COURSE OUTLINE

UAS 102  Advanced Unmanned Aircraft Systems (UAS)  3
Course Number  Course Title  Credits

Hours: 3/1  Co- or Pre-requisite  Implementation:
UAS 101

Catalog description:

This course is an in-depth study of unmanned aircraft systems (UAS), emphasizing commercial and military use and current and future application of UAS in today’s world. This course continues to explore current Federal Aviation Regulations and how it applies to commercial use of UAS operations. In addition students will begin to study human factors, UAS design, human factors relating to operation as well as the general public’s perceptions of UAS operation. Students will continue to develop their skills in safety assessment and application. Students will also continue their training and develop more advanced flight maneuvers in flying a UAS. Proof of US citizenship is required.

Is course New, Revised, or Modified? New

Required texts/other materials:

Introduction to Unmanned Aircraft Systems
by Douglas Marshall, R. Kurt Barnhart, Eric Shappie, Michael Most
CRC Press
Latest Edition

Federal Aviation Regulations
Latest Edition

Revision date: 3/27/17  Course coordinator: Judith L. Stillwagon, 609-570-3487, stillwaj@mccc.edu

Information resources:
1. Texts to supplement the course text will be utilized along with current industry journals and periodicals.
2. Numerous web-based aviation resources and videos will be used to supplement course material.
3. Guest speakers from the industry will be invited to speak with the class.

Other learning resources:

Pilot Handbook of Aeronatical Knowledge (FAA Publication)
FAA
FAA FAAST Team
Course Competencies/Goals:
The student will be able to:

- Demonstrate knowledge of the current and future applications of UAS operations and how it does and will effect the U.S. and World economies respectfully.
- Explain, Analyze and apply the FAA regulations as they apply to UAS operation.
- Explain and demonstrate an understanding of human factors and public perceptions in relation to UAS operations.
- Research and discuss current articles/journals pertaining to the current use and operation of UAS.
- Demonstrate an understanding of UAS design
- Demonstrate advanced flying skills with UAS operation.

Course-specific General Education Knowledge Goals and Core Skills.

Communication
- Students will read, write, and listen critically and effectively,
- Students will evaluate and revise their written and oral communication so as to produce effective material related to the commercial UAS industry.

Critical Thinking and Information Literacy:
- Students will use critical thinking and problem-solving skills in analyzing information gathered through various sources throughout the course.
- Students will integrate the information located in a cohesive manner that addresses the research question and then communicate the information to the appropriate audience.

Technology:
- Students will use computer systems and UAS technology to advance their skills as a Remote Pilot - UAS.

Social Sciences:
- Students will identify human factors that could effect the safe operation of a UAS.
- Students will identify and demonstrate understanding of the public's perceptions of UAS operations.

Ethical Dimension:
- Students will identify issues within the UAS industry such as employment practices, economics; and evaluate their effects on businesses.

Collaboration and Cooperation:
- Students will develop interpersonal skills through group formation and practical situational problem solving in UAS operations.
Units of study in detail.

Unit I  UAS Commercial and Military Applications (SLO: GE:1,5; Core: 1,2)

Learning Objectives
The student will be able to...
- Identify currently approved commercial and military applications in U.S. and Worldwide.
- Discuss future use of UAS operations globally
- Analyze effects of UAS use on global economy
- Apply knowledge of FAA regulations when discussing future use of UAS

Unit II  Human Factors and Public Perceptions (SLO: GE:1,2,4,5,6; Core: 2,3,4)

Learning Objectives
The student will be able to...
- Identify and analyze human factors associated with the safe operation of UAS.
- Discuss Public Perceptions of current UAS operations and how it may impact future use.
- Analyze current journal articles discussing human factors with UAS operations

Unit III  UAS Design (SLO: GE: 1,3; Core: 5)

Learning Objectives
The student will be able to...
- Identify the design process for UAS
- Discuss the different subsystems that are associated with UAS design
- Discuss standards for UAS design, construction, and operations

Unit IV  Practical Application of UAS Operations (SLO: GE: 6; Core: 3,6)

Learning Objectives
The student will be able to...
- Advance their skills on control methods of UAS operations
- Demonstrate appropriate inspections prior to flight
- Apply knowledge of UAS operation and demonstrate advanced skills in flying a UAS

Evaluation of student learning: Tests, assignments, class attendance and participation will be considered for the final grading. The breakdown of grading is:

40% = Objective Tests
20% = Journal Article Research
20% = Final Exam
20% = UAS Advanced flying skills evaluation

The UAS advanced flying skills evaluation will be scheduled with the instructor. The student will be expected to display advanced knowledge of flying skills, flight planning, and perform a designated pattern that will be determined by the instructor and provided to the student prior to the evaluation.
Academic Integrity Statement:

A student who knowingly represents the work of others as his/her own, uses or obtains unauthorized assistance in the execution of any academic work, or gives fraudulent assistance to another student is guilty of cheating. The penalty for violating the honor code is severe (see Student Handbook). Any student violating the honor code is subject to receive a failing grade for the course and will be reported to the Office of Student Affairs. If a student is unclear about whether a particular situation may constitute an honor violation, the student should meet with the instructor to discuss the situation.

It is permissible to assist classmates in general discussions and such interaction is encouraged. Students must not work together on graded assignments unless it is a group assignment. A student may not use or copy (by any means) another's work or portions of it and represent it as his/her own.

NOTE:

- Students are required to take all tests on the date scheduled. No makeup tests will be permitted except for extremely serious circumstances.
- Students are expected to attend all of their classes. If a class is missed for any reason it is the student's responsibility to get any material, notes, handouts, announcements, etc.
- Students should be on time for class. If a student walks in late, it is expected that he/she enter the room quietly so that they do not disrupt the class meeting.
- Students are expected to follow ordinary rules of courtesy during class. Engaging in private conversation is distracting to other students and to the instructor.
- Disruptive behavior of any kind is not appropriate and the instructor reserves the right to have a student leave if he/she interferes with the other students' right to receive instruction.
- Cell phones should be turned off during class time. They are a distraction and can disrupt the learning environment.