

PRECISION AGRICULTURE TECHNOLOGY AND MANAGEMENT
ASM 373: **Tractor and Power Units (14274)**

Class Information:

Credit – 3
Spring 2025
Class Room: Ladd 114
Time: 8:00 – 9:15 am Tues. and Thurs.

Instructor:

Matt Olhoft
Ladd 104H
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Office Hours: By appointment or drop in. Usually available Tuesdays and Thursdays 8-5.

Course Description: Overview of engines and power units. Understanding what makes a system function on an engine increases the ability to diagnose, understand, and fix problems in that system.

TEXT: "Engine and Tractor Power", Goering, 4th edition 2004

COURSE OBJECTIVES:

1. To develop an introductory understanding of engines and their systems.
2. To develop good problem solving skills and to learn to look for alternative solutions to problems.
3. To solve basic, applied, and practical problems on tractors and power units.
4. To provide an introduction to higher level thinking and problem solving in engines.

REQUIRED RESOURCES: Text book, non-spiral letter size paper for homework, pencil, eraser, basic calculator

BLACKBOARD: Blackboard will be used for announcements, class presentations, assignments, and temporary grades presentation

GRADING

<u>Items</u>		Total Points
Tests	(Four tests, 100 pts each)	400
Book Questions	(16 question sets, 10 pts each)	160
<u>Unannounced quizzes</u>	<u>(2 quizzes, once in every 8 weeks, 15 pts each)</u>	<u>30</u>
Total pts: 590		

All the home works and quizzes must be submitted on time. No late submissions are accepted.

(There may be extra credits for students in addition to the formal grading. So the total grade points can be more than 590).

The cut off for letter grades: 100-90% = A; 89-80% = B; 79-70% = C; 69-60% = D; 59% = F

MISSING EXAMS

The exam dates are set at the beginning of the semester. All other extracurricular activities should not be scheduled on these dates. If for some emergency reasons, someone misses an exam, the instructor **must** be notified **BEFORE** the exam is given. Notification by e-mail or other written formats are acceptable. Missing an exam without notifying the instructor **BEFORE** the exam date will result in a "0" for that exam - **no exceptions!**

MISSING QUIZZES

Quizzes cannot be made up. For legitimate emergency, contact me before the class and allowance can be made. If you miss a quiz, your score for the quiz is "0". Quizzes will be unannounced and will be given for one or more of the following reasons:

1. To see if the class understands some of the concepts.
2. To encourage response to questions in the form of quiz.
3. To encourage class attendance.

If you are unable to attend the class, let the instructor know ahead of time by e-mail or other written formats. In this case, the instructor will not have unannounced quiz.

MISSING CLASSES

You are expected to attend all class periods but there is no roll-call. If a class is missed, contact the instructor or class mates for notes. The PowerPoint presentations will be posted in the blackboard.

IMPORTANT NOTIFICATION

Academic Honesty

The academic community is operated on the basis of honesty, integrity, and fair play. [NDSU Policy 335: Code of Academic Responsibility and Conduct](#) applies to cases in which cheating, plagiarism, or other academic misconduct have occurred in an instructional context. Students found guilty of academic misconduct are subject to penalties, up to and possibly including suspension and/or expulsion. Student academic misconduct records are maintained by the [Office of Registration and Records](#). Informational resources about academic honesty for students and instructional staff members can be found at www.ndsu.edu/academic honesty.

Students with special requirements

Any students with disabilities who need accommodations in this course are invited to share these concerns or requests with the instructor and contact the [Center for Accessibility and Disability Resources](#) as soon as possible.

Veterans and military personnel

Veterans or military personnel with special circumstances or who are activated are encouraged to notify the instructor as early as possible and are encouraged to provide Activation Orders.

Family Educational Rights and Privacy Act (FERPA)

Your personally identifiable information and educational records as they relate to this course are subject to [FERPA](#).

Important Dates (Full NDSU dates/deadlines can be found [here](#))

Jan 1 Wed HOLIDAY — New Year's Day (offices closed)

Jan 13 Mon Classes begin at 4:00 p.m.

Jan 14 Tue First full day of classes

Jan 20 Mon HOLIDAY — Martin Luther King, Jr. Day (no classes, offices closed)

Jan 21 Tue Last day to be added to Campus Connection Wait Lists

Jan 23 Thu Last day to Add classes via Campus Connection* Permit needed after this date.

Jan 23 Thu Last day for no-record Drop of classes @ 100% refund*(full semester classes only)

Jan 23 Thu Last day to Withdraw to Zero Credits @ 100% refund*(full semester classes only)

Jan 28 Tue Financial aid applied to NDSU account balances

Jan 29 Wed Payments due for NDSU account balances

Feb 3 Mon Last day to submit requests to Audit, Pass/Fail

Feb 17 Mon HOLIDAY — Presidents' Day (no classes, offices closed)

Feb 24 Mon Last day to Withdraw to Zero Credits @ 75% refund*full semester classes only)

Mar 10-14 Mon-Fri Spring Break Week (no classes, offices open)

Mar 15 Sat Late fee applied to unpaid account balances (11:59 p.m.)

Mar 27 Thu Last day to Withdraw to Zero Credits @ 50% refund*(full semester classes only)

Apr 11 Fri Last day to Drop classes with 'W' record*

Apr 11 Fri Last day to Withdraw to Zero Credits for Spring

Apr 15 Tue Late fees applied to unpaid account balances (11:59 p.m.)

Apr 18-21 Fri-Mon HOLIDAY -- Spring Recess (no classes, offices closed Friday, offices open Monday)

May 5-9 Mon-Fri Dead Week

May 9 Fri Last day of Spring classes

May 12-16 Mon-Fri Final Examinations

Field Trips

Field trips may be required for this course or its lab. You will need to be prepared to leave campus and meet at a location or meet for transport to a location. Field trips will be scheduled during regular class hours, however, sometimes they last longer.

GENERAL CLASS SCHEDULE

Period	Date	Topic	Unit
1	Jan. 14	Introduction	1
2	16	Thermodynamics (<i>chap 1 questions 1-5 due Fri.</i>)	2
3	21	Thermodynamics (<i>chap 2 questions 1-10 due Fri.</i>)	2
4	23	Engine components	3
5	28	Engines cycles and timing	4
6	30	Engine cycles and timin(<i>chap. 3 problems 1-5 due Fri.</i>)	
	Feb. 04	Power eff. and measure (<i>chap. 4 ques. 1-8 due Fri.</i>)	4
8	06	Power efficiencies and measurement	5
9	11	Test 1	5
10	13	Fuels and combustion (<i>ch 5 ques. 1-8 due Fri.</i>)	6
12	18	Fuels and combustion (<i>chap. 6 ques. 1-10 due Fri.</i>)	6
13	20	Electrical systems	7
14	25	Electrical systems (<i>chap. 7 problems 1-4 due Fri.</i>)	7
15	27	Ignition circuits	8

16	Mar. 04	Fuel systems and carburetion (<i>ch 8 pr 1-4 due Fri.</i>)	9
17	06	Diesel engines (<i>chap. 9 problems 1-4 due Fri.</i>)	10
18	18	Diesel engines (<i>chap. 10 problems 1-5 due Fri.</i>)	10
19	20	Test 2	
21	25	Intake and Exhaust systems	11
22	27	Intake and Exhaust systems (<i>ch 11 pr 1-5 due Fri.</i>)	11
23	Apr. 01	Cooling Systems	12
24	03	Lubricants and lub. systems (<i>ch 12 pr 1,2,4,5,6 Fri.</i>)	13
25	08	Lubricants and lub. systems (<i>ch 13 pr 1-4 due Fri.</i>)	13
26	10	Hydraulic systems and hitching	14
27	15	Hydraulic systems and hitching (<i>ch 14 pr 1-2 due Fri.</i>)	14
28	17	Test 3	
29	22	Power trains	15
30	24	Power trains (<i>chap. 15 problems 1-5 due Fri.</i>)	15
31	29	Weight, transfer, traction, and safety	16
32	May 01	Weight, transfer, traction, and safety (<i>ch 16 pr 1-5</i>)	16
33	06	Review	
34	09	Review	
35		Review	

These are tentative dates for tests and material covered, the actual dates and material may vary. **That is why attendance is important.** Any change in schedule will be notified ahead of time as much as possible.

THE DATE FOR FINAL EXAM IS MONDAY, MAY 16 2025; 10:30 am.