



## MASTER COURSE OUTLINE

Prepared By: Patrick Ford

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### COURSE TITLE

Introduction to Unmanned Systems

### GENERAL COURSE INFORMATION

Dept.: UMS

Course Num: 101

(Formerly:)

CIP Code: 15.0405

Intent Code: 21

Program Code: 640

Credits: 3

Total Contact Hrs Per Qtr.: 66

Lecture Hrs: 44

Lab Hrs: 22

Other Hrs:

Distribution Designation: General Elective (GE)

### COURSE DESCRIPTION (as it will appear in the catalog)

This course will introduce students to the world of unmanned systems, including air, ground, maritime, and space-based platforms. Unmanned systems interoperability, propulsion, communications, sensors, and autonomous systems will be addressed, along with various types of unmanned system simulator operations

### PREREQUISITES

None

### TEXTBOOK GUIDELINES

Text determined by the UMS faculty (Example: *Introduction to Unmanned Systems: Air, Ground, Sea & Space: Technologies and Commercial Applications (Volume 1)*, (2012), LeMieux, Jerry)

### COURSE LEARNING OUTCOMES

*Upon successful completion of the course, students should be able to demonstrate the following knowledge or skills.*

1. Apply unmanned systems concepts to real-world operating scenarios
2. Recognize unmanned systems operating restrictions and constraints
3. Describe sources and effects of the environment on unmanned systems performance
4. Calculate maximum payload loading for assigned unmanned systems
5. Respond to simulated emergency procedures
6. Implement proper crew resource management
7. Execute proper radio communication procedures
8. Determine the performance of various types of unmanned systems
9. Describe physiological effects on remote operator/pilot performance
10. Apply proper decision-making and judgment to unmanned systems operations
11. Summarize proper unmanned systems operations
12. Demonstrate proper unmanned systems pre/post-operation inspection and maintenance procedures

### INSTITUTIONAL OUTCOMES

IO3 **Human Relations/Workplace Skills:** Demonstrate effective decision-making, critical thinking, and interpersonal skills that match the level of responsibility needed in order to function as a member of a team of professionals.

**COURSE CONTENT OUTLINE**

1. Unmanned systems regulations and ethics
2. Basic unmanned systems capabilities
3. Unmanned systems areas/classification
4. Unmanned systems operating procedures/limitations
5. Environmental concerns for unmanned systems operations
6. Unmanned systems loading and payload constraints
7. Emergency procedures
8. Crew resource management
9. Radio communication procedures
10. Unmanned systems performance limitations
11. Remote operator/pilot physiology
12. Privacy considerations and data collection
13. Remote operator/pilot decision-making and judgment
14. Airport and maritime operations
15. Maintenance, pre/post-operations inspection procedures
16. Operator liability, insurance and record keeping

**DEPARTMENTAL GUIDELINES** *(optional)*

The syllabus must contain evaluation/grading guidelines, class environment/expectations/rules, course learning outcomes, and a disability services statement. A schedule must be provided to students that contains content covered (text chapters, topics, etc.), tentative test dates (to include final date/time).

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**DIVISION CHAIR APPROVAL**

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**DATE**