Basic Program Information

Department Name:

Geospatial Technology - GIST

Division Name:

Business & Social Sciences

Program Mission(s):

Geospatial technology is the unifying tool with which spatial phenomena is explored. Geospatial technology consists of Geographic Information Systems (GIS), Global Positioning Systems (GPS) and Remote Sensing (RS). The Geographic Information Systems Certificate program provides opportunities for career preparation, lifelong learning and transfer by providing courses that lead to a set of scaled certificates that meet workforce needs and fulfill transfer requirements.

Please list all Program Review team members who participated in this Program Review:

Name	Department	Position
K. Allison Lenkeit Meezan	GEOG/GIST	Faculty

Total number of Full Time Faculty:	*1*
Total number of Part Time Faculty:	3

Please list all existing Classified positions:
None.

List all Programs* covered by this review & check the appropriate column for program type:

Program Name	Certificate of Achievement Program	Associate Degree Program	Pathway Program
Geospatial Technology	**Yes***	Yes**	Yes***

*The CA in GIST is presently housed in the Geography department. Geospatial Technology is an emerging program. The current CA for GIST is in Geography. The CA in GIST has been written and submitted to the college as of Spring 2013 but have not yet been submitted to the state.
** The AA degree in GIST has been written and passed by the division curriculum committee in Spring 2013 but has not yet been submitted by the college to the State.
*** The GIST program has curriculum in place to support a 2+2 pathway program but funds and staffing have not been allocated to offer the program as of yet.

Section 1: Data and Trend Analysis

a. Program Data:
Data will be posted on http://foothill.edu/staff/irs/programplans/programreviewdata.php for all measures except non-transcriptable completion. You must manually copy data in the boxes below for every degree or certificate of achievement covered by this program review.

Transcriptable Programs	2010-2011	2011-2012	2012-2013	% Change
Geography CA (GIST)	3	9	**9**	**300%**

Please provide any non-transcriptable completion data you have available. Institutional Research does not track this data; you are responsible for tracking this data.

Non-Transcriptable Program	2010-2011	2011-2012	2012-2013	% Change
Example: Career Certificate				

b. Department Level Data:
Data provided for GEOG. No data was provided for GIST

	2010-2011	2011-2012	2012-2013	% Change
Enrollment	924	1013	1073	5.9%
Productivity (College Goal 2013-14: 535)	536	513	506	-1.4%
Success	78%	74%	75%	
Full-time FTEF	1	1	1	0%
Part-time FTEF	2.9	3.4	3.6	4.7%

c. Associate Degree Transfer (ADT)
There is a fall 2014 legislated deadline for approval of ADTs (AA-T/AS/T degrees). **If there Is a Transfer Model Curriculum (TMC) available in your program, you are *required* to offer an approved AA-T/AS-T.** Indicate the status of your program's ADT:

No TMC for this discipline

If you are required to offer an approved ADT and it has not been state-approved, please comment on the program's progress/anticipated approval date.

Using the prompts and the data from the tables above, provide a short, concise narrative analysis for each of the following indicators. If additional data is cited (beyond program review data sheet), please indicate your data source(s).

d. Enrollment trends: Over the last three years, is the enrollment in your program holding steady, or is there a noticeable increase or decline? Please comment on the data and analyze the trends.

The GIST program data has not been provided for 2012-13. However based on anecdotal evidence, the GIST program enrollment has dipped in 2012-13 due to the program curriculum overhaul that was mandated by the program's advisory board and the URISA national model curriculum. The curriculum overhaul has been stalled between college committees, so the new certificates have not been approved. Program faculty authored the new curriculum, certificates and degrees in Fall 2012 and submitted to the division curriculum committee. The certificates were then 'lost' between the division and college committees and never brought to the next steps. In the intervening time, the State of California has created new requirements for certificate and degree applications, so the department faculty are presently working to meet those requirements.

Anecdotal evidence suggests that students may be holding off enrolling in the program until the new, nationally endorsed curriculum and certificates are offered.

e. Student Demographics: Please comment on the enrollment data, comparing the program-level data with the college-level data. Discuss any noticeable differences in areas such as ethnicity, gender, age and highest degree.

No data was provided. However, anecdotal evidence suggests that students in the GIST program are generally older than the college average, with existing degrees. Most enter the program to gain additional job skills. The GIST program has introduced a new course, GIST11 'Introduction to Mapping and Spatial Reasoning' to attempt to draw upon the standard (18-24 year old) college demographic.

f. Productivity: Although the college productivity goal is 535, there are many factors that affect productivity, i.e. seat count/facilities/accreditation restrictions. Please evaluate and discuss the productivity trends in *your program*, relative to the college goal and any additional factors that impact productivity. If your productivity is experiencing a declining trend, please address strategies that your program could adopt to increase productivity.

No data was provided. Productivity in the GIST courses (GIST 12 and higher) have a seat limit of 29 due to the computer classroom (4008) that they are offered in. This puts their maximum possible productivity at 387.

Due to the technical nature of GIS, it is not practical to have a significantly higher seat count without the addition of laboratory technician support in the classroom. The productivity of the GIS program is further hampered by the 'pipeline' problem that not all students who take the first course in the GIS sequence are planning to continue on to earn a certificate. Therefore, the subsequent courses in the certificate program are under enrolled.

Section 2: Student Equity and Institutional Standards

As part of an accreditation requirement, the college has established institution-set standards across specific indicators that are annual targets to be met and exceeded. Please comment on how these indicators compare at your program level and at the college level. (For a complete description of the institutional standard, please see the instructional cover sheet)

a. Institutional Standard for Course Completion Rate: 55%
Please comment on your program's course success data, including any differences in completion rates by student demographics as well as efforts to address these differences.

No data was provided.

b. Institutional Standard for Degree Completion Number: 450
Has the number of students completing degrees in your program held steady or increased/declined in the last three years? Please comment on the data, analyze the trends, including any differences in completion rates by student demographics.

No data was provided.

c. Institutional Standard for Certificate Completion Number (Transcriptable): 325
Has the number of students completing certificates in your program held steady, or increased/declines in the last three years? Please comment on the data, analyze the trends, including any differences in completion rates by student demographics.

The number of CA has increased. However anecdotal evidence suggests that the number of students receiving CAs would be much higher if the process for awarding the CA once the required coursework was completed was streamlined by Admissions and Records and Counsling.

d. Institutional Standard for Transfer to four-year colleges/universities: 775
Based on the transfer data provided, what role does your program play in the overall transfer rates? Please comment on any notable trends or data elements related to your program's role in transfer.

No data was provided.

Section 3: Core Mission and Support

The College's Core Missions are reflected below. Please respond to each mission using the prompts below.

a. Basic Skills: (English, ESLL and Math): For more information about the Core Mission of Basic Skills, see the Basic Skills Workgroup website: http://foothill.edu/president/basicskills.php

If your program is categorized as a basic skills program, please discuss current outcomes or initiatives related to this core mission and analyze student success through the core mission pathway.

If your program is NOT categorized primarily as a basic skills program, comment about how your program/classes supports Foothill's basic skills mission and students.

The GIST program is a CTE program. It supports the college's mission of basic skills by consistently upholding high academic standards and expecting all students enrolled in GIST courses to have college level reading, writing and math skills.

b. Transfer: For more information about the Core Mission of Transfer, see the Transfer Workgroup website: http://foothill.edu/president/transfer.php
If your program is classified as a transfer program, please discuss current outcomes or initiatives related to this core mission and analyze student success through the core mission pathway.

If your program is NOT categorized primarily as a transfer program, please comment about how your program/classes support Foothill's transfer mission and students.

The GIST program is a CTE program. It supports the college's mission of transfer by providing CTE courses which augment transfer students course work.

c. Workforce: For more information about the Core Mission of Workforce, see the Workforce Workgroup website: http://www.foothill.edu/president/workforce.php
If your program is classified as a workforce program, please discuss current outcomes or initiatives related to this core mission and analyze student success through the core mission pathway.

GIST is a CTE program. While no data was provided by the college regarding student success through the core mission pathways, the GIST program continues to work closely with industry to meet job training needs and update curriculum in a timely manner in response to changes in the industry and the evolving job market.

If your program is NOT categorized as a workforce program, please comment about how your program/classes support Foothill's workforce mission and students.

Section 4: Learning Outcomes Assessment Summary

a. **Attach 2012-2013 Course-Level** – Four Column Report for CL-SLO Assessment from TracDat, please contact the Office of Instruction to assist you with this step if needed.

   See the Geography SLO report

b. Attach 2012-2013 Program Level – Four Column Report for PL-SLO Assessment from TracDat, please contact the Office of Instruction to assist you with this step if needed.

Section 5: SLO Assessment and Reflection

Based on your assessment data and reflections, please respond to the following prompts.

a. What curricular, pedagogical or other changes have you made as a result of your CL-SLO assessments?

The student learning outcome assessments provide an opportunity for discipline faculty to reflect on the learning and assessment process. The faculty who choose to participate in the process have found the assessment and reflection process to be an opportunity to view teaching in the gestalt. However, the majority of adjunct faculty do not choose to participate, and given the overwhelming part time to full time ratio in this department, there has not been a critical mass of faculty participating in the review and discussion process to implement pedagogical changes.

b. How do the objectives and outcomes in your courses relate to the program-level student learning outcomes and to the college mission?

The Geography & GIS program is well mapped and directly links to multiple elements of the college mission. The first program outcome for Geography, *Evaluate core concepts in cultural and physical geography and apply them to contemporary events and issues* maps to the **transfer** mission and directly supports the *communication, critical thinking, and community and global consciousness* institutional learning outcomes. The second program outcome for Geography, *Interpret spatially distributed data and draw valid conclusions by using maps, graphs and/or Geographic Information Systems (GIS)*, maps to the *computation* and *critical thinking* institutional learning outcomes and supports the college missions of **transfer** and **workforce**.

c. How has assessment of program-level student learning outcomes led to certificate/degree program improvements? Have you made any changes to your program based on the findings?

Student learning in the GIS program has been improved by course level assessment because the faculty have redirected their efforts from developing innovative and engaging pedagogy and working directly with students outside of class time to learning how to fill out complicated web forms, writing lengthy reports that are not read and badgering adjunct faculty to complete course level assessments.

d. If your program has other outcomes assessments at the program level, comment on the findings.

The primary outcome of the SLO/PLO assessment process has been to observe the disconnect between the administrators who dictate the process and the faculty who must implement it. Administrators have not provided any mandate or incentive for adjunct faculty to participate in the process. The assessment organizing, assessing, gathering the assessed data, and entering it into the computer system is left to the full time faculty and represents uncompensated workload creep.

e. What do faculty in your program do to ensure that meaningful dialogue takes place in both shaping and evaluating/assessing your program's student learning outcomes?

The full time faculty member contacts each group of faculty teaching each course and encourages a dialog to take place regarding SLO assessment by trying to create consensus on the SLO to be assessed for each course, then to build dialog surrounding the results of the assessment. However, the vast majority of adjunct faculty choose to not participate.

Section 6: Program Goals and Rationale

Program goals address broad issues and concerns that incorporate some sort of measurable action and connect to Foothill's core missions, Educational & Strategic Master Plan (ESMP), the division plan, and SLOs. Goals are not resource requests.

List Previous Program Goals from last academic year: check the appropriate status box & provide explanation in the comment box.

Goal/Outcome (This is NOT a resource request)	Completed? (Y/N)	In Progress? (Y/N)	Comment on Status
1) The first goal is to increase outreach for the GIS program and align curriculum with workforce and job needs as well as to build up K-16 curricular partnerships and 4 year university articulation in GIS. The action plan to achieve this goal is to attain 10% release time for the Geography and GIS	**No**	No action taken as this goal was **not funded**	This continues to be the most important goal for the program to maintain currency and grow.

program chair.			
2) The second goal of the department is to convene a professional advisory board for the GIS program. To achieve this goal the department needs $200 to provide lunch to advisory board members. *If* the 10% release time for the program chair is not granted, the department needs $500 to organize and convene the GIS program advisory board.	Not yet	Annual advisory board meeting in Spring 2014	This continues to be a critical need of the GIS department to maintain currency.
3) Maintain GIS program currency. The action plan to achieve this goal is to acquire the requested funds to pay for the software licenses for ArcGIS and Idrisi software.	Yes	$2,700 in one time funds awarded.	

New Goals: Goals can be multi-year (in Section 7 you will detail resources needed)

Goal/Outcome (This is NOT a resource request)	**Timeline (long/short-term)**	**How will this goal improve student success or respond to other key college initiatives?**	**How will progress toward this goal be measured?**
1) The first goal is to increase outreach for the GIS program and align curriculum with workforce and job needs as well as to build up K-16	**1 year**	Continue to offer classes with **innovative and engaging teaching methods reflecting high standards of pedagogy** – Note that this is highly	The Geographic Information Systems certificate program needs 10% annual release time for a full-time faculty member to administer the GIS

curricular partnerships and 4 year university articulation in GIS. The action plan to achieve this goal is to attain 10% release time for the Geography and GIS program chair.		dependent on department faculty not being overly burdened with administrative tasks so that they can focus on teaching and students. **Release time directly supports this Action.**	Career program. The only full time GEOG/GIS full time faculty member currently works 4 hours per week conducting GIS-program related outreach, program administration, student mentoring and internship acquisition. However, both the Geography and GIS programs could benefit from additional time and attention to advertising and curricular awareness. These significant demands are placed on the only full time Geography/GIS faculty member, and extend beyond the collegial duties expected of all full time faculty.
2) The second goal of the department is to convene a professional advisory board for the GIS program. To achieve this goal the department needs $200 to provide lunch to advisory board members. *If* the 10% release time for the program chair is not granted, the department needs $500 to organize and convene the GIS	Advisory board meeting in spring 2014	Continue to offer classes with innovative and engaging teaching methods reflecting high standards of pedagogy Note that a strong connection to employers and industry are critical to program success, and an advisory board is the most direct and cost effective method to	This continues to be a critical need of the GIS department to maintain currency.

program advisory board.		achieve this goal.	
3) Maintain GIS program currency. The action plan to achieve this goal is to acquire the requested funds to pay for the software licenses for ArcGIS and Idrisi software.	2013-14	Continue to offer classes with innovative and engaging teaching methods reflecting high standards of pedagogy Note – Current software is necessary to maintain pedagogy standards in this program	If the software is funded.

Section 7: Program Resources and Support

Using the tables below, summarize your program's unfunded resource requests. Refer to the Operations Planning Committee website: http://foothill.edu/president/operations.php for current guiding principles, rubrics and resource allocation information.

Full Time Faculty and/or Staff Positions

Position	$ Amount	Related Goal from Table in section 6 and how this resource request supports this goal.	Was position previously approved in last 3 years? (y/n)

Unbudgeted Reassigned Time (calculate by % reassign time x salary/benefits of FT)

Has the program received college funding for reassign time in the last three years? (y/n) No, due to historical inequity in college CTE program administration.	**If yes, indicate percent of time.**
Has the program used division or department B-budget to fund reassign time? (y/n) no.	

Indicate duties covered by requested reassign time:

Responsibility	Estimated $	Related Goal from Table in section 6 and how this resource request	Est hours per	% Time

		supports this goal.	month	
Increase outreach for the GIS program and align curriculum with workforce and job needs as well as to build up K-16 curricular partnerships and 4 year university articulation in GIS. The action plan to achieve this goal is to attain 10% release time for the Geography and GIS program chair.		Goal #1	16 hours – 10%	

One Time B Budget Augmentation

Description	$ Amount	Related Goal from Table in section 6 and how this resource request supports this goal.	Previously funded in last 3 years? (y/n)
Upgrade IDRISI software required for GIST 58 – Remote Sensing, a required course in the GIS Certificate program.	$5500	#3	No. This software needs to be upgraded every 3 to 5 years.

Ongoing B Budget Augmentation

Description	$ Amount	Related Goal from Table in section 6 and how this resource request supports this goal.	Previously funded in last 3 years? (y/n)
GIS advisory board meeting. Funding to organize the meeting ($500 if release time is not granted) and $200 to provide lunch to board members	$700	#2	No.

Facilities and Equipment

Facilities/Equipment Description	$ Amount	Related Goal from Table in section 6 and how this resource request supports this goal.	Previously funded in last 3 years? (y/n)

Section 8: Program Review Summary

Address the concerns or recommendations that were made in prior program review cycles, including any feedback from Dean/VP, Program Review Committee, etc.

Recommendation	Comments
1.	

a. After reviewing the data, what would you like to highlight about your program?

Geospatial Technology has been ranked as one of the top three emerging fields by the Department of Labor. The program faculty have worked on a national advisory panel to develop national curriculum standards for Geospatial Technology. These have been integrated into the Foothill GIS program and submitted to the college for final approval by the State. Once these are implemented, the program will have three new transcriptable CA's and one AA that meet employer needs and will prepare students to enter the workforce.

Section 9: Feedback and Follow Up

This section is for the Dean to provide feedback.

a. Strengths and successes of the program as evidenced by the data and analysis:

The GIST program stands to make significant improvements in the coming year as a new full time faculty member will be hired and new curriculum and degrees will be sent to the State for approval in Spring of 2014. The program has participated in the planning for the new FHDA Educational Center and a new state of the art lab will be included in the new facility serving Geography and GIST classes. The enrollment for GIST classes is slightly soft in the current year, in part due to the lack of updated degrees and in part due to a need for more marketing materials and visibility for GIST classes. Establishing the program with a second full time faculty member will also contribute to higher enrollment in coming years.

b. Areas of concern, if any:

The program has the potential to grow significantly in the coming years with new faculty and new instructional spaces in the FHDA education center, which should address slightly softer enrollment in the current academic year. An advisory board meeting will be held in the Spring 2014 to address the needs in this area and to explore new ways of advancing the program.

c. Recommendations for improvement:

With the hiring of a new faculty member and the anticipated State approval of the new GIST degrees, the program is poised to grow and reach new heights. Coming up with a new strategy for marketing and recuitment will be key to advancing the program, and defining the market for new students who can take classes in the new FHDA Educational Center.

d. Recommended next steps:

___ Proceed as planned on program review schedule
___ Further review/Out of cycle in-depth review

Upon completion of section 9, the Program Review should be returned to department faculty and staff for review, then submitted to the Office of Instruction and Institutional Research for public posting. See timeline on Program Review Cover Sheet.

Unit Course Assessment Report - Four Column

Foothill College

Department - Geographic Information Systems Technology (GIST)

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
Department - Geographic Information Systems Technology (GIST) - GIST 12 - INTRODUCTION TO GEOGRAPHIC INFORMATION SYSTEMS (GIS) - SLO 1 - Definition - Define a Geographic Information System. (Created By Department - Geography (GEOG)) **Course-Level SLO Status:** Active	**Assessment Method:** Exam question in which a student is asked to define a GIS **Assessment Method Type:** Exam - Course Test/Quiz **Target for Success:** Student is able to define a GIS		
Department - Geographic Information Systems Technology (GIST) - GIST 12 - INTRODUCTION TO GEOGRAPHIC INFORMATION SYSTEMS (GIS) - SLO 2 - Vector and raster GIS - Identify, compare and Contrast vector and raster GIS. (Created By Department - Geography (GEOG)) **Course-Level SLO Status:** Active	**Assessment Method:** A critical thinking question in which as student is asked to compare and contrast vector and raster GIS **Assessment Method Type:** Exam - Course Test/Quiz **Target for Success:** Student is able to successfully compare and contrast vector and raster GIS		
Department - Geographic Information Systems Technology (GIST) - GIST 12 - INTRODUCTION TO GEOGRAPHIC INFORMATION SYSTEMS (GIS) - SLO 3 - Cartographic principles - Apply cartographic principles of scale, resolution, projection, data management and spatial analysis to a geographic nature using a GIS. (Created By Department - Geography (GEOG)) **Course-Level SLO Status:** Active	**Assessment Method:** Student undertakes a GIS project in which they are asked to apply cartographic principles of scale, resolution, projections, data management and spatial analysis **Assessment Method Type:** Class/Lab Project **Target for Success:** Student successfully applies cartographic principles of scale, resolution, projections, data management and spatial analysis using a GIS	01/07/2013 - Two sections of GEOG12 were assessed. The results were as follows: A- 14 B - 10 C- 3 D- 0 F-2 **Result:** Target Met **Year This Assessment Occurred:** 2012-2013 **GE/IL-SLO Reflection:** Students are not being as successful as the instructors would like. We believe that this is the result of many students being underprepared for the work we are asking	01/07/2013 - Teach, analyze, repeat

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
		them to do. The action plan for this is to revise the GIS curriculum and spread out the scaffolding activities for this SLO among three classes.	
Department - Geographic Information Systems Technology (GIST) - GIST 52 - ADVANCED GEOGRAPHIC INFORMATION SYSTEMS (GIS) - SLO 1 - Data conversion - Demonstrate the process of converting analogue data to digital data for us in GIS. (Created By Department - Geography (GEOG)) **Course-Level SLO Status:** Active	**Assessment Method:** Student is asked to demonstrate how to convert analogue data to digital data using a GIS **Assessment Method Type:** Class/Lab Project **Target for Success:** Student successfully converts analogue data to digital data using a GIS	11/21/2013 - This class was taught by an adjunct instructor and no SLO assessment was conducted. **Result:** Target Met **Year This Assessment Occurred:** 2012-2013 **Resource Request:** Additional institutional support for requiring adjuncts to conduct SLO assessments	11/21/2013 - Continue to encourage adjunct instructors to participate in SLO process.
Department - Geographic Information Systems Technology (GIST) - GIST 54A - SEMINAR IN SPECIALIZED APPLICATIONS OF GEOGRAPHIC INFORMATION SYSTEMS I - SLO 1 - GIS applications - Discuss the diverse applications of Geographic Information Systems. (Created By Department - Geography (GEOG)) **Course-Level SLO Status:** Active	**Assessment Method:** Student summarizes the diverse applications of GIS in multiple reaction papers **Assessment Method Type:** Essay/Journal **Target for Success:** Student demonstrates awareness of the diverse applications of GIS		
Department - Geographic Information Systems Technology (GIST) - GIST 58 - REMOTE SENSING & DIGITAL IMAGE PROCESSING - SLO 1 - Definition - Define remote sensing. (Created By Department - Geography (GEOG)) **Course-Level SLO Status:** Active	**Assessment Method:** Student is asked to define remote sensing **Assessment Method Type:** Exam - Course Test/Quiz **Target for Success:** Student successfully defines remote sensing	11/21/2013 - This class was taught by an adjunct instructor and no SLO assessment was conducted. **Result:** Target Met **Year This Assessment Occurred:** 2012-2013 **Resource Request:** Additional institutional support for requiring adjuncts to conduct SLO assessments	11/21/2013 - Continue to encourage adjunct faculty to participate in SLO process

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
Department - Geographic Information Systems Technology (GIST) - GIST 59 - CARTOGRAPHY, MAP PRESENTATION & DESIGN - SLO 1 - Map creation - Create maps that demonstrate an understanding of the fundamentals of composition, color, and symbol selection at different scales. (Created By Department - Geography (GEOG)) **Course-Level SLO Status:** Active	**Assessment Method:** Student is asked to create a map that applies the fundamentals of composition, color, and symbol selection at different scales, as discussed in the class **Assessment Method Type:** Class/Lab Project **Target for Success:** Student is able to successfully create a map that applies the fundamentals of composition, color, and symbol selection at different scales, as discussed in the class	11/21/2013 - This class was taught by an adjunct instructor and no SLO assessment was conducted. **Result:** Target Met **Year This Assessment Occurred:** 2012-2013 **Resource Request:** Additional institutional support for requiring adjuncts to conduct SLO assessments	11/21/2013 - Continue to encourage adjunct instructors to participate in SLO assessment process