
Syllabus

Instructor

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Office Hours

Face to face - by appointment; Email - anytime.

Course Description

A study of the principles and theories needed to comprehend and manage agricultural and environmental technology associated with machinery/equipment and energy systems. Reduction and synthesis of natural and applied science principles which involve mechanical, electrical, fluid power systems; the adjustments, fabrication, maintenance, repair and management of machines and equipment utilized in said systems; knowledge of entrepreneurship, communications, safety, service, planning, and regulation of technologies associated with agriculture and the environment.
Prerequisites: AMC 315 and junior standing.

Course Objectives

Upon successful completion of this course, a student should be able to

- Identify engine components and explain the operation of two-stroke and four-stroke cycle, spark-ignition and compression engines.
- Define and calculate the concepts of bore, stroke, compression ratio, and piston displacement for given internal combustion engines.
- Disassemble and assemble a small gasoline engine such that all parts are assembled correctly and the engine runs and accelerates without hesitation.
- Operate precision measurement instruments (feeler gauge, wire gauge, telescoping gauge, dial calipers, and micrometers).
- Explain the extent of fluid power use in current society and provide several specific examples.
- Explain the symbols used to designate components in fluid power circuit diagrams.
- Identify and explain the parts of circuit diagrams typically used with fluid power equipment..

Class Hours:

Wednesday; LEC : 11:00 AM – 12:40 PM LAB: 3:00 – 4:50 PM, AGIT 149

Textbook:

Roth, A. C. (2012). Small Gas Engines: fundamentals . service . troubleshooting . repair . applications. (9th edition). Tinley Park, Illinois: The Goodheart-Wilcox Company, Inc.
ISBN: 978-1-59070-970-2

Required class material

Safety glasses and appropriate protective clothing.

Attendance

Attendance is mandatory and will be checked at each session. For further information and policy concerning **excused absences**, see the **University's guidelines**. The instructor should be notified before the class period for an excused absence. **The opportunity to make up assignments as a result of an unexcused absence will be at the discretion of the instructor.**

Required Reading

Readings are to be done prior to class date. The student is expected to go through the assigned readings and come prepared to the class.

Grades will be determined by:

Module	Number	Points	Total Points
Lab Activities	10	50	500
Exam I & II	2	100	200
Final Exam	1	100	100
Engine Run	1	200	100
Attendance		100	100
Total			1000

Letter grades will be assigned using the following scale:

Points Scored	Letter Grade
900 and above	A
800 - 899	B
700 - 799	C
600 - 699	D
599 and below	F

Course Schedule

Week	Day	Date	Topic	Required Reading
1	W	9/2	Orientation, Shop Tour, Syllabus Safety in the Shop	Chapter 1
2	W	9/9	Tools and Measuring Instruments	Chapter 2
3	W	9/16	Introduction to Engine systems Lab # 1: Engine Test Run	Chapter 5
4	W	9/23	Two-Cycle and Four-Cycle Engines	Chapter 5
5	W	9/30	Carburation Lab # 2/ 3: Carburetor Teardown & Assembly	Chapter 9
6	W	10/7	Governor Systems Lab # 4 Governor Systems	Chapter 9
7	W	10/14	Piston and Piston rings Lab # 5: Cylinder Head	Chapter 6
8	W	10/21	Ignition System Lab # 7: Ignition System	Chapter 10
9	W	10/28	Cooling & Lubricating Systems Exam I	Chapters 11 & 12 Chapters 1, 2, 5, & 6
10	W	11/4	Crankcase Disassembly Lab # 7: Engine Disassembly & Inspection	Chapter 16
11	W	11/11	Engine Reassembly Lab #8: Engine Reassembly & Break-In	Chapter 19
12	W	11/18	Engine Final Assembly & Test Run Exam II	Chapters 9, 10, 11, & 12
13	W	12/2	Electrical Motors and Selection Lab # 9: Nameplate Interpretation	PowerPoint
14	W	12/9	Hydraulics & Fluid Power Lab 10: Hydraulics Symbols	PowerPoint
15	W	12/16	Hydraulic Trainer Operation & Uses Shop Clean-up	PowerPoint
Final Exam All Chapters covered				

Note: The course schedule is subject to change. Any changes will be announced well in advance.

UNIVERSITY SPECIFIC PROCEDURES:

ADA Statement

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

Office of Student Disability Resources and Services
Texas A&M University-Commerce
Gee Library 132
Phone (903) 886-5150 or (903) 886-5835
Fax (903) 468-8148
StudentDisabilityServices@tamu-commerce.edu
Student Disability Resources & Services