

Program Creation Process Check List

Program Title: Certificate of Achievement in Geographic Information Systems III

Division: BSS

Proposing Faculty name(s): K. Allison Lenkeit Meezan

Type of Program: _____ Transfer or X_____ Workforce

Type of Award:

_____ Non-transcriptable certificate

X_____ Certificate of Achievement

_____ AA/AS Degree

Documentation checklists:

Transfer documentation

_____ Catalog Description

_____ List of Courses

_____ Articulation & transfer data

_____ Identification of existing program(s) at CSU/UCs

_____ Completer Projections

_____ Identification of any additional resources needed to establish program (i.e. faculty, equipment, etc.)

Workforce documentation

X_____ Catalog Description

X_____ List of Courses

X_____ Completer Projections

X_____ Labor Market information

X_____ Identification of any similar program(s) in the area

X_____ Identification of any additional resources needed to establish program (i.e. faculty, equipment, etc.)

Transfer/Workforce Work Group Comments/Recommendations:

Recommend Approval for PaRC's consideration.

X Work Group Signature: _____

Date: 12/12/13

Supervising Vice President Comments/Recommendations:

*Growing occupational need, * we have existing resources.*

Vice President Signature: _____

Date: 12-16-13

Planning & Resource Committee Comments/Recommendations:

PaRC Signature: _____

Date: _____

Division Curriculum Committee Comments/Recommendations:

Division CC Signature: _____

Date: _____

Following the review by the listed committees, this form should be forwarded to the Office of Instruction.

12/2/13

FOOTHILL COLLEGE
Credit Program Narrative
Certificate of Achievement in Geographic Information Systems Technology

Item 1. Program Goals and Objective

The goals of this program are to graduate students who are competent users and creators of geospatial technology and provide the opportunity for graduates to gain skills necessary to advance in their careers. This program will prepare students to apply for professional certification (GISP) through the GIS Certification Institute (administered through the Urban and Regional Information Systems Association) Following completion of the program, the graduate will be able to

1. Apply cartographic principles of scale, resolution, projection and data management to a problem of a geographic nature using a GIS.
2. Plan, evaluate and execute an original GIS project
3. Demonstrate the ability to communicate, orally, in writing, and graphically, the outcome of GIS analysis.
4. Demonstrate an awareness of professional obligations to society, employers and funders and individuals as outlined in the GIS Professional Certification Institute Code of Ethics

Item 2. Catalog Description

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 Technology program at Foothill College provides opportunities for career preparation and lifelong learning by providing courses that meet workforce needs. Geographic Information Systems (GIS) are collections of computers, software applications, and personnel used to capture, store, transform, manage, analyze, and display spatial information. GIS skills are highly desirable in agriculture, archaeology, business, cartography, government, law enforcement, marketing, oil and gas, real estate and urban planning. The Geographic Information Systems Technology Certificate of Achievement III provides a solid technical background in GIS concepts and applications including cartographic concepts, database design, programming, and interdisciplinary applications of the technology. The outcomes of the certificate align with the Department of Labor geospatial competency model for geospatial careers. Completion of the certificate requires practical work experience in GIS. The The Geographic Information Systems Technology Certificate of Achievement III prepares students for entry-level GIS technician jobs.

Item 3. Program Requirements

SAMPLE A.A. Administration of Justice						
Requirements	Dept. Name/#	Name	Units	CS U-GE	IGETC	Sequence
Required Core (6 units)	ADMJ 50	Introduction to Justice	3	A1	Area 1	Yr 1, Fall
	ADMJ 60	Criminal Law	3	B2	Area 4	Yr 2, Spring
Two courses (6 units)	ADMJ 40	Juvenile Justice	3	A1	Area 2	Yr 1, Fall
	ADMJ 55	Procedures	3			Yr 2, Spring
	ADMJ 61	Introduction to	3			Yr 2, Spring
	ADMJ 63	Correctional Science	3			Yr 1, Summer
	ADMJ 70	Evidence	3			Yr 1, Fall/Spring
	ADMJ 80	Criminal Investigation	3			Yr 2, Fall/Spring
	ADMJ 85	Community Relations	3			Yr 1, Spring/Summer
	ADMJ 85	Criminal Trial Process Introduction to Forensics	3			Yr 2, Fall
Two courses (6 units)	SOC 1	Principles of Sociology	3	D6	Area 1	Yr 2, Spring
	PSY 1	General Psychology	3	A1		Yr 1, Summer
	PSY 5	Behavioral Sciences	4			Yr 1, Fall

Requirement	Crse #	Title	Units	CSU-GE	IGETC	Sequence
Required Core	GIST 11	Introduction to Mapping & Spatial Reasoning	4			Yr 1, Fall
	GIST 12	Introduction to Geospatial Technology	4			Yr 1, Fall
	GIST 52	Geospatial Data Acquisition & Management	4			Yr 1, Winter
	GIST 53	Advanced Geospatial Technology & Spatial Analysis	4			Yr 1, Spring
	GIST 54A	Seminar in Specialized Applications of Geographic Information Systems I	2			Yr 1, Winter
	GIST 58	Remote Sensing & Digital Image Processing	3			Yr 1, Winter
	GIST 59	Cartography, Map Presentation & Design	2			Yr 1, Spring
	ITRN 50 C S 1A	Internship Object-Oriented Programming Methodologies in Java	3 5			Yr 1, Spring Yr 1, Fall
Restricted Electives (select two)	C S 21A	Programming in Python	5			Yr 1, Winter & Yr 2, Fall
	C S 22A	Javascript for Programmers	5			
	HORT 45	Landscape Design: Computer Applications	3			
Other Electives (select one)	GEOG 1	Physical Geography	5			Yr 2, Fall
	GEOG 2	Human Geography	4			
	GEOG 10	World Regional Geography	4			

**Required Major Total
TOTAL UNITS**

**43-46 units
43-46 units**

Proposed Sequence:

Year 1, Fall = 13 units
Year 1, Winter = 12-14 units
Year 1, Spring = 9 units
Year 2, Fall = 7-10 units

TOTAL UNITS: 43-46 units

Item 4. Master Planning

Geographic Information Systems (GIS) and its associated 'GeoSpatial Technology' disciplines Global Positioning Systems (GPS) and Remote Sensing (RS) have been around for over 40 years, but have risen to prominence in the last 15 years with the advent of cheap and compact desktop computing and graphics capabilities and the declassification of many military supported data and hardware sources. Geospatial technologies are now widely integrated in information technology and asset management in a wide variety of disciplines. Geospatial Technology has moved from a subject of elite academic research to a technical skill required in a wide variety of fields.

Community colleges began offering GIS, GPS and RS coursework beginning about 15 years ago in response to this emergence of the technology as an in-demand CTE technology and job area. In 2008 the US Department of Labor listed Geospatial Technology as one of the three fastest growing technical fields, along with Biotechnology and Nanotechnology. By 2016 the US Department of labor estimates that the US will need 500,000 professionals trained in Geospatial Technology.

11/18/13 cmln

Foothill College established a GIS certificate program in 2000, and has maintained a robust offering of courses and certificates. The program annually enrolls around 60 FTE students, and currently offers a series of courses culminating in a transcriptable Certificate of Achievement in Geography with a focus on GIS. The program has been updated to reflect current industry model curriculum. The additional certificates that are being applied for are shifted to the Geographic Information Systems Technology (GIST) department, based on feedback from the program's professional advisory board. These new certificates and associates degree will replace the existing Certificate of Achievement in GIS that is presently housed in the Geography department.

Item 5. Enrollment and Completer Projections

Each course has 20-35 students per course. The number of projected completers per year is 30 graduates. These figures are based on the number of students completing certificates between the years 2006 through 2012. The economy and job availability has a direct affect on enrollment. Many local employers hiring in Geospatial Technology are in the public sector which has been greatly affected by the recent economic downturn. However, many program graduates are interested in using their skills as a vehicle to move to other regions of the state and country where even in the current economy, there is a very high demand for professionals with Geospatial Technology skills.

Current employment and projections show that "green technology" trades such as Geospatial Technology are recovering faster than the local economy as a whole. According to EMSI, between 2012 and 2015 there are projected to be 511 jobs that require Geospatial Technology skills locally, and 1490 state-wide.

Course #	Course Title	Year 1		Year 2	
		Annual Sections	Annual Enrollment	Annual Sections	Annual Enrollment
GIST 11	Introduction to Mapping & Spatial Reasoning	New for 2013	N/A	N/A	N/A
GIST 12*	Introduction to Geospatial Technology	2	46	2	48
GIST 52*	Geospatial Data Acquisition & Management	1	24	1	25
GIST 53	Advanced Geospatial Technology & Spatial Analysis				
GIST 54A	Seminar in Specialized Applications of Geographic Information Systems I				
GIST 58	Remote Sensing & Digital Image Processing	1	28	1	25
GIST 59	Cartography, Map Presentation & Design	1	30	1	27
C S 21A	Programming in Python				
C S 1A	Object-Oriented Programming Methodologies in Java				
C S 22A	Javascript for Programmers				
HORT 45	Landscape Design: Computer Applications				
GEOG 1	Physical Geography				
GEOG 2	Human Geography				
GEOG 10	World Regional Geography				

* These courses were rewritten as of 2013 based on industry model curriculum. The numbers and sections listed reflect the previous curriculum

Item 6. Place of Program in Curriculum/Similar Programs

There are currently no similar programs at Foothill College. This program fulfills a need expressed by the industry advisory board. This program is aligned with national standards, and as such will allow students to move between it and other statewide programs that also follow the national model curriculum standards.

11/18/13 cmln

The program will use college computer teaching labs and open computer labs for students to work in lab time and outside of class. This program builds upon the existing GIS certificate program with updated, industry modeled curriculum and will make more productive use of existing computer laboratory facilities in the college.

Item 7. Similar Programs at Other Colleges in Service Area

There are no other colleges within reasonable commuting distance that offer a similar program. Diablo Valley College (65 miles away) is the only other regional college that offers a transcriptable certificate in Geospatial Technology. The Geospatial Technology program at Foothill has worked closely with the GIS programs at Diablo Valley College and City College of San Francisco (the only two regional colleges with similar programs) through the Bay Area Automated Mapping Association (BAAMA), the regional professional body, to insure that the programs complement each other.