See program review website for detailed timeline and relevant request forms:
https://research.gwc.cccd.edu/oir/progreview/2013/index.html

Golden West College

INSTRUCTIONAL

PROGRAM REVIEW

Spring 2013

Program Name: Computer Science
Division Name: Career and Technical Education

Overview of Program:

The Computer Science Department, under the Division of Career and Technical Education, offers courses to serve three student categories:

1. Transfer: Computer Science, Business major students, Engineering, and various science major students can satisfy most, if not all their first-year Computer Science course requirements for transferring to University of California, California State University, or any of the other accredited four-year colleges or universities. Our core transfer courses include Survey of Computers and Information Systems (CS130), Intro to Computer Science (CS102), and Intro and Advanced programming courses in C++ (CS175 and CS189) and Java (CS153 and CS154). Additionally, an array of advanced courses (such as Web Programming, Database Programming, and Operating Systems) can augment a transfer student's knowledge and transfer as credited electives.

2. Software Development Vocation: A portfolio of up-to-date software development courses prepare students for rewarding careers in the fast growing field of computer programming, systems analysis, or a number of other computer related professions. Some of these course offerings include multi-tier application development with J2EE or .Net, core Windows programming with MFC or .Net, and WWW programming for Windows and non-Windows platforms.

3. Video Game Development Vocation: As a 20-unit California State approved certificate, this career path prepares students in various careers in video game programming, 3D animation, computer simulation or 3D modeling. Our strong partnership with some of the best companies in the industry (like Shiny, Point of View, and Activision) provides students with possible internships and permanent jobs.

Instruction is performed in smart classrooms by experts from the industry. Hands-on projects are generally comprehensive semester-long projects that are implemented on the latest computers and most recent software versions used in the industry.

Also, the department continues to add high-quality courses on campus and online to improve student access. In the fall of 2009 the intro to programming was modified to provide fundamental programming for both the traditional software path and the game programming path of instruction.

In the spring of 2010 a team of students in the C# (C sharp) course competed in the Microsoft Imagine Cup national programming competition. The team won in the California competition and traveled to Washington DC for the national competition. The teams' programming game placed fourth in the

national competition. This placement result has allowed a close relationship to grow with Microsoft. We now receive all Microsoft programming languages and associated operating system software at no charge from the company. Our languages coordinate with the Microsoft certification programs, and the Microsoft educational representative (Microsoft evangilist) drops into evening classes to advise and brief the students on new or enhanced programming techniques.

On another front, the school and department has signed and implemented a training and programming agreement with Apple computer as well. In spring 2011, we began instructional training for students to write programs in object oriented C allowing them to write Apps for the iPhone, iPod and iTablet.

Computer Science AS-T degree (Transfer Model Curriculum)
At the beginning of the spring semester of 2013 the department completed coordination with Cal State schools and departments for Transfer Model Curriculum. The department now satisfies the ACM/IEEE recommendation for a four semester introductory sequence of computer science courses as well as the mathematics and physics courses. Two of the four computer science courses equivalent to CS 1 (Comp 122) and CS 2(Comp 132) on the ACM/IEEE list are already in place this semester and Computer Architecture & Organization (Comp 142) will begin in fall 2013. The fourth course on the list, Discrete Structures (Comp 152), will begin spring 2014, budget willing.

Objectives of the Computer Science AS-T degree

Insert AS-T objectives here

Program Contact Information:

Program Contact Name	Phone #	E-mail prefix
Don Nielsen	714-892-7711 x51099	dnielsen@gwc.cccd.edu
Christian Racataian	714-892-7711 x51225	cracataian@gwc.cccd.edu

Program Manager	Title	Salary Sched/Column	Phone #	Office Location	E-mail prefix
Claudia Lee	Acting Dean		x52347	Technology building	

Classified Staff	Title	Salary Sched/Column	Phone #	Office Location	E-mail prefix
Joe Roxas	Tech Support			Humanities 210 F	
(Roxas-50% Comp Sci, 50% Bookstore)					

Full-Time Faculty	Phone #	Office Location	E-mail
Don Nielsen	714-892-7711 x51099	Humanities 210 E	dnielsen@gwc.cccd.edu
(Nielsen-20% Digital Arts, 80% Computer Science)			
Christian Racataian	714-892-7711 x51225	Humanities 210 B	cracataian@gwc.cccd.edu

Current State of the Program

1. What noteworthy trends do you notice in your data tables?

1. We have a poor success rates with African American and female students in Computer Science courses.
2. Our semester success rates for online and traditional courses are somewhat similar:
   Fall 2011

Online 77.9
Traditional (average) 72.8
Spring 2012
Online 68.7
Traditional 70.1 (combined rate 69.9%)

3. An extremely low number of certificates were awarded in Computer Science.

2. What are your analyses of the causes or reasons for those trends?

1. The program had 3 African American students enrolled out of a total population of 509 Computer Science students. One could conclude that with this low a number, any success rate would be meaningless. Instead, the emphasis needs to look towards recruitment of African Americans or the recognition that the local population is primarily Asian and Pacific Islanders followed by white, and multiple races.
2. Given the subject rigor presented to a student in Computer Science, one could expect deep subject knowledge to pose a significant challenge. Still, we should ascertain if we could provide some additional supplemental information to aid in subject understanding and therefore subject success.
3. Our certificate for Game Programming is suffering from several short falls, first being a lack of course funding. Second, a pool of qualified instructors are needed to teach the components of the Game Certificate. Third, there is a need for greater publicity for the Game Programming certificate. These points must all be reevaluated to determine the continuance of the program.

3. What does your program do well?

While the Computer Science course offerings are all accredited and transferable to four year institutions, what sets the courses apart from the offerings at other community colleges is that they are taught primarily by experts from the industry. This differentiating factor makes the methods of instruction and the delivery and selection of the material intensely applied and relevant to the current state of the industry. The highly motivated and trained faculty of the department have offered over 35 new courses in the past 11 years to ensure that the department's course offerings are serving the demands of industry and the transfer requirements of the state's four year universities. Our advisory committee has experts from both of the previously indicated areas (i.e. Apple, Microsoft, IBM, UCI, CSU Fullerton, and CSU Long Beach).

4. What are the challenges to your program.

Within your program's control

1. Retaining and finding exceptional instructors with subject specific background/knowledge.
2. Determining and implementing additional course supplemental enhancements to provide greater depth to the course subject.

Beyond your program's control

1. Funding. Within the last four years the course funding has been cut fifty percent. This funding reduction was not done at the behest of the school, instead it was forced upon the school by the state. Determining course offerings by semester, which semester to offer a course, and which courses will need to be held for later offering consideration has severely curtailed the breadth of instruction.

5. What are the opportunities for your program

1. Greater coordination/content of program content for transfer students to the state universities, both Cal State and University of California.
2. Greater coordination/offering of program content for industry certificates.
3. Coordination of subject content with high schools and ROP instruction for higher education learning for transfer and jobs.
4. Review of on-line instruction to determine if further enhancements to the instruction mode are needed.
5. Working with other CTE programs (i.e. 3D animation, 3D modeling from Digital Media and Digital Arts, possibly wire frame from CAD)

6. Identified areas in need of improvement

1. Student Learning Outcomes need to continue to be reviewed and results evaluated. We have evaluated our Student Learning Outcomes from the past and made minor changes in instruction. However, we must be aware of the changing profile of our student population and work towards an additional method which may be used to increase our delivered programming knowledge.
2. Certificates need to be reviewed for timeliness and completeness.
3. Transfer curriculum needs to be reviewed for timeliness.

Program-Level Student Learning Outcomes (pSLOs) Assessed During 2010-12

Complete a separate page for each major and/or certificate you assessed.

Program Name: Computer Science

Program Type:
( ) Transfer Major
(x) Certificate of Achievement-Software Dev
( ) Basic Skills Sequence
( ) Area of Emphasis
( ) Gen Ed Area

Semester Assessed: **(x) Fall** **( ) Spring** **( ) Winter** **( ) Summer**

Year: 2012

Step 1	**Define the Expected Program Student Learning Outcome (pSLO).**	The student would write four short application programs and one complex application program to confirm basic programming competency.
Step 2	**What method did you use to assess the SLO?**	Exams consisted of programming tasks and logic/planning for programming construction. The application programs had to work properly and completely at the final review by the instructor.
Step 3	**Describe the results of your assessment.**	Students were scored based upon a rubric of required elements.
Step 4	**Describe your analysis of the data.**	Students were scored based on inclusion of the required elements/items in the program coding. There was a 71% passing rate. The primary difficulty seemed to be in the planning portion of the projects.
Step 5	**What planning and changes will or have occurred, as a result of assessment and analysis of data, to improve student learning?**	The lecture time allocated to complete planning/flowcharting was increased an additional week prior to the first short programming assignment. Additionally, web supplemental material on planning/flowcharting was provided.

Program-Level Student Learning Outcomes (pSLOs) Assessed During 2010-12

Complete a separate page for each major and/or certificate you assessed.

Program Name: Computer Science

Program Type:
(x) Transfer Major
( ) Certificate of Achievement
( ) Basic Skills Sequence
( ) Area of Emphasis
( ) Gen Ed Area

Semester Assessed: **(x) Fall** **( ) Spring** **( ) Winter** **( ) Summer**

Year: 2012

Step 1	**Define the Expected Program Student Learning Outcome (pSLO).**	The student would write short business programs and a complex business program to confirm basic programming competency.
Step 2	**What method did you use to assess the SLO?**	Exams consisted of programming tasks and logic/planning for programming construction. The short business programs had to work properly and completely when reviewed by the instructor. The complex business program was reviewed at the end of the semester by the instructor.
Step 3	**Describe the results of your assessment.**	Students were scored based upon a rubric of required elements.
Step 4	**Describe your analysis of the data.**	Students were scored based on inclusion of the required elements/items in the program coding. There was an 84% passing rate for the combined programming assignments. The primary difficulty seemed to pivot around the menu design portion of the projects. The user menus had to have a simple user friendly 'feel' to them with a help environment.
Step 5	**What planning and changes will or have occurred, as a result of assessment and analysis of data, to improve student learning?**	The lecture time allocated to user interface menus was increased an additional week, prior to the first short programming assignment. Sample business menus will now be part of the lecture covering menu construction.

Program-Level Student Learning Outcomes (pSLOs) Assessed During 2010-12

Complete a separate page for each major and/or certificate you assessed.

Program Name: _____ **Year:**

Program Type:
- **( ) Transfer Major**
- **( ) Certificate of Achievement**
- **( ) Basic Skills Sequence**
- **( ) Area of Emphasis**
- **( ) Gen Ed Area**

Semester Assessed: **( ) Fall** **( ) Spring** **( ) Winter** **( ) Summer**

Step 1	**Define the Expected Program Student Learning Outcome (pSLO).**	
Step 2	**What method did you use to assess the SLO?**	
Step 3	**Describe the results of your assessment.**	
Step 4	**Describe your analysis of the data.**	
Step 5	**What planning and changes will or have occurred, as a result of assessment and analysis of data, to improve student learning?**	

Program-Level Student Learning Outcomes for 2012-14

(List the 3-5 most important expected student learning outcomes to be assessed over the next two years.
Complete a separate page for each major and/or certificate you did not complete the assessment for the last 2 years.

Program Name: Computer Science

Program Type:
( ) Transfer Major
(x) Certificate of Achievement-Software Dev
( ) Basic Skills Sequence
( ) Area of Emphasis
( ) Gen Ed Area

Semester to be Assessed: **( ) Fall** **(x) Spring** **( ) Winter** **( ) Summer**

Year: 2014

Step 1	**Define the Expected Program Student Learning Outcome (pSLO).**	The student will write four short application programs and one complex application program to confirm basic programming competency.
Step 2	**What method did you plan to use to assess the SLO?**	Exams will consist of programming tasks and logic/planning for programming construction. The application programs must work properly and completely at the final review by the instructor.
Step 3	**When is the assessment going to be done and who is going to conduct it?**	The assessment will be completed by the instructor in the Spring 2014 semester.

Program Name: Computer Science

Program Type:
(x) Transfer Major – Computer Science
( ) Certificate of Achievement
( ) Basic Skills Sequence
( ) Area of Emphasis
( ) Gen Ed Area

Semester to be Assessed: **( ) Fall** **(x) Spring** **( ) Winter** **( ) Summer**

Year: 2014

Step 1	**Define the Expected Program Student Learning Outcome (pSLO).**	The student will write short business programs and a complex business program to confirm basic programming competency.
Step 2	**What method did you plan to use to assess the SLO?**	Exams will consist of programming tasks and logic/planning operations for programming construction. The short business programs must work properly and completely when reviewed by the instructor. The complex business program will be reviewed at the end of the semester by the instructor.
Step 3	**When is the assessment going to be done and who is going to conduct it?**	The assessment will be completed by the instructor in the Spring 2014 semester.

Program Name: _____ **Semester to be Assessed:** **( ) Fall** **( ) Spring** **Year:**

Program Type:

( ) Transfer Major
( ) Certificate of Achievement
( ) Basic Skills Sequence
( ) Area of Emphasis
( ) Gen Ed Area

( ) Winter **( ) Summer**

Step 1	**Define the Expected Program Student Learning Outcome (pSLO).**	
Step 2	**What method did you plan to use to assess the SLO?**	
Step 3	**When is the assessment going to be done and who is going to conduct it?**	

Program Name: _____ **Semester to be Assessed:** **( ) Fall** **( ) Spring** **Year:**

Program Type:

( ) Transfer Major
( ) Certificate of Achievement
( ) Basic Skills Sequence
( ) Area of Emphasis
( ) Gen Ed Area

( ) Winter **( ) Summer**

Step 1	**Define the Expected Program Student Learning Outcome (pSLO).**	
Step 2	**What method did you plan to use to assess the SLO?**	
Step 3	**When is the assessment going to be done and who is going to conduct it?**	

Resource Planning

Staffing What staff changes or additional employees does your program need to function adequately?

Faculty: **One full time Computer Science Instructor to replace retiring faculty member within the next two years.**

Management:

Classified: **One full time classified computer science knowledgeable staff member for program support.**

Hourly:

Considering your current employees, what staff development/training does your program need?

1. Training/conferences for Computer Science instructors relating to upgrade in computer science skills.
3. Educational techniques training/conferences for or about more effective instructional delivery.

Note: Complete all faculty request forms in separate files and submit with your program review report as an attachment.

Technology What improvements, changes or additions in equipment dedicated to your program are needed to function adequately?

Equipment or Software (e.g., computers, AV, lab equipment):

1. Reasonably current computers, printers and software.

Technical Infrastructure (e.g., AV or computer infrastructure, cabling):

2. Network brought to 1000 base T for switches, hubs, cables, NIC cards, etc.

Facilities What improvements or changes to the facilities would you need to function adequately?

Physical Concerns (e.g. electrical, gas, water, foundation, space, ventilation).

1. None

Health, Safety and Security

1. Replacement of 35 failing chairs (pedestal collapse, back-support failure, etc.-injury hazard)
2. Computer Workstation installation – we have only normal tables. We need adjustable tables to comply with height demands & needs, electrical power trays so cords are not falling on the floor (trip hazard). To be ADA compliant we need a minimum of 2 adjustable tables (2 students per table) in each of the three labs (Humanities 210, 211, 212).
4. To be ADA compliant in the lecture rooms(Humanities 206, 208), we need two adjustable (2 person) tables in each room.

Other What changes or other additions need to be made to your program to function adequately?

None

IUA and Dean Review

Complete this section after reviewing all program review information provided. IUA and Dean are to separately indicate the level of concern for the program that exists regarding the following Program Vitality Review (PVR) criteria. Add comments for any item marked with a 1 or 2. Identify whether the comment is made by the IUA or the Dean.

(Scale: 0 – No concern at all, 1 – Some concern, 2 – Serious Concern)

IUA/Dean

(0) (0) a. Significant declines in enrollment and/or FTES over multiple years

(0) (0) b. Significant change in facility and/or availability and cost of required or necessary equipment

(1) (2) c. Scarcity of qualified faculty

(0) (0) d. Incongruence of program with college mission and goals, state mandates, etc

(0) (0) e. Significant decline in labor market

(0) (0) f. Continued inability to make load for full-time faculty in the program

(0) (0) g. An over-saturation of similar programs in the district and/or region

( ) ( ) h. Other_____

Program Review Check-list

( ) Department Contact Information is up to date: Department Chairs, full-time faculty, classified

( ) Organization Chart: Verify that it is up to date: (q:\college information\org charts) Report necessary changes to the Director of Personnel

( ) Both the Dean and IUA has completed the Dean and IUA Review section.

Signatures, Individual Comments

Department Chair: Renah Wolzinger Date: April 23, 2013
Comments:

Division Dean: Claudia Lee Date: April 23, 2013
Comments:

(X) No further review necessary

( ) We recommend this program for Program Vitality Review

I have read the preceding report and accept the conclusions as an accurate portrayal of the current status of the program. Signatures are on file in the division office. Type the names of the faculty.
(X) Don Nielsen
(X) Cristian Racataian
( )
( )

I have read the preceding report and wish to add signed comments to the appendices.
Signatures are on file in the division office.
( )
( )
( )
( )
( )

Appendices

A. Data Sets
B. Signed Comments
C. Classified Position Requests
D. Faculty Position Requests
E. General Fund One-Time Funds Requests
F. Curriculum Inventory
G. SLO Inventory