MASTER COURSE OUTLINE

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Date: November 2019

COURSE TITLE

Unmanned Aerial Systems (UAS) Remote Sensing Systems

GENERAL COURSE INFORMATION

Dept.: GIS	Course Num: 220	(Formerly:)
CIP Code: 15.0405	Intent Code: 21	Program Code: 640
Credits: 3		
Total Contact Hrs Per Qtr.: 55		
Lecture Hrs: 11	Lab Hrs: 44	Other Hrs:
Distribution Designation:		

COURSE DESCRIPTION (as it will appear in the catalog)

This course addresses key aspects of remote sensing. Topics include the electromagnetic spectrum, satellites and remote sensing systems, manned/unmanned aircraft and remote sensing systems, basic image interpretation and analysis concepts, and remote sensing applications (i.e., agriculture, forestry, geology, etc.).

PREREQUISITES

GIS 110 or Instructor Permission

TEXTBOOK GUIDELINES

Introductory textbook determined by unmanned systems faculty (Example: The Canada Centre for Mapping and Earth Observation, Fundamentals of Remote Sensing, 2017).

COURSE LEARNING OUTCOMES

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

1. Explain the fundamental physical principles of remote sensing, including the general characteristics of the electromagnetic spectrum/electromagnetic energy.
2. Provided a remote sensing task, select the right sensor for that task
3. Given a specific sensor system, compare and contrast the advantages and disadvantages of various manned and unmanned remote sensing platforms for use with that sensor (including both airborne and space-based platforms)
4. Provide examples of remotely sensed data characteristics and methods
5. Develop and demonstrate basic image interpretation skills
6. Demonstrate basic software and manual techniques used to carry out remote sensing image processing

INSTITUTIONAL OUTCOMES

IO3 **Human Relations/Workplace Skills**: Students will be able to demonstrate teamwork, ethics, appropriate safety awareness and/or workplace specific skills

COURSE CONTENT OUTLINE

1. The electromagnetic spectrum

2. Satellite orbits and space-based remote sensing capabilities/limitations
3. Manned/unmanned aerial systems flight profiles and remote sensing capabilities/limitations
4. Active sensing systems
5. Passive sensing systems
6. Basic image interpretation and analysis
7. Remote sensing applications

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 **DATE**