

**COORDINATING COMMISSION  
FOR POSTSECONDARY EDUCATION**

**140 N. 8<sup>th</sup> Street Suite 300  
Lincoln Nebraska 68508**

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**PROPOSAL FOR NEW INSTRUCTIONAL PROGRAM**

**Form 92-40**

Institution Submitting Proposal:	<b>Southeast Community College</b>
Title of Program:	<b>Geographic Information Systems Technician</b>
CIP Code	<b>45.0702</b>
Organizational Unit in which Program will be located:	<b>Construction, Manufacturing, Electronics, and Technology Division</b>
Name of Contact Person in the event additional information is needed:	<b>Dr. Joel Michaelis, Vice President of Instruction</b>
Telephone:	<b>402-323-3427</b>
Degree, Diploma, or Certificate to be offered	<b>Associate of Science Certificate</b>
Proposal date to initiate program:	<b>August 2022</b>
List the location(s) where this program will be offered:	<b>Online</b>
If the program has a projected ending date, please so indicate:	<b>N/A</b>
Date Approved by Governing Board:	<b>February 15, 2022</b>

Documents related to this proposal upon which the Governing Board made its decision to approve the proposal are provided in Appendix C.

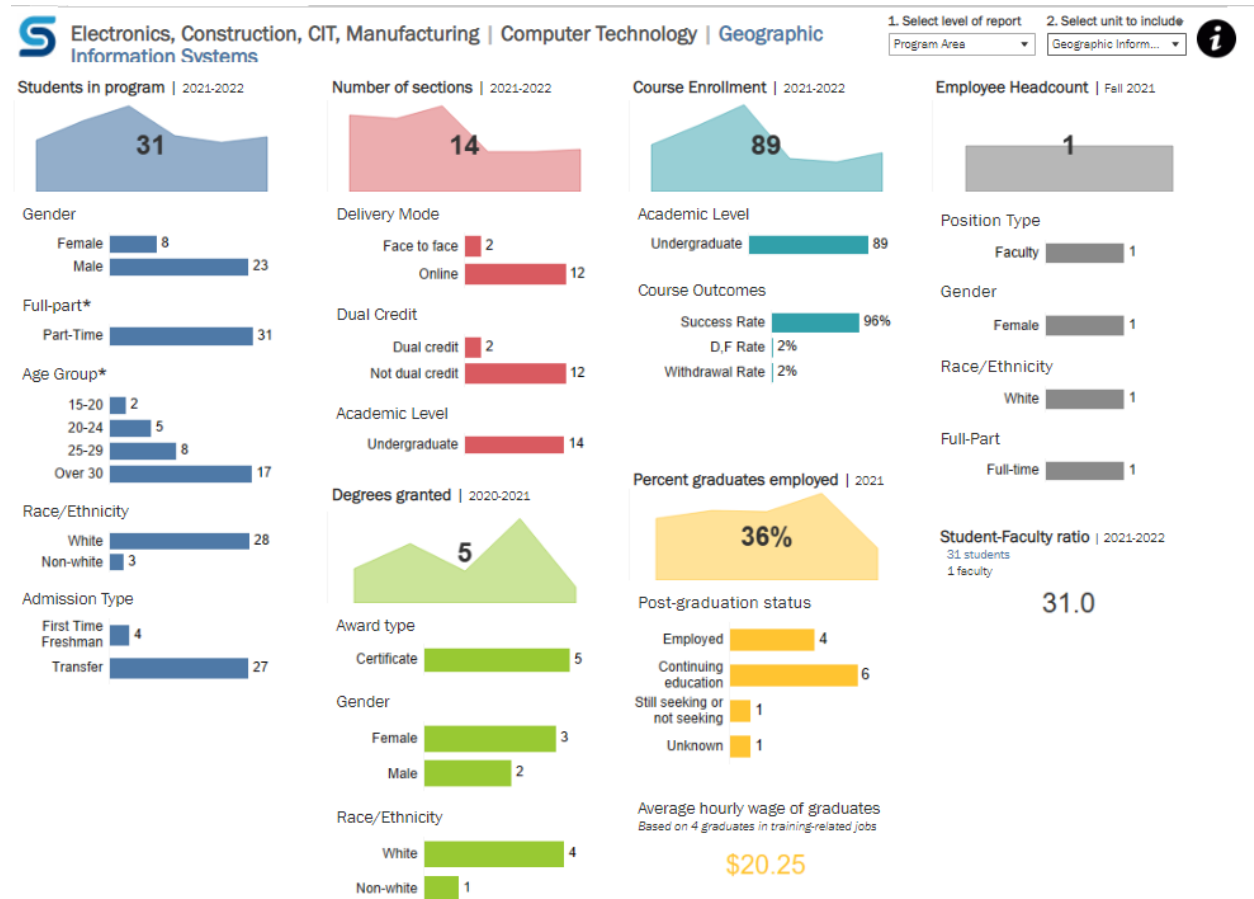
Chief Executive Officer's or other Authorized Officer's signature: \_\_\_\_\_

# I. Purpose and Description of the Proposed Program

Southeast Community College (SCC) proposes to expand upon the current Geographic Information Systems Technician Certificate program by adding an Advanced Certificate and an Associate of Applied Science degree. These program options will be offered entirely online beginning August 2022.

These new Geographic Information Systems Technician (GIST) program offerings are designed to expand the educational opportunities in the field of Geographic Information Systems for those seeking to enter the field or currently employed and expanding skills for personal advancement. Technicians in this field generate, analyze, interpret, and communicate data derived by using GIS and GPS hardware and software applications. They may also set up and maintain GIS databases and websites, create maps and models for application of data, and provide technical support to users or clients. GIS is applicable to many industries and occupations, including, but not limited to, agriculture, public safety (fire, rescue, and police), public health, transportation, facilities, land and utilities planning, and management. GIS technicians possess outstanding decision-making, attention to detail, and problem-solving skills.

With the potential for an additional adjunct faculty, the proposed new Advanced Certificate and AAS degree offerings will utilize existing faculty and staff and because courses are offered online only, there are no facility needs. Courses will be offered every other semester, with an additional average intake of 10-15 students every fall semester. Given past part and full-time enrollment trends and attrition in the current certificate program (see image below), we forecast an additional annual student headcount beginning year two at 25 students. The minimum number of students to make the program viable is 8.



As shown in the tables below, the Advanced Certificate option builds upon the current 18.0 credit-hour Certificate (shown below in gray), with an additional 15.0 credit hours of focused instruction. With the addition of general education and computer courses, the two certificates ladder into the AAS degree, consisting of four total semesters and a total of 62 credit hours. Full syllabi will be developed by an instructor from the GIST Certificate program.

Course Number	Course Name	Credit Hours
CURRENT Certificate Program		
GIST 1110	Introduction to Geospatial Technology	3.0
GIST 1160	Techniques in Cartography	3.0
GIST 1120	Spatial Analysis & Modeling	3.0
GIST 1130	Data Acquisition & Management	3.0
GIST 1140	GIST Capstone	3.0
GEOG 1020	World Regional Geography	3.0
Total Credit Hours – Current Certificate		18.0

Course Number	Course Name	Credit Hours
Advanced Certificate Program – Completion of the above current Certificate PLUS:		18.0
GIST 1150	Advanced Exploratory GIS	3.0
GIST 2180	Geospatial Web Applications	3.0
GIST 2190	Spatial Programming and GIS	3.0
GIST 2120	Geodatabase Design and Management	3.0
GIST 2130 or 2140	Location-based GIS Applications OR Introduction to Remote Sensing	3.0
Total Credit Hours – Advanced Certificate		18.0
Course Number	Course Name	Credit Hours
Associate of Applied Science Degree		
Completion of both the certificate courses above PLUS:		33.0
BSAD 1010	Microsoft Applications	3.0
INFO 1151	Information Technology Fundamentals	3.0
ACFS 1015	Success @ SCC	1.0
ENGL 1010 OR 1110	English Composition I OR Business Communications	3.0
INFO 1171	PC Operating Systems	3.0
SPCH 1090 or 1110 or 2810	Fundamentals of Human Communication OR Public Speaking OR Business & Professional Communication	3.0
INFO 1431	Web Page Fundamentals	3.0
INFO 1214	Programming Concepts	2.0
DDRT 1120	Basic Computer Aided Drafting	2.0
INFO 1411	Database Concepts	3.0
MATH 1020 or 1040	Technical Math OR Business Math	3.0
Total Credit Hours – AAS		62.0

## II. Review Criteria

### A. CENTRALITY TO ROLE AND MISSION

The mission of Southeast Community College is *to empower and transform the diverse learners and communities of southeast Nebraska through accessible lifelong educational opportunities. The College provides dynamic and responsive pathways to career and technical, academic transfer, and continuing education programs that contribute to personal, community, and workforce development.*

The addition of the Advanced Certificate and AAS options to the Geographic Information Systems Technician program aligns with SCC's mission to provide accessible and responsive pathways to career and technical education that contribute to personal, community, and workforce development. Additionally, it conforms with Nebraska Revised Statute 85-962 by providing applied technology and continuing education to ensure economic opportunities for future employees and the stability and growth of regional businesses and industries.

Further, the Geographic Information Systems Technician program aligns with Nebraska's Legislative mandate and SCC's organizational structure to provide career and technical education resulting in awards that conform to the approved requirements for a certificate, diploma, and associate of applied science degree.

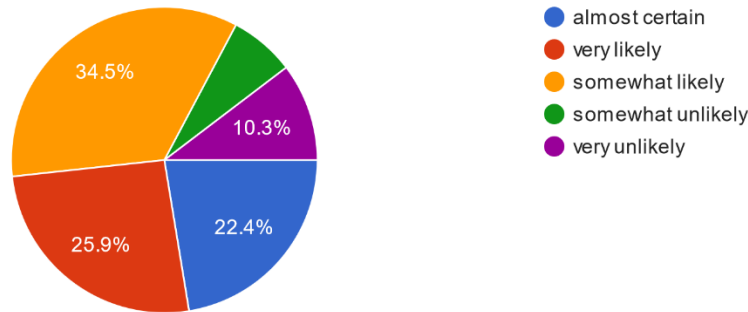
### B. EVIDENCE OF NEED AND DEMAND

According to *Emsi Q1, 2022 Data Set*, the SCC 15-county service area in southeast Nebraska "is a hotspot for jobs in Nebraska, which is higher than the national average." Emsi notes the national median salary for individuals with these skills is approximately \$50,016 and the annual compensation in southeast Nebraska is 20% higher at \$60,199. Most jobs are found in the architectural, engineering, and related services industry sector. According to the [U.S. Bureau of Labor Statistics](#), there is increased demand for mapping technology that require technicians to gather and prepare the data, even as drones and other advancements make workers more efficient, these skills are vital to the industry.

This high demand was confirmed in an employer survey conducted by SCC in 2021, when 93% of respondents agreed there is a need for personnel to complete an associate degree in geospatial technology and 87% noted this demand will increase in the next 5-10 years. When asked if graduates of the proposed program would provide value to their organization, one responded "Students with the Associate Degree are going to come to me with more basic training and require less time to be fully productive in their positions." Another recent survey conducted by the College asked potential students about their interest in an AAS degree in Geographical Information Systems Technician. The responses indicated 86.2% of students (n=58) had a 'very' or 'somewhat' high interest and a vast majority indicated they were likely to apply for admission if the program was launched within the next two years as shown in the figure on the following page.

Rate the likelihood of submitting an application for admission to the proposed program if it were launched within the next 1-2 years?

58 responses



### C. ADEQUACY OF RESOURCES

#### 1. **Faculty and Staff Resources**

The Geographic Information Systems Technician (GIST) program will use the current full-time faculty member. An additional adjunct faculty will be needed beginning in year two to assist with delivery of the additional courses. Other courses within the AAS degree are taught by current faculty in other divisions in the college. The Construction, Manufacturing, Electronics, and Technology Division will provide support staffing and administrative oversight.

#### 2. **Physical Facilities and Instructional Equipment**

Because the GIST program will be offered entirely online, there will be no need for additional space or facilities on campus.

#### 3. **Instructional Equipment and Informational Resources**

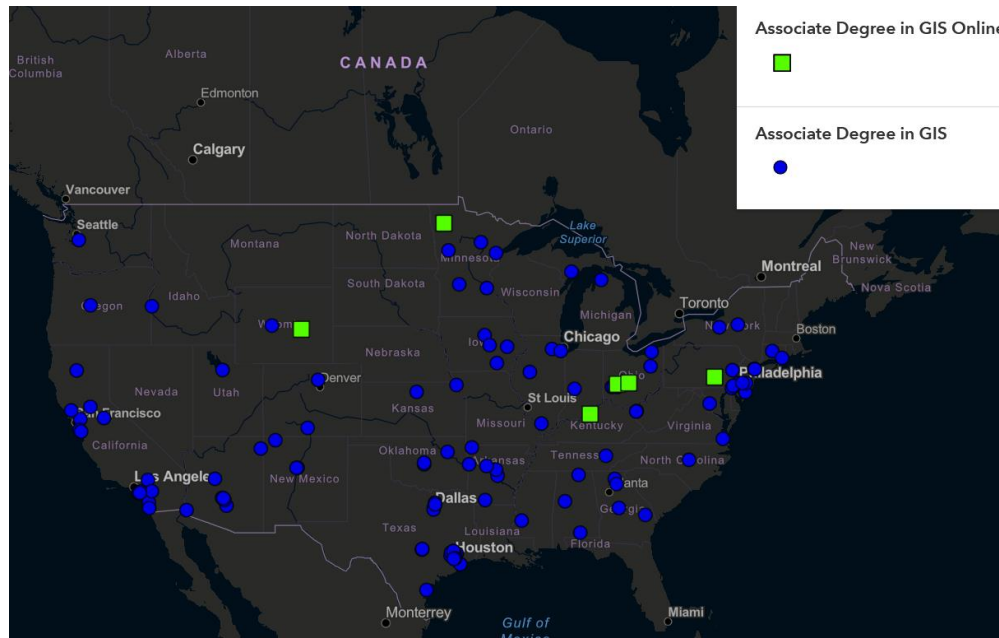
The addition of the Advanced Certificate and AAS degree will require additional hard drives to store student and course files, estimated between \$6,000 - \$10,000. This amount is included in the 2022-2023 projected budget. Future equipment necessary for instruction will be supported by a combination of sources including the general operating budget, SCC Foundation, and donations or industry contributions. Virtual library and technology resources are already in place to support all distance learners. Sufficient library staff, library resources and information technology resources are in place to support the addition of the Advanced Certificate and AAS degree.

#### 4. **Budget Projections**

As stated above, the addition of the Advanced Certificate and AAS degree in Geographic Information Systems Technician will utilize the current full-time faculty and an additional adjunct instructor. The tuition rates are projections based on past trends as no rates beyond the first year have been set by the SCC Board of Governors. Salary increases are projections based on past trends of a 3% total compensation increase. Projected expense and revenue estimates for a period of five (5) years are attached as Appendices A and B respectively.

#### D. AVOIDANCE OF UNNECESSARY DUPLICATION

There is no unnecessary duplication. The proposed GIST Certificate, Advanced Certificate, and Associate of Applied Science degree program will be the only programs in the State of Nebraska as shown by the figure below. Additionally, the SCC program will be one of 7 online associate degree programs in the nation.



#### E. CONSISTENCY WITH THE COMPREHENSIVE STATEWIDE PLAN FOR POSTSECONDARY EDUCATION

The proposed Advanced Certificate and AAS degree in Geographic Information Systems Technician is consistent with Nebraska’s Comprehensive Statewide Plan for Postsecondary Education. The program will provide education “...that prepares students for productive and fulfilling lives...” and “...enhances workforce development...” Specifically, the Comprehensive Statewide Plan directs institutions to “provide specialized certification programs in professional, technical, and vocational fields that address regional and state needs” (p. 3-3). Given the current demand for GIS Technicians detailed previously, SCC’s proposed program options through is consistent with this goal.

Appendix A

**TABLE 1: PROJECTED EXPENSES - NEW INSTRUCTIONAL PROGRAM**

	(FY 2022-23)		(FY2023-24)		(FY2024-25)		(FY2025-26)		(FY2026-27)		Total	
	Year 1		Year 2		Year 3		Year 4		Year 5			
Personnel	FTE	Cost	FTE	Cost	FTE	Cost	FTE	Cost	FTE	Cost	FTE	Cost
Faculty <sup>1</sup>		\$0	0.3	\$9,215	0.3	\$9,491	0.3	\$9,776	0.3	\$10,069	0.3	\$38,552
Professional		\$0		\$0		\$0		\$0		\$0	0	\$0
Graduate assistants		\$0		\$0		\$0		\$0		\$0	0	\$0
Support staff		\$0		\$0		\$0		\$0		\$0	0	\$0
Subtotal	0	\$0	0.3	\$9,215	0.3	\$9,491	0.3	\$9,776	0.3	\$10,069	0.3	\$38,552
<b>Operating</b>												
General Operating <sup>2</sup>		\$12,000		\$13,500		\$15,000		\$16,500		\$18,000		\$75,000
Equipment <sup>3</sup>		\$10,000		\$0		\$0		\$0		\$0		\$10,000
New or renovated space		\$0		\$0		\$0		\$0		\$0		\$0
Library/Information Resources		\$0		\$0		\$0		\$0		\$0		\$0
Other		\$0		\$0		\$0		\$0		\$0		\$0
Subtotal		\$22,000		\$13,500		\$15,000		\$16,500		\$18,000		\$85,000
<b>Total Expenses</b>	0	\$22,000.00	0.3	\$22,715.00	0.3	\$24,491.45	0.3	\$26,276.19	0.3	\$28,069.48	<b>0.3</b>	<b>\$123,552.12</b>

**FOOTNOTES are for guidance only. Please provide your own footnotes where appropriate and delete ours.**

<sup>1</sup> .3 FTE paid at adjunct rate (3 classes per term) with 3% annual increase in salary.

<sup>2</sup> Based on 3% inflation increases and includes expenses for increased marketing of program.

<sup>3</sup> Year 1 cost of increased server and storage space.

Appendix B

**TABLE 2: REVENUE SOURCES FOR PROJECTED EXPENSES - NEW INSTRUCTIONAL PROGRAM**

	FY(2022-23)	(FY2023-24)	(FY2024-25)	(FY2025-26)	(FY2026-27)	
	Year 1	Year 2	Year 3	Year 4	Year 5	<b>Total</b>
Reallocation of Existing Funds						\$0
Required New Public Funds						\$0
1. State Funds & Local Tax <sup>1</sup>						\$0
Tuition and Fees	\$51,300	\$87,000	\$88,500	\$88,065	\$91,500	\$406,365
Other Funding						\$0
1						\$0
2						\$0
3						\$0
Total Revenue	\$51,300	\$87,000	\$88,500	\$88,065	\$91,500	\$406,365

<sup>1</sup> Based on: 15 students Year 1, 25 students Year 2 at 30 credit hours annually and a projected 2% increase in tuition & fees.



# GEOGRAPHIC INFORMATION SYSTEMS TECHNICIAN ASSOCIATE DEGREE PROGRAM SOUTHEAST COMMUNITY COLLEGE

**February 2, 2022**

The Geographic Information Systems Technician program is part of the Construction & Electronics Division at Southeast Community College and is a totally online program. The program prepares students to be GIS Technicians for private and government organizations. The program offers an 18 hour credit hour certificate program. This proposal is to create an associate degree in GIST and an advanced GIST certificate.

## Overview

The Geographic Information Systems Program is designed to meet the educational requirements of a prospective GIS technician. Technicians in this field generate, analyze, interpret, and communicate data derived by using GIS and GPS hardware and software applications. They may also set up and maintain GIS databases and websites, create maps and models for application of data, and provide technical support to users or clients. GIS is applicable to many industries and occupations, including, but not limited to, agriculture, public safety (fire, rescue and police), public health, transportation, facilities, land and utilities planning, and management. GIS technicians possess outstanding decision-making, attention to detail, and problem-solving skills. The associate degree and certificate will be offered online.

## Mission

The Geographic Information Systems Technician program will provide technical training to students who intend to enter gainful employment at the associate degree level or less, and training or retraining for those already employed as may be necessary to meet increasing technological developments or as may be desired for personal advancement.

## Rationale

This associate program would better prepare students to enter the workforce. The current certificate program is good for students already in the GIS workforce, but students with no prior experience in GIS find it harder to obtain a GIS position. This program will better prepare all students to enter the workforce as a GIS Technician.

## Target students

1. Students in the GIST certificate program at Southeast Community College.
2. Students who have graduated from the GIST certificate program.
3. Job seekers across Nebraska and the United States looking for an online GIS associate program to give themselves an advantage in the job market.

4. GIS technicians currently working without a degree looking for professional development
5. Unemployed or under employed persons looking for job training.

### Courses required

(See links below)

### Course justification

The courses were chosen based on the following criteria:

1. Review of courses taught in GIS associate degree programs throughout the US.
2. Questionnaires sent to employers and prospective students. (See links below)
3. Courses students take during the first or second semester in the Geographic Information Systems Technician Certificate Program.

### Potential costs

Below are potential costs of implementing the program:

1. Additional hard drives to store student and class files. (est \$6,000 to \$10,000)
2. One adjunct faculty position.

### Additional Resources

- [Revised and New Course Descriptions](#)
- [GIST Course Prerequisites](#)
- [Click here for results from employer survey](#)
- [Click here for results from student survey](#)
- [Click here for map of current associate degree level GIS programs in the US](#)

## Proposed Courses for GIST – Advanced Certificate.

Program Director: Dave Zachek

Semester Entered: August 2022 Semester Graduating: May 2024

Goal: Associate of Applied Science Degree All courses listed are required, a 2.0 GPA is required for graduation

Course #	Course Title	Prerequisite(s) or Co-requisite Need a C or higher in non-competency courses below.	Credits	Quarter	Grade
<b>First Semester (August 2022)</b>					
GIST 1150	Advanced Exploratory GIS	Prerequisite GIST 1110	3.0	FA22 SEM	
GIST 2180	Geospatial Web Applications	Prerequisites GIST 1110, 1120, 1130	3.0	FA22 SEM	
GIST 2190	Spatial Programming and GIS	Prerequisites GIST 1110, 1120, 1130	3.0	FA22 SEM	
GIST 2120	Geodatabase Design and Management	Prerequisites GIST 1110, 1120, 1130	3.0	FA22 SEM	
GIST 2130 or GIST 2140 or	Location-based GIS Applications  Introduction to Remote Sensing	GIST 2130 Requires Smartphone. Both courses require GIST 1110, 1120, 1130	3.0	FA22 SEM	
GELO	World Regional Geography Recommended		3.0	FA22 SEM	
<b>Total Credits – 1<sup>st</sup> Semester</b>			<b>18.0</b>		
<b>Total Program Credit Hours</b>			<b>18.0</b>		

# Proposed Courses for GIST – A.A.S.

Program Director: Dave Zachek

Semester Entered: August 2022 Semester Graduating: May 2024

Goal: Associate of Applied Science Degree All courses listed are required, a 2.0 GPA is required for graduation

Course #	Course Title	Prerequisite(s) or Co-requisite Need a C or higher in non-competency courses below.	Credits	Quarter	Grade
<b>First Semester (August 2022)</b>					
GIST 1110	Introduction to Geospatial Technology		3.0	FA22 SEM	
GIST 1160	Techniques in Cartography		3.0	FA22 SEM	
BSAD 1010	Microsoft Applications I (GELO #6)		3.0	FA22 SEM	
INFO 1151	Information Technology Fundamentals		3.0	FA22 SEM	
ACFS 1015	Success @ SCC		1.0	FA22 SEM	
ENGL 1010 or ENGL 1110	English Composition I or Business Communications (GELO #2)		3.0	FA22 SEM	
<b>Total Credits – 1<sup>st</sup> Semester</b>			<b>16.0</b>		

<b>Second Semester (January 2023)</b>					
GIST 1120	Spatial Analysis and Modeling	OC	3.0	SP23 SEM	
GIST 1130	Data Acquisition and Management	Prerequisite GIST 1110	3.0	SP23 SEM	
GIST 1150	Advanced Exploratory GIS	Prerequisite GIST 1110	3.0	SP23 SEM	
INFO 1171	PC Operating Systems	Corequisite BSAD 1010	3.0	SP23 SEM	
SPCH 1090 or SPCH 1110 or SPCH 2810	Fundamentals of Human Comm.  Public Speaking  Business and Prof Comm. (GELO #1)		3.0	SP23 SEM	
<b>Total Credits -2<sup>nd</sup> Semester</b>			<b>15.0</b>		

Third Semester (August 2023)					
GIST 2180	Geospatial Web Applications	Prerequisites GIST 1110, 1120, 1130	3.0	FA23 SEM	
INFO 1431	Web Page Fundamentals	Prerequisite INFO 1151, 1171	3.0	FA23 SEM	
GIST 2190	Spatial Programming and GIS	Prerequisites GIST 1110, 1120, 1130	3.0	FA23 SEM	
INFO 1214	Programming Concepts	Corequisite INFO 1151, 1171	2.0	FA23 SEM	
GEOG 1020	World Regional Geography		3.0	FA23 SEM	
DDRT 1120	Basic Computer Aided Drafting		2.0	FA22 SEM	
<b>Total Credits – 3rd Semester</b>			<b>16.0</b>		

Fourth Semester (January 2024)					
GIST 2120	Geodatabase Design and Management	Prerequisites GIST 1110, 1120, 1130	3.0	SP24 SEM	
INFO 1411	Database Concepts	Prerequisites INFO 1151, 1171 and BSAD 1010	3.0	SP24 SEM	
GIST 2130 or GIST 2140	Location-based GIS Applications Introduction to Remote Sensing	Prerequisites GIST 1110, 1120, 1130  AND GIST 2130 requires smartphone	3.0	SP24 SEM	
GIST 1140	GIST Capstone	Prerequisites GIST 2180, 2190	3.0	SP24 SEM	
MATH 1020 or MATH 1040	Technical Math Business Math		3.0	SP24 SEM	
<b>Total Credits – 4th Semester</b>			<b>15.0</b>		
<b>Total Program Credit Hours</b>			<b>62.0</b>		