SOUTHEAST COMMUNITY COLLEGE
CONSTRUCTION MANUFACTURING AND TECHNOLOGY DIVISION
Geographic Information Systems Technician Program
Revision Date: August 26, 2019
Syllabus Statements

I. CATALOG DESCRIPTION

Course Number:	GIST1120
Course Title	Spatial Analysis and Modeling
Prerequisite(s):	GIST1110
Catalog Description:	An introduction to problem-solving and decision-making using geospatial analysis techniques. Students will learn to effectively solve spatial problems and make decisions by working with a variety of data and methods using the spatial analysis tools in ArcGIS software.
Credit Hours:	3
Class Hours:	45
Lab Hours:	0
Total Contact Hours:	45

II. COURSE OBJECTIVES: *Course will*

A. Introduce students to the basic principles and concepts of spatial analysis and modeling.
B. Examine techniques for finding relationships between geospatial data.
C. Utilize ArcGIS spatial analysis tools to select features by location; prepare data for analysis; detect and quantify patterns and analyze spatial data.
D. Show how to utilize available tools to create desired outcomes.
E. Present methods for identifying, describing, examining, and modeling patterns in spatial data.

III. STUDENT LEARNING OUTCOMES AND GENERAL EDUCATION LEARNING OUTCOMES:

A. Student Learning Outcomes: *Student will be able to*
  1. Prepare data for use in analysis.
  2. Determine an appropriate approach to solving a problem or answering a question using geospatial tools and methods.
  3. Run geoprocessing tools individually and implement a model to run several tools in sequence.
  4. Organize the data sets resulting from analysis.
  5. Present the results of a geospatial analysis using appropriate terminology and visualizations.
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 (CID may provide more detailed information)

A. Joining, relating and preparing data for analysis
B. Geoprocessing vector data and using spatial analyst
C. Mapping where things are and mapping the most and least
D. Mapping density and finding what's inside
E. Finding what's nearby
F. Mapping change

G. Measuring geographic distribution
H. Analyzing patterns
I. Identifying clusters
J. Final project

V. INSTRUCTIONAL MATERIALS

A. Required Text(s): Allen, David W., *GIS TUTORIAL 2-Spatial Analysis Workbook,* 4th Edition, Esri Press, 2016, ISBN: 9781589484535

VI. METHODS OF PRESENTATION/INSTRUCTION

A. Methods of presentation typically include a combination of the following:
- **1.** Module outlines
- **2.** Video presentations
- **3.** Readings and resources

VII. METHODS OF EVALUATION

A. Methods of evaluation, although determined by the individual instructor, traditionally includes a combination of the following:
- **1.** Assignments
- **2.** Discussions
- **3.** Projects
- **4.** Quizzes/Exams