South Central College

PLSC 1205 Precision Agriculture

Course Outcome Summary

Course Information

Description This course objectives includes basic understanding of precision agriculture high tech equipment and strategies. Students will gain an understanding of the hardware, software and management strategies of precision agriculture. Areas of study will include GIS, GPS, remote sensing, differential correction, yield monitoring, and grid mapping. Farmworks software will be incorporated into the course.

Total Credits 3

Total Hours 48

Types of Instruction

Instruction Type	Credits/Hours
Classroom Presentation	

Institutional Core Competencies

Critical and Creative Thinking - Students will be able to demonstrate purposeful thinking with the goal of using a creative process for developing and building upon ideas and/or the goal of using a critical process for the analyzing and evaluating of ideas.

Course Competencies

1. Explain and understand how global positioning systems (GPS) work and how they are applied to the agricultural industry

Learning Objectives

Identify the various companies involved in precision agriculture and products available
Recognize the scope of precision farming and know the precision farming cycle
Describe the different types of GIS mapping programs
Understand the concepts of spatial variability and temporal variability

2. Understand that Global Positioning Systems are the heart and soul of precision agriculture

Learning Objectives

List sources affecting satellite accuracy
Explain differential correction
Be aware of sources of real-time DGPS

3. Explain the primary methods of soil sampling and analysis

Learning Objectives
Know the procedure for collecting soil samples
Know the factors affecting soil sampling resutls
Understand the concept of contour maps

4. Operate a hand-held computer (Juno) to develop a map capable of being used for soil sampling a scouting.

Learning Objectives
Operate the Juno for a farm or client
Lay out field boundaries, tile lines, tile intakes and other structures for a field
Organize a series of check list to be used in crop scouting

5. Understand the various electronic technologies use in gathering crop harvest information

Learning Objectives
Know the various methods for measuring crop yield
Identify the basic components of yield monitors
Trace grain flow, crop moisture, and ground speed sensors work
Identify potential sources of measurement error and how to managerially account for the error.

6. Understand and provide examples of remote sensing as applied to agriculture

Learning Objectives
Learn the key terminology of remote sensing
Understand how objects interact with electromagnetic energy
Know the uses of remote sensed data

7. Understand the applications of variable -rate technology(VRT) in agriculture

Learning Objectives
Compare map-based and sensor based application alternatives
Explain the components of variable rate application
Know the common sensors used for VRA

8. Discuss how Geographic Information Systems (GIS) can be used to input and store data, assist in the analysis of data and create interpretive maps

Learning Objectives
List and describe the basic components of GIS
Understand the hardware and software components in GIS
List and contrast the various coordinate systems in use today

9. Utilize the software "Farmworks" student will create a series of information, GPS reference maps.

Learning Objectives
Perform the necessary steps to create a GIS soil map
Perform the necessary steps to create a grid map
Create a GIS map with 3 to 4 data layers used in precision farming
Interpret GIS yield maps

10. Display participation and professionalism in class

Learning Objectives
Listen attentively to the instructor and other student speakers
Stays on task and participates in small group and class discussions
Looks, acts and speaks professionally while interacting with instructor and other students.
Prepare for class by reading the assignments and completing the homework

SCC Accessibility Statement

South Central College strives to make all learning experiences as accessible as possible. If you have a disability and need accommodations for access to this class, contact the Academic Support Center to request

and discuss accommodations. North Mankato: Room B-132, (507) 389-7222; Faribault: Room A-116, (507) 332-7222.

Additional information and forms can be found at: www.southcentral.edu/disability

This material can be made available in alternative formats by contacting the Academic Support Center at 507-389-7222.