GAVILAN COLLEGE
5055 Santa Teresa Blvd
Gilroy, CA 95023

Course Outline

COURSE: AMT 233 DIVISION: 50 ALSO LISTED AS:

TERM EFFECTIVE: Fall 2019 CURRICULUM APPROVAL DATE: 05/14/2019

SHORT TITLE: DRONES IN AG

LONG TITLE: Drones in Agriculture

Units	Number of Weeks		Contact Hours/Week		Total Contact Hours
3	18	Lecture:	3	Lecture:	54
		Lab:	0	Lab:	0
		Other:	0	Other:	0
		Total:	3	Total:	54

COURSE DESCRIPTION:

This course will provide individuals with information about the use of drones in agriculture. With so many farming operations and large entities involved with food getting into the use of drones, there are many applications and uses for drones in agriculture. PREREQUISITES: AMT 225 and AMT 226.

PREREQUISITES:

Completion of AMT 225, as UG, with a grade of C or better.

COREQUISITES:

CREDIT STATUS: C - Credit - Degree Non Applicable

GRADING MODES

L - Standard Letter Grade
P - Pass/No Pass

REPEATABILITY: N - Course may not be repeated

SCHEDULE TYPES:

02 - Lecture and/or discussion
05 - Hybrid
72 - Dist. Ed Internet Delayed

STUDENT LEARNING OUTCOMES:

1. Explain and demonstrate how to use a variety of drones, cameras/sensors, and applications to collect valuable data for agricultural purposes.

Measure of assessment: homework, exam, discussion

Semester/Year assessed, or planned Semester/Year of assessment: Fall 2019

2. Describe and demonstrate how to operate a variety of drones and use the cameras/sensors necessary to collect valuable data and then create a useful deliverable to give to the client for them to use.

Measure of assessment: project, exam, homework

Semester/Year assessed, or planned Semester/Year of assessment: Fall 2019

CONTENT, STUDENT PERFORMANCE OBJECTIVES, OUT-OF-CLASS ASSIGNMENTS

Curriculum Approval Date: 05/14/2019

15 Hours

Content: Introduction to Drones and Agriculture; Drones: Basic Rules and Regulations, Flight Tests/Operations, Flight Planning, Application Familiarity

Student Performance Objectives: List a variety of ways that drones can be used in the agricultural field. State the requirements needed to operate a drone. Explain the FAA regulations required to pilot a commercial drone. Investigate how to plan a flight for your specific needs.

19 Hours

Content: Learning the Different Hardware; Advanced Mapping; Introduction to NDVI; Introduction to Thermal; Introduction to Multi-spectral Cameras; Introduction to Plant Index; Understanding Your Crop; Data Sets

Student Performance Objectives: Identify and describe the different hardware that is most readily available to you and used by most employers. Identify and explain how to use the different types of cameras/sensors for a specific need. Explain how to determine what you are looking at in the data sets.

18 Hours

Content: Flight Operations; Advanced Mapping Continued; Finding Problems; Trends; In the Field - Troubleshooting, Collecting and Processing Data, Creating and Delivering Usable Data for Your Customer

Student Performance Objectives: Demonstrate how to troubleshoot problems in the field. Explain how one finds problem areas in your crop. Create various data sets and then utilize those data sets to identify problems or abnormalities in the field. Analyze the correlation between maps and other data. Describe how to deliver a usable data layer or information for your customer. Discuss how to provide the client with valuable deliverables.

2 Hours

METHODS OF INSTRUCTION:

lecture, discussion, AV presentation, demonstration

OUT OF CLASS ASSIGNMENTS:

Required Outside Hours: 24

Assignment Description: Homework: Study the different types of drones and the apps that they use. Learn how to plan a flight for your specific need, as well as flight operations and safety.

Required Outside Hours: 25

Assignment Description: Homework: Study how to use the different types of cameras/sensors need for your specific need. Learn how to use them as well as troubleshoot problems in the field.

Required Outside Hours: 19

Assignment Description: Project/Presentation: Be able to create and use the data sets that you have created to identify problems or abnormalities in the field, and give the client a valuable deliverable.

Required Outside Hours: 40

Assignment Description: Study for flight tests, doing research, written tests, quizzes.

METHODS OF EVALUATION:
Writing assignments
Percent of total grade: 10.00 %
Homework
Problem-solving assignments
Percent of total grade: 40.00 %
Report, Presentation
Objective examinations
Percent of total grade: 30.00 %
Written exam
Other methods of evaluation
Percent of total grade: 20.00 %

RECOMMENDED REPRESENTATIVE TEXTBOOKS:
K. R. Krishna. Agricultural Drones: A Peaceful Pursuit. New Jersey: Apple Academic Press,2018.

REQUIRED OTHER TEXTS AND MATERIALS
Handouts provided from the dronedeploy.com website.

ARTICULATION and CERTIFICATE INFORMATION
Associate Degree:
CSU GE:
IGETC:
CSU TRANSFER:
Not Transferable
UC TRANSFER:
Not Transferable

SUPPLEMENTAL DATA:
Basic Skills: N
Classification: Y
Noncredit Category: Y
Cooperative Education: N
Program Status: 1 Program Applicable
Special Class Status: N
CAN:
CAN Sequence:
CSU Crosswalk Course Department:
CSU Crosswalk Course Number:
Prior to College Level: Y
Non Credit Enhanced Funding: N
Funding Agency Code: Y
In-Service: N
Occupational Course: C
Maximum Hours:
Minimum Hours:
Course Control Number:
Sports/Physical Education Course: N
Taxonomy of Program: 095000

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