

# AGTC 103: FARM POWER

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**Proposer:****Name:**

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**Effective Term:**

Fall 2021

**Credit Status:**

Credit - Degree Applicable

**Subject:**

AGTC - Agricultural Technology

**Course Number:**

103

**Catalog Title**

Farm Power

**Catalog Description**

This course involves the study of functions, physical capabilities, applications, economics and tractor improvements. Students will participate in operation, testing and analysis of tractors in laboratory and field conditions to maximize operation efficiencies.

**Method of Instruction:**

Distance Education

Laboratory

Lecture and/or Discussion

**Course Units/Hours:****Course Units Minimum:**

3

**Lecture Hours Minimum (week)**

3

**Lab Hours Minimum (week)**

1

**Activity Hours Minimum (week)**

0

**Total Contact Hours Minimum (semester)**

70

**Total Outside Hours Minimum (semester)**

105

**Total Student Learning Minimum Hours (semester)**

175

**Repeatability:**

No

**Open Entry/Exit:**

No

**Field Trips:**

Not Required

**Grade Mode:**

Standard Letter

**TOP Code:**

010100 - \* Agriculture Technology and Sciences, General

**SAM Code:**

C - Clearly Occupational

**Course Content**

**Methods of Assessment:**

- Essay quizzes or exams
- Problem solving assignments or activities
- Problem solving quizzes or exams
- Short answer quizzes or exams
- Skill demonstrations
- Written essays or extended papers

**Course Topics:**

Course Topics	
1	Introduction History of the tractor engine Types of tractors Terminology
2	Types of Farm Tractors
3	Safety California division of industrial safety Hand Signals Starting and stopping Hazards Transportation Cal OSHA regulations
4	Controls Starting and stopping Steering Hitches Hydraulic Electric Auto Guidance
5	Field operation Ballast Stability Daily maintenance Selecting speeds Hazardous situations
6	Drawbars and hitches Implement Attachment, Adjustments and Efficiency
7	Conceptual Development of Internal Combustion Engines and Tractors
8	Engine Power Systems- 4 stroke theory gasoline, diesel and liquefied petroleum
9	Power systems Engine Clutch Transmissions Final Drives Hydraulic P.T.O. Electrical
10	Diesel Fuel Systems
11	Fundamentals of Economics of Tractor Utilization
12	Maintenance Operators manuals Tools Supplies Inspection, evaluation
13	Lubricants and Lubricating Systems
14	Material Moving Equipment
15	Power and Its Measurement
16	Spraying Equipment

**Course Objectives:**

Course Objectives	
1	Operate wheel and track type tractors safely and properly.
2	Diagnose and repair minor tractor problems.
3	Perform operator level maintenance and adjustment of tractor systems.
4	Match the tractor and equipment to the job.
5	Understand power generation and transmission systems.
6	Identify correct tractor parts and their terminology.
7	Demonstrate ability to communicate and work cooperatively with others.

**Course Outcomes:**

Course Outcomes	
1	Upon completion of this course students will be able to define and demonstrate proper safe work habits.
2	Upon completion of this course students will be able to identify and describe and demonstrate applications of different types of agriculture power equipment.
3	Upon completion of this course students will be able to calculate and predict the most efficient operational parameters for modern agriculture equipment.
4	Given safety is a major requirement of the agriculture industry, students will be able to demonstrate safe work habits during all laboratory activities. Knowledge of safe work habits will be demonstrated and explained through a written safety examination that all students must pass to the 100% level.

**Assignments:**

Assignment Type:	Details
Reading	Students will have to read equipment owners manuals
Writing	Students will have to write a report on various pieces of farm machinery discussing their application.
Homework	Students will have to read and answer questions from industry material.
Lab	Students will have to attach, adjust operate and detach an agricultural implement.

**Textbooks or other support materials**

Resource Type:	Details
Books	Fundamentals of Machine Operation: Tractors Author John Deere Publishing, December 2014 978-0-86691-402-4
Books	Farm Power and Machinery Management, Donnell Hunt, 11th Ed. 2015 ISBN 978-1478626961

**Transferable to CSU**

Yes - Approved

**CSU General Education**

Transferable to CSU

**Other Degree Attributes**

Degree Applicable

Not a Basic Skills Course

**Distance Learning Addendum**

DLA-Approved-May-13-2020-fillable-form.pdf

**Banner Title:**

Farm Power

**Curriculum Committee Approval Date:**

02/25/2021

**Academic Senate Approval Date:**

03/10/2021

**District Governing Board Approval Date:**

04/12/2021

**Course Control Number:**

CCC000526034

**C-ID:**

AG-MA108L