

Agricultural Power Units

AGRI-2301

Fall 2020 Section 001 CRN-11008 3 Credits 08/24/2020 to 12/10/2020 Modified 08/23/2020

Meeting Times

Lecture and Lab

Monday, Wednesday, 8:00 AM to 9:50 AM, Rankin Ag Shop 140 and Shop Classroom 130

Contact Information

Instructor: Ben Burroughs

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Office: Rankin Ag Shop

Phone: 979-830-4266

Office Hours

RACS 104

All office hours are virtual. Please schedule an appointment via email.

Description

Fundamentals of internal combustion engines: gasoline, diesel, and liquefied petroleum. Maintenance and adjustments of the electrical, ignition, fuel, lubricating, and cooling systems of agricultural power machinery.

Requisites

Prerequisites:

Corequisites:

Core Curriculum Statement

This course is not a core curriculum course.

Outcomes

Do a valve reconditioning job on a small single cylinder engine

Trouble shoot and repair a small single engine in a given time frame.

Rebuild a small single cylinder gas engine to within specifications of .0015".

Rebuild a multi-cylinder engine to within specifications of .0015".

Correctly measure all wear points of a given engine to an 80% accuracy.

Identify engine components 80% correctly

Materials

Optional: Text: Basic Principles of Four and Two Cycle Internal Engines From: Instructional Materials Service 2004

Briggs and Stratton Online

Module learning system covering components and tools

Course Requirements

1. Read and study the above text and answer the test questions at the end of the chapter.
2. **Weekly Quiz** - at the end of each week there will be a test at the beginning of the class. Get to class on time on days that quizzes are taken. The quiz will consist of short answer questions over the previous week's lectures. The lowest weekly quiz grade will be automatically dropped.
3. Completely rebuild a small single cylinder gas engine (Blinn Furnishes).
4. Completely rebuild a large multi-cylinder engine (Semester Project).
5. **Major Exams** - There will be four major exams during the semester. These will cover the texts, lectures, videos and your notes. They will consist of: multiple choice, fill-in-the-blank, drawings, matching, short answer essay, and at least one long answer essay.
6. **Comprehensive Final and Lab Practical**

Evaluation

Breakdown

Classroom tests	400 points (4@100 points)
Lab	200 points (Small engine disassembly/reassembly)
Quiz's	200 points
Class Book	200 points
Final	100 points
A = 990 - 1100	
B = 880 - 989	
C= 770 - 879	
D= 660 - 769	
F= <659	

Blinn College Policies

All policies, guidelines, and procedures in the [Blinn College Catalog \(http://catalog.blinn.edu/\)](http://catalog.blinn.edu/), [Blinn College Board Policies \(http://pol.tasb.org/Home/Index/1204\)](http://pol.tasb.org/Home/Index/1204), and the [Blinn College Administrative Regulations \(https://www.blinn.edu/administrative-regulations/\)](https://www.blinn.edu/administrative-regulations/) are applicable to this course.

[Specific information on civility, attendance, add/drop, scholastic integrity, students with disabilities, final grade appeal, alternative retailers, campus carry and proctoring arrangements and cost. \(http://www.blinn.edu/syllabus-policies/\)](http://www.blinn.edu/syllabus-policies/)

Notice of any action taken under these protocol and procedures, by Blinn College or its employees, may be delivered by hand, through the U.S. Postal Service, or electronically to the student's Blinn Buc e-mail account. Notice shall be deemed received upon actual receipt, on deposit in the U.S. Mail, or upon entering the information processing system used by Blinn College for Blinn Buc e-mail accounts, whichever first occurs.

Information about the changes Blinn has made to the Fall semester: [Back with Blinn \(https://www.blinn.edu/back-with-blinn/index.html\)](https://www.blinn.edu/back-with-blinn/index.html).

* Course Policies

Please read: Fall 2020 General Course Policies. (<http://www.blinn.edu/back-with-blinn/course-policies.html>)

📅 Schedule

Week			Meeting Details	Meeting Contact Hours	Weekly Contact Hours
1	M	8/24/2020	Syllabus, class orientation, lab tour, B&S login and learning	1.5	3
	W	8/26/2020	C-History of Engines, L- Station Assignment	1.5	
2	M	8/31/2020	C-Four Stroke Cycle, L-Small Engine Assignments, B&S- 4 stroke theory	1.5	3
	W	9/2/2020	C- Small Engine Construction, L-Lab chemicals and use	1.5	
3	M	9/7/2020	Holiday	1.5	3
	W	9/9/2020	Day of Record C- Small Engine Construction, L- Demo Check for wear	1.5	
4	M	9/14/2020	C- Micrometers, L- Micrometer Checks, B&S- Compression	1.5	3
	W	9/16/2020	C- Pistons and Rods, L - Begin Disassembly of 1st engine	1.5	
5	M	9/21/2020	C- Rings, L- Begin Disassembly of Piston rings	1.5	3
	W	9/23/2020	C - Engine Bearings, L- Finish disassembly of Engine	1.5	
6	M	9/28/2020	C - Crank Shafts, L- Engine reassembly	1.5	3
	W	9/30/2020	C- Blocks, L- Engine reassembly	1.5	
7	M	10/5/2020	C- Test 1, L- Finish Engine reassembly	1.5	3
	W	10/7/2020	C - Valves, L - Valve settings, B&S - Intermediate Carburation	1.5	
8	M	10/12/2020	C - Heads, L- Small Engine 2 start	1.5	3
	W	10/14/2020	C- Test 2, L- Begin disassembly of small engine 2	1.5	

9	M	10/19/2020		C- 2 cycle engines, L- 2 cycle engines, B&S - Fuel Systems	1.5	3
	W	10/21/2020		C- Fuels, L- continue disassembly of small engine 2	1.5	
10	M	10/26/2020		C- Fuel system, L- Small engine checks,	1.5	3
	W	10/28/2020		C- Lubricants and Test 2, L- Reassembly of small engine 2	1.5	
11	M	11/2/2020		C- Ignition systems, L- Finish reassembly of small engine 2, B&S- Ignition Systems	1.5	3
	W	11/4/2020		C- Governors and Cooling systems, L- Run Small Engine 2	1.5	
12	M	11/9/2020		C- Diesel Engines and Test 4, L- engine work, B&S - Diesel Theory	1.5	3
	W	11/11/2020		C- Turbine and Wankle engines, L- engine work	1.5	
13	M	11/16/2020		C- 4 cylinder vs 6 cylinder vs 8 cylinder, L- engine work, B&S - Governor systems	1.5	3
	W	11/18/2020		C- 4 cylinder vs 6 cylinder vs 8 cylinder, L- engine work	1.5	
14	M	11/23/2020		C- 4 cylinder vs 6 cylinder vs 8 cylinder, L- engine work	1.5	3
	W	11/25/2020	Holiday		1.5	
15	M	11/30/2020	Online Meeting	Work on class book and finish B&S assignments	1.5	3
	W	12/2/2020	Online Meeting	Work on class book and finish B&S assignments	1.5	
16	M	12/7/2020	Online Final	Online Final through Honorlock		3
	T	12/8/2020	Online Final			
	W	12/9/2020	Online Final			
	R	12/10/2020	Online Final			
					Total Contact Hours	48