



Purpose: It is the intention of this Administrative-Master Syllabus to provide a general description of the course, outline the required elements of the course and to lay the foundation for course assessment for the improvement of student learning, as specified by the faculty of Wharton County Junior College, regardless of who teaches the course, the timeframe by which it is instructed, or the instructional method by which the course is delivered. It is not intended to restrict the manner by which an individual faculty member teaches the course but to be an administrative tool to aid in the improvement of instruction.

Course Title – Agricultural Power Units (Formerly Farm Machinery)

Course Prefix and Number – AGRI 2301

Department - Agriculture

Division – Math & Science

Course Type: (check one)

- Academic General Education Course (from ACGM – but not in WCJC Core)
- Academic WCJC Core Course
- WECM course (This course is a Special Topics or Unique Needs Course: Y or N)

Semester Credit Hours # : Lecture hours# : Lab/other hours # **3:2:2**

Equated Pay hours for course - 3

Course Catalog 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.

List Lab/ Other Hours
Lab Hours 2
Clinical Hours
Practicum Hours
Other (list)

Prerequisites/Co requisites - None

Prepared by Sean Amestoy

Date 11-22-11

Reviewed by department head Gene Bahnsen

Date 11-22-11

Accuracy verified by Division Chair Kevin Dees

Date 11/22/2011

Approved by Dean of Vocational Instruction or Vice President of Instruction
Leigh Ann Collins

Date 11-9-12



I. Topical Outline – Each offering of this course must include the following topics (be sure to include information regarding lab, practicum, clinical or other non-lecture instruction):

Lecture:

Topical Outline	Dedicated Instructional Time
Tractor Power, Types of Farm Tractors	One week
Tractor Engines, Tractor Fuel Systems	One week
Air Induction Systems, Tractor Electrical Systems	One week
Cooling and Lubrication Systems, Tractor Power Transmissions	One week
Tractor Chassis, Primary Tillage	Two weeks
Disk Tillers, Seedbed Preparation, and Cultivation	One week
Soil Pulverizers, Packers, and Mulchers; Shredders	One week
Fertilizer Distributors, and Manure Spreaders	One week
Grain Drills. Row-Crop Planters, and Row-Crop Cultivators	One week
Sprayers and Dusters	One week
Forage Harvesting, Combines	Two weeks
Cotton Harvesters	One week
Machinery Management	One week

II. Course Learning Outcomes

Course Learning Outcome	Method of Assessment
1. Distinguish between horsepower rating commonly used in tractor advertising, and identify a given tractor as to type and select the right type of tractor for a given job.	1. Lecture and exams
2. Describe the 2-stroke and 4-stroke cycles of operation for both spark-ignition and diesel engines	2. Lecture, exams, and assignments.
3. Contrast and compare gasoline and diesel fueled engines	3. Lecture and exams
4. Identify the major parts of an engine and the purposes of each, and disassemble and reassemble a small gasoline engine	4. Lecture, exams, and assignments.
5. Describe the components and operation of the fuel, cooling, lubrication, electric, hydraulic, and power transmission systems as used in farm tractors	5. Lecture, exams, and assignments.
6. In regards to the farm implements and harvesting equipment covered in the scope of this course, a student should: (a) understand the components and operation of each type of machine; (b) be familiar with alternate designs of farm equipment; and (c) understand the basis for routine servicing of equipment.	6. Lecture, exams, and assignments.
Develop a partial budget for machinery costs	7. Lecture, exams, and assignments.

III. Required Text(s), Optional Text(s) and/or Materials to be Supplied by Student.

Farm Power and Machinery Management. Tenth Edition. D. Hunt. 2001. Blackwell Publishing, Ames, Iowa 50014. ISBN 0-8138-1756-0 (required)

IV. Suggested Course Maximum - 24

V. List any specific spatial or physical requirements beyond a typical classroom required to teach the course.

The lecture room should include sufficient dry erase (or chalk) board for notes and illustrations, a computer with internet access and overhead computer projector, and a traditional overhead projector.

Laboratory classroom required

VI. Course Requirements/Grading System – Describe any course specific requirements such as research papers or reading assignments and the generalized grading format for the course

Students are required to read the textbook chapters assigned to them. Throughout the semester, the students have 3 major lecture exams, attendance/participation, several quizzes and assignments.

Evaluative Procedures:

Three major exams, attendance, timely and satisfactory completion of assignments/quizzes/projects

Each exam equals 1/5 of the final grade along with attendance/participation counting 1/5 of the final grade, and quizzes/assignments/projects counting 1/5 of the final grade.

The grade classifications as outlined in the College Catalog are employed:

- A – 90 – 100% Excellent
- B – 80 – 89% Good
- C – 70 – 79% Average
- D – 60 – 69% Poor
- F – Below 60% Failure
- W – Withdrawn

VII. Curriculum Checklist

- **Academic General Education Course** (from ACGM – but not in WCJC Core)
No additional documentation needed
- **Academic WCJC Core Course**
Attach the Core Curriculum Checklist, including the following:
 - Basic Intellectual Competencies
 - Perspectives
 - Exemplary Educational Objectives
- **WECM Courses**
If needed, revise the Program SCANS Matrix & Competencies Checklist.