SOUTHEAST COMMUNITY COLLEGE
CONSTRUCTION MANUFACTURING AND TECHNOLOGY DIVISION
Geographic Information Systems Technician Program
Revision Date: August 21, 2023
Syllabus Statements

I. CATALOG DESCRIPTION

Course Number:	GIST 2140
Course Title:	Introduction to Remote Sensing
Prerequisite:	GIST 1110
Catalog Description:	This course is an introduction to remote sensing of the Earth. The course introduces various kinds of remote sensing image processing techniques, primarily using optical satellite data (e.g., Landsat). The course covers a variety of related topics that include the physical processes involved in remote sensing and various image processing methods and analysis.
Credit Hours:	3
Class Hours:	45
Lab Hours:	0
Total Contact Hours:	45

II. COURSE OBJECTIVES: *Course will:*

A. Introduce students to remote sensing
B. Utilize GIS software to apply appropriate techniques to classify and evaluate remote sensing data
D. Apply raster analysis techniques to create new remote sensing products
E. Analyze remote sensing data for accuracy

III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES

A. Student Learning Outcomes: *Student will be able to*:
- **1.** Describe basic physics concepts on which remote sensing is based (i.e. Electromagnetic Spectrum, etc.)
- **2.** Describe the fundamentals of Photogrammetry
- **3.** Select appropriate data set for remote sensing application based on spectral, temporal, radiometric and spatial resolution.
- **4.** Describe characteristics of passive and active remote sensing systems (such as multispectral, LiDAR and Radar).
- **5.** Perform basic remote sensing workflows to solve problems (such as acquiring data, feature extraction, change detection, pre- and post-processing, create composite images and image classification).
- **6.** Describe future trends in remote sensing.
- **7.** Apply basic concepts, methods and uses of accuracy assessment and ground truthing to the results of remote sensing workflows.
- **8.** Interpret, analyze and summarize results of a remote sensing workflow.

B. General Education Learning Outcomes (GELOs)
- **1.** GELO 3: Critical Thinking & Problem Solving
  Outcome 1: Collect, identify, interpret and analyze data

IV. CONTENT/TOPICAL OUTLINE (*course outline may provide more detailed information*)

A. What is Remote Sensing?
B. Physical foundations
C. Elements of photogrammetry
D. Satellites and sensor platforms
E. Remote sensing and image classification

V. INSTRUCTIONAL MATERIALS

A. Required Text(s): McGee & Campbell, *Remote Sensing with ArcGIS Pro*, (Refer to CID and/or instructor for current edition)

B. Other Resources: Internet and computer access (Not a tablet or phone)

VI. METHODS OF PRESENTATION/INSTRUCTION

A. Methods of presentation typically include a combination of the following:

1. Module overviews

2. Video presentations

3. Readings and resources

VII. METHODS OF EVALUATION

A. Methods of evaluation typically include a combination of the following:

1. Assignments

2. Discussions

3. Projects

4. Quizzes/Exams