Program Review Report

Yuba Community College District

YC - Computer Science Program Recommendations

Program Description: The Computer Science (COMSC) department prepares students for transfer to the University of California and California State University systems, as well as other 4-yr institutions. The YCCD computer science department is continually updating course offerings to provide a viable transfer degree program taking into account varied curriculum in the 4-yr university systems.

Additionally, the computer science department provides a computer related certificate program for professional development and personal enrichment. This vocational certificate is designed to offer local business persons and the self employed the ability to take advantage of richly diverse course offerings designed to update current skills or to acquire new abilities to meet the ever changing requirements of modern computer design and programming practices.

Year of Review: 2012-2013
Type of Review: Annual Update
Executive Summary: 2011-2012 Program Review
Computer Science
Yuba College

The Computer Science Department
January 27, 2012

Date of next program review: 2015-2016
Program Description and Current Status

1. Current status of the program
Marysville Campus
-Faculty: 1 full-time and 1 adjunct instructor.
-Labs: 1 computer lab rm. 847 used for programming and computer related research.
-Computers: 40 Student and 1 Staff computers are available within the rm. 847 computer lab.
-Robotics: 4 Robotic arms

2. Significant changes in the program since the last program review or annual update

-One adjunct instructor, Steve Shepard, has been added to program to support program growth.
-Two new courses are in review for submission to curriculum to complete lower division transfer suite of core courses.

1. Discrete Math ? To be offered my math department POC: John Thoo

2. Digital Fundamentals - To be offered my computer science department and cross listed with engineering. POC: Doug Joksch

- Introductory computer courses COMSC-6 and COMSC-10L have been updated to include object oriented design. Also, wrote on-line textbook for COMSC-6 to support OOP instruction.

- Incorporated standardized SLO rubrics for all computer science courses designed with commonality across the curriculum where applicable to create standardized grading criteria easily understood by students.

Goals of the Program and SLOs
1. Use data collected from SLOs to investigate student retention while meeting established learning outcomes necessary to adhere to 4-year transfer requirements.

2. Continue to maintain rigorous preparation for transfer students with the goal of assuring success in upper division work in computer science.

3. Collect feedback from transfer students investigating areas of strengths and weakness to assure student success.

4. Increase interdepartmental collaboration to provide student insight to the use of computers across multiple disciplines.

5. Continue review of current technologies in computer science and related fields.

6. Add additional adjunct instructor(s) to provide diversity in instruction.

Overview of Program Analysis Sections
Curriculum and Program Direction
1. Strengths
?What progress has been made on recommendations from the last program review and/or annual update?

-The computer science department actively monitors the academic direction of 4-yr university system degree program needs as well as the needs of the local community. Visited computer science and engineering department heads at Chico state to discuss program alignment and program direction.

-Aligned on-line and enhanced courses support for commonality across curriculum. This provides a common look and feel for all courses.

-The Implementation of a Unix server dedicated to student learning allows for the standardization of the computer science learning experience.

-Updated enhanced on-line component for all comsci courses to support deployed military and working professionals when periods of absence are required.

?The computer science department activily incorporates other Math/Science and Applied Arts department topics and resources into the classroom demonstrating direct application to computer science.

?Introduced robotics and autonomous studies in advanced programming courses.

?Computer science staff is highly motivated by student success and both full time and adjunct faculty allot time for students at the campus. This includes support for on-line as well as lecture courses,

2. Areas for Improvement
There is a need for realignment of the current IT department currently residing in the business department. Due to changes in the field of computer science, courses offered in this department need re-evaluation. Courses typically offered in computer science departments need to be moved to the computer science department freeing the IT department to concentrate on system applications. The computer science department has worked with the IT department and dean to outline courses that would align course offering and provide transferable courses specifically targeted IT students.

Comsc-13 Computer Lab should be removed from the curriculum and the lab component incorporated with the computer science course supported. Students find the current separate lab arrangement confusing.

Implementation of two new courses is required for students transferring in the area of Information Technology as listed.

1. PC?s and Peripherals
2. Introduction to Information Technology

The creation of these courses has been discussed with the IT department in an effort to assure transferability. These two courses will be developed by the computer science department with adjunct instructor while work to align IT department continues.

Students are requesting additional courses in Web Design as a follow on to the popular COMSC-20 course. Adjunct instructor Steve Shepard is preparing two additional courses which we are targeting for the 2013-2014 time frame. An additional adjunct instructor with object programming experience may be required.

Current AS in computer science should provide flexible paths for multiple disciplines within the field of computer science. This would involve the ability to add a discipline emphasis to the currently awarded degree.

Staffing
1.Strengths
?What progress has been made on recommendations from the last program review and/or annual update?

-One adjunct instructor hired (Steve Shepard).

-Both faculty members teaching in the computer science department are from industry creating a rich educational

experience with real-world application.

-Full-time instructor is a published author in the field of computer science and engineering keeping in touch with current industry bringing updated material and methods to the classroom.

-The computer science department was honored with the ?Friends of Dusty? award. Members of the computer science department are regularly selected for the ?Way to Go? award motivating the department to continue efforts to provide the best learning experience possible.

?Areas for Improvement
?Investigation is underway to create additional courses web design. This will generate a need for one additional adjunction instructor or the conversion of the current adjunct position to full time.

?An additional two courses are needed to satisfy 4-yr transfer in Information Technology. In the case that it is necessary to offer these courses in the computer science department, an additional adjunct instructor will be required or the conversion of the current adjunct position to full time.

Equipment
?Strengths

?Computer lab (R 847) seats 40 students with once work station dedicated for instructional staff.

?Computer science department has 4 robotic arms used as part of curriculum and autonomous projects.

?Areas for Improvement and estimated costs

?Workstations have been replaced in the Rm. 847 computer lab and are 51/2+ years old and out of warranty as of Spring 2012. Computers are showing signs of age and wear. There is a need for 40 replacement workstations with keyboards, mice, and monitors and the replacement of the Staff computer station for a total of 41 replacement computer work stations.
Cost per unit: $1200.00 Total: $49,200.00

?LaserJet printers in the Rm 847 computer lab are 51/2 years old and out of warranty. Printers are becoming problematic and print quality is unacceptable on these units. There is a need for 4 replacement lab printers
Cost per unit: $400.00 Total: $12,00.00

?Robotic arms purchased in the 1980?s are out of warranty and parts to repair them are becoming increasingly unavailable. There is a need for 4 replacement robotic arms used for instruction by the computer science department. Equipment life cycle analysis previously completed and submitted per request from administration.
Cost per unit: $3000.00 Total: $12,000.00

?Wireless access is needed for the Rm. 847 computer lab. Other labs such as biology already have wireless access points. Students with laptop and other modern net-based learning tools required wireless access.

Cost per unit: $600.00 Total: $600.00

?New course ?Digital Fundamentals? will require 20 project Programmable Logic Device (PLD) project trainer boards.
Cost per unit: $80.00 Total: $1600.00

?Replace of overhead projector with two widescreen video monitors eliminating need to darken room making note taking and simultaneous reading hard to do.
Cost per unit: $1200.00 Total: $2400.00

Facilities
?Strengths
-The recent remodel of the building 800 facility has greatly improved the ability to serve the current needs of the computer science department seating 40 students with 1 staff instructor station.

?Areas for Improvement/Future Direction
-Implement wireless Math/Science computer lab to support a reconfigurable and flexible learning environment.

-Add wireless access point to computer science lab rm. 847

Recommendations/Specific Actions
?Promote Computer Science and Engineering.
-Action: Work with media department to create promotional tools targeting incoming students and returning professionals.

?Work with IT department to align courses for transferability to 4-year university
-Action: Expand working communications conduit between Computer Science (COMSC), Information Technology (IT), and Business Computer Applications (BCA). Modify course offerings as necessary to provide saleable vocational skills and transfer courses to support student needs.

?Complete two new courses to complete transfer requirements to 4-yr university systems.
-Action: Submit course outline for new course ?Digital Fundamentals? offered by comsc department.
-Action: Submit course outline for new course ?Discrete Math? to be offered by math department.

?Oversee creation of two new courses for 4-yr transfer in Information Technology.
-Action: Creation of new IT course ?PCs and Peripherals? modeled to satify Chico State transfer requirement.
-Action: Creation of new IT course ?Fundamentals of Information Systems? modeled to satify Chico State transfer requirement.

Future Goals and Program Direction:

1. Continued use data collected from SLOs to investigate student retention while meeting established learning outcomes necessary to adhere to 4-year transfer requirements.

2. Continue to maintain rigorous preparation for transfer students with the goal of assuring success in upper division

work in computer science.

3. Collect feedback from transfer students investigating areas of strengths and weakness to assure student success.

4. Increase interdepartmental collaboration to provide student insight to the use of computers across multiple disciplines.

5. Continue review of current technologies in computer science and related fields.

6. Add additional adjunct instructor(s) to provide diversity in instruction of materials.

Curriculum & SLO Assessment Summary : *

Recommendations	Plans of Action & Budgetary Impact / Tasks	Status	Feedback & Follow-Up
YC - Computer Science Program Recommendations - Satisfy Introduction to Computer Engineering articulation. - Modification of introductory engineering course to satisfy intro to computer engineering for Chico State articulation. **Year(s) Requested:** 2011-2012 **Request Date:** 08/15/2011 **Inactive Date:** 04/06/2012 **Recommendation Priority:** 2. Medium Priority	**Plan of Action:** This course is on hold. Development was in anticipation of Sacramento and Chico State requirement. This course will be developed as an introduction to computer science course. **Type:** Curriculum/SLO **Budgetary Impact:** Current faculty will be used to teach this course. Minimal impact. **Location:** Yuba College - All		
YC - Computer Science Program Recommendations - ?Promote Computer Science and Engineering. - -Action: Work with media department to create promotional tools targeting incoming students and returning professionals. **Year(s) Requested:** 2011-2012 **Recommendation Priority:** 2. Medium Priority	**Plan of Action:** Promote computer science department projects and potential job market. **Type:** Curriculum/SLO **Budgetary Impact:** Minimal		
YC - Computer Science Program Recommendations - ?Work with IT department to align courses for	**Plan of Action:** Continue to work with IT department and		

Recommendations	Plans of Action & Budgetary Impact / Tasks	Status	Feedback & Follow-Up
transferability to 4-year university - -Action: Expand working communications conduit between Computer Science (COMSC), Information Technology (IT), and Business Computer Applications (BCA). Modify course offerings as necessary to provide saleable vocational skills and transfer courses to support student needs. **Year(s) Requested:** 2011-2012 **Recommendation Priority:** 2. Medium Priority	local 4-yr universities to assure student transferability. **Type:** Curriculum/SLO **Budgetary Impact:** minimal		
	Plan of Action: Streamline YCCD computer asset usage. Researching possibility of having a common programming development server maintained by YCCD. **Type:** Curriculum/SLO **Budgetary Impact:** Educational server would be hosted on existing YCCD equipment. This action would reduce software maintenance and increase response time for problem solving. **Location:** Yuba College - All		
YC - Computer Science Program Recommendations - ?Assist or originate creation of two new courses for 4-yr transfer in Information Technology. - -Action: Creation of new IT course ?PCs and Peripherals? modeled to satify Chico State transfer requirement. -Action: Creation of new IT course ?Fundamentals of Information Systems? modeled to satify Chico State transfer requirement. **Recommendation Priority:** 2. Medium Priority **Supporting Evidence (SLO, WSCH, etc.):** Courses are not offered at YCCD are required for information systems transfer students.	**Plan of Action:** Over see the creation of two new courses. **Type:** Curriculum/SLO **Budgetary Impact:** None - minimal		
	Plan of Action: Two required courses required for BSIS(Information Systems) 1. PC's and Peripherals 2. Information Systems Design Will be developed and offered through the computer science department and not attached to the current IT department. Additionally, the current IT-43AR UNIX Systems Management course will be replaced with a new Unix course originating at the computer science department. These		

Recommendations	Plans of Action & Budgetary Impact / Tasks	Status	Feedback & Follow-Up
	three courses may be cross listed with BCA as appropriate. **Type:** Curriculum/SLO **Budgetary Impact:** Full-time and adjunct faculty are in place in the computer science department. New courses will be taught in rotation with existing computer science courses. **Location:** Yuba College - All		
YC - Computer Science Program Recommendations - ?Complete two new courses to complete transfer requirements to 4-yr university systems. - -Action: Submit course outline for new course ?Digital Fundamentals? offered by comsc department. -Action: Submit course outline for new course ?Discrete Math? to be offered by math department. **Recommendation Priority:** 3. High Priority **Supporting Evidence (SLO, WSCH, etc.):** These two lower division courses are in support of engineering as well as computer science and not currently offered at YCCD.	**Plan of Action:** Complete review of new Digital Fundamentals and Discrete course outlines prior to submition. **Type:** Curriculum/SLO **Budgetary Impact:** $1600.00 for cost of programmable logic trainer boards.		
	Plan of Action: Text book completed. Digital Fundamentals is ready to submit as new course. Currently working with vendors to supply low cost student affordable PLD development boards. **Type:** Curriculum/SLO **Budgetary Impact:** Course will be offered by existing faculty. Exploration workshops sponsored by MESA proves that development boards will work with existing computer lab equipment. **Location:** Yuba College - All		

Recommendations	Plans of Action & Budgetary Impact / Tasks	Status	Feedback & Follow-Up