrigation/Hydraulics)	Power Maintenance & Operation
Nov. 8 & 10	Power Maintenance & Operation	Advanced SI & CI Techniques
Nov. 15 & 17	Advanced SI & CI Techniques	Field Trip (Dealership/Irrigation/Hydraulics)
Nov. 22 & 24	No Lab - Thanksgiving	No Lab - Thanksgiving
Nov. 29 & Dec. 1	Field Trip (Dealership/Irrigation/Hydraulics)	Field Trip (Dealership/Irrigation/Hydraulics)
Dec. 6	Make-Up Lab (Tues & Thurs Labs)	No Labs - Finals

IX. Contact Information for Instructors:

Dr. Kyle McGregor & Mr. John Sims
Office: Agriculture & Consumer Sciences
254.968.9200 – Make appointment with departmental secretary
mcmgregor@tarleton.edu & john.sims@go.tarleton.edu