BASIC PROGRAM INFORMATION

Program Review is about documenting the discussions and plans you have for improving student success in your program and sharing that information with the college community. It is also about linking your plans to decisions about resource allocations. With that in mind, please answer the following questions.

Department Name: Computer Science

Division Name: PSME

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

Name	Department	Position
Elaine Haight	CS	Instructor (FT Tenured)
Michael Loceff	CS	Instructor (FT Retiring Spring '16)
Bita Mazloom	CS	Instructor (FT First Year)
Mike Murphy	CS	Instructor (FT Tenured)
Anand Venkataraman	CS	Instructor (FT First Year)

Number of Full Time Faculty: 5   **Number of Part Time Faculty:** 15

Please list all existing Classified positions: *Example: Administrative Assistant I*

Mario Ramos, Luis Barreto, Computer Science Technician

List all programs covered by this review and indicate the program type:

Computer Science AS	☐ Certificate	☒ AA / AS	☐ AD-T	☐ Pathway
Enterprise Networking AS	☐ Certificate	☒ AA / AS	☐ AD-T	☐ Pathway
Transfer Degree C S (AS-T)	☐ Certificate	☒ AA / AS	☐ AD-T	☐ Pathway
VMWare; Cisco Academy CCNA & CCNP	☒ Certificate	☐ AA / AS	☐ AD-T	☐ Pathway
MSCA; Mobile Apps; Cybersecurity	☒ Certificate	☐ AA / AS	☐ AD-T	☐ Pathway

SECTION 1: PROGRAM DATA & ENROLLMENT

1A. Transcriptable Program Data: Data will be posted on Institutional Research's website 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 Program	2012-2013	2013-2014	2014-2015
Computer Science AS	6	9	9
Enterprise Networking AS	3	0	1
Transfer Degree C S (AS-T)	0	0	3

1B. Non-Transcriptable Program Data: 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	2012-2013	2013-2014	2014-2015
Mobile Applications Certificate of Prof	N/A	3	3
Cisco Academy CCNA Certificate of Prof	1	2	2

Please provide the rationale for offering a non-transcriptable program and share the most recent program completion data available.

The Cisco Academy CCNA and CCNP Certificates of Proficiency are offered to prepare students for entry-level jobs working with Cisco products and industry standard certification exams. Similarly, certificates offered around VMware and Microsoft train and prepare students for these specific products.

1C. Department Level Data:

	2012-2013	**2013-2014**	**2014-2015**
Enrollment	2010	3837	4404 (+14%)
Productivity	645	653	689
Course Success	1255 (63%)	2409 (63%)	2870 (66%)
Full-Time Load (FTEF)	7	13	14.8 (+13.4%)
Part-Time Load (FTEF)	2.8	7.9	9.8 (+24.4%)

1D. Enrollment Trend:
Program Enrollment (Over Past 3 Years): ☒ Increase ☐ Steady/No Change ☐ Decrease

1E. Course Success Trends: Please describe course success trends for the following student groups and compare the program-level data with the college-level data.

	Program-Level Trend			**College-Level Comparison**		
	Increase	**Steady/No Change**	**Decrease**	**Above**	**At Level**	**Below**
African American	☒	☐	☐	☐	☐	☐
Asian	☒	☐	☐	☐	☐	☐
Filipino	☒	☐	☐	☐	☐	☐
Latino/a	☐	☐	☒	☐	☐	☐
Native American	☒	☐	☐	☐	☐	☐
Pacific Islander	☐	☐	☒	☐	☐	☐
White	☒	☐	☐	☐	☐	☐
Decline to State	☐	☒	☐	☐	☐	☐

1F. Course Success Demographics: Please compare the program-level course success rate data for the following student groups with the college-level data.
Male: ☐ Above Level ☐ At Level ☒ Below Level
Female: ☐ Above Level ☐ At Level ☒ Below Level
<25 Years Old: ☐ Above Level ☒ At Level ☐ Below Level
>25 Years Old: ☐ Above Level ☐ At Level ☒ Below Level

1G. Equity: One of the goals of the College's Student Equity plan is to close the performance gap for disproportionately impacted students, including African-American, Hispanic/Latino, and Filipinos/Pacific Islanders. If the course success rates for these students (or other groups not listed above, such as foster youth, veterans, and students with disabilities) is below that of the College, what is your program doing to address this?

Success for targeted groups over the three year period has been below college level but has not fallen intra-departmentally, a notable accomplishment considering the average annual 50% growth over the past two years. Nevertheless we are striving to improve. Overall, the percentages have remained steady or increased slightly, while absolute numbers of most groups have actually grown, some dramatically.

The two groups marked by "Decrease" in terms of percentages are exhibiting steady or slight growth absolutely, so they are perhaps being reported more conservatively than necessary.

All this is an accomplishment in the face of such large enrollment growth (+91% in 2013/14 and +15% in 2014/15). Table 1 in the Appendix confirms that even when percentages are constant or in slight decline, absolute enrollment of target groups continue to grow.

TRANSFER DEGREE SUCCESS AND EQUITY: An important observation in awards and success is that we were one of the first colleges in the state to clear the AS-T degree hurdle in Computer Science. This was a massive effort in light of the challenges that the degree posed (e.g., uncharacteristically high unit and prerequisite requirements). 2014/15 saw the first graduates in this program which, when combined with our existing CS program, gave CS a 33% increase in awards. This suggests that we are successfully meeting the state transfer requirements that can only help targeted students going to CSUs or moving between CCs.

RECRUITMENT/RETENTION IN TARGET POPULATIONS: In 2013-14 we began a concerted effort at recruiting and retaining students. Success was evident when on STEM day in 2015-16 we were able recruit greater numbers than the Fall prior. Now, 75% of the way through the Fall 2015 quarter some of the newly added instructional experiments are yielding decidedly lower drop counts. It's too early to give final numbers for Fall 2015-16, but this is the first time we have been able to see undeniably "macroscopic" evidence of our efforts.

EMBEDDED TUTOR PROGRAM STRUGGLES AND TARGET GROUPS: Hiring "embedded tutors" (ETs) is still difficult with existing programs and budget. Experience in Fall 2015 has revealed that the tutors from the existing program are not available for most classes that have retention challenges (online and intermediate classes) because of the program's unrealistic restrictions. Morevoer, when ETs have been employed, their full time status and other rules prevent them from staying after class, the time at which help is most needed, and their maximum allowable hours were inadequate to cover course needs. The program is not serving the needs of CS.

PART-TIME FACULTY HIRING CHALLENGES AND EQUITY: Finding qualified adjct faculty -- especially those with experience in addressing equity -- to satisfy the increasing demand for our courses by target groups is our biggest challenge. In 2014/15 and 15/16, renewed efforts were taken to support part-time faculty members through classroom observations, both online and in-person. More thorough on-boarding and orientation is also being implemented for new hires. This effort is ongoing.

EQUITY-SENSITIVE RESOURCE IMPLICATIONS: Our current and proposed measures to improve targeted group success are listed here:
1. New full time faculty this and/or next year would provide a greater on-campus faculty presence for students in targeted groups.
2. The failure of the current "embedded tutor" program to serve CS strongly suggests that the department be awarded funds to hire such tutors outside of that ET program.
3. Finding adjuncts to offer more sections will help make classes available to students that are currently off-limits due to maximum seat count and late enrollment attempts, two aspects that clearly impact target groups disproportionately. The budget impact goes beyond the salaries of such instructors, though, since each new part-time hire puts a demand on the time of full-time faculty in the form of orientation and support during the first year of that hire, a demand that is exacerbated by the large adjunct turnover. Therefore, even if we find more part-time faculty, supporting them will require the

regular participation of full-time faculty for hiring, evaluation, and the mentoring process, an effort that seems to grow wihtout bounds (an activity that is performed, but not funded commensurate with the large load).

4. Online classes are implementing new techniques, including videos and online live sessions. Expanding and renewing licenses for such tools and providing some specialized audio-visual hardware for online learning will make the online experience more personal, particularly important for targeted groups.

5. The change to a new course management system (CMS) will require added prep and teaching for both online and face-to-face faculty since labs in all courses use the CMS (see Note 1, Appendix). This may take time away from faculty to support students in targeted groups.

SUMMARY OF RESOURCE IMPLICATIONS: As a department we have demonstrated three years of stellar growth and modest improvement in success. We can only IMPROVE SUCCESS with resources that allow us to offer more sections by more qualified faculty and with embedded tutors to cover the many filled sections. We can also hope to avoid LOSING GROUND on past success by receiving resources to assist CS with its unique dependence on an existing and successful CMS (see Note 2, Appendix)

1H. Course Enrollment: If there are particular courses that are not getting sufficient enrollment, are regularly cancelled due to low enrollment, or are not scheduled, discuss how your program is addressing this.

Inadequate enrollment and canceled classes based on enrollment do not play a significant role in CS, as the three year data clearly demonstrates.

HISTORY: In 2013/14 new courses offered for the first time that year resulted in a 91.7% enrollment increase, but there was room for more growth due to an inability to find full and part-time faculty to offer the many new sections.   Also, during that year we passed curriculum for our AS-T degree.

2014/15: Hard fought success in attracting more part-time faculty members in 2014-15 enabled us to grow an additional 15% beyond the initial 91.7% of the prior year, confirming that our limiting factor was not demand by students, but supply in the form of sections and faculty. Two adjuncts became full time faculty members for 2015/16, and we expect to continue to expand the number of students served. Also, we saw the first graduates of the AS-T degree, proving that our efforts in 13/14 were successful.

PRESENT: Due to large demand, some full time faculty members have been teaching additional sections through overload assignments. The overloads, in turn, sometimes have their own undesirable consequences, e.g., leaving less time for each individual student.

RESOURCE IMPLICATIONS: Growth and productivity numbers strongly suggest new full time hires could be absorbed this year and/or next to enable growth and replace a retiring (in Spring 2016) instructor. Hiring and mentoring of full and part time personnel requires additional full-time commitments beyond the growing departmental and divisional responsibilities. The creation of a department chair is not the answer, since a) the compensation offered does not offset the time for that individual, making the chair an unpopular position in the department and b) the non-chair faculty still must bear the burden of these extra tasks. We reiterate the need for release time for the department chair, considering the disconnect between the small number of full-time staff to handle the growing tasks being shifted to our faculty. Note: Due to tenure review and hiring, some tasks must be shared by the smaller 3-member tenured core faculty, soon to become a 2-member core starting Fall 2016.

PSME vs. CS UNDUPLICATED HEADCOUNT COMPARISON
An example of the success within CS can be seen in Unduplicated Head Count numbers seen in Table 2, Appendix.

NUMBER OF SECTIONS OFFERED AS A PROSPECT OF FUTURE GROWTH
An indicator of the capacity for future growth is the increase in the number of sections successfully offered year-over-year, as seen in Table 3, Appendix.

The fact that the student demand can absorb such a large increase in offerings indicates that CS has not yet approached its full capacity for serving the community. Again, more full-time faculty, better in-class tutoring, and more part-time faculty (with prior teaching experience) are key.

ONLINE VS. FACE-TO-FACE ENROLLMENT COMPARISON
The CS online program is a major (if not the single largest) contributor to divisional and college wide growth. In 2013/14, and again in 2014/15, we compared corresponding online percentages for the entire PSME division. As Table 4 (Appendix) shows CS online courses account for most of the growth in PSME online courses, constituting 63% of the division.

IMPACT OF CMS CHANGE ON COMPUTER SCIENCE ENROLLMENT
The change to the new CMS will have a significant impact on our large online and face-to-face WSCH. CS will embrace the change, but see Note 3, Appendix regarding some reasons that the impact on enrollment may be measurable.

1I. Productivity: Although the college productivity goal is **535**, there are many factors that affect productivity (i.e. seat count / facilities / accreditation restrictions).

Program Productivity Trend: ☒ Increase ☐ Steady/No Change ☐ Decrease
Program Productivity (Compared to College): ☒ Above Goal ☐ At Goal ☐ Below Goal

Please discuss what factors may be affecting your program's productivity.

Table 5, Appendix, demonstrates that productivity is a high point for Computer Science. CS productivity was above the institutional goal of 535 in 2012 and has grown every year since them, standing at 689 today. Part of the success in this area comes from the ability of online instruction to handle higher seat counts, or add students beyond the seat max without hurting success. However, this phenomenon is in danger of ending as a combined result of various factors, prominent among them
  1. increasing unfunded demands on existing full-time faculty, and
  2. an unfunded migration to the new CMS. To understand why the "migration tool" will not provide needed support in CS courses for conversion to the new CMS ,see Note 4, Appendix.

If your program's productivity is below that of the College, please discuss your program objectives aimed at addressing this.

Although productivity is at or above the college standards, we strive to improve. Major changes are taking place in CS techniques in 2015/16 to address productivity. These are the same measures that are better included in Section 2B: "IEPI Goal."

Upcoming changes that may affect the high CS productivity are discussed in detail in Appendix Notes.

CONVERSION TO CANVAS AND RESOURCE IMPLICATION:
One of the factors in the relatively large productivity numbers in CS is the efficiency with which the long standing CMS (Etudes) has been incorporated into our teaching styles.   CS faculty may be unable to reproduce the historically large seat counts in a the new CMS (Canvas), which is built on a different paradigm not optimized for computer programming assignments.   (See Note 5, Appendix.)

CMS "MIGRATION TOOL"
A careful analysis of the the "migration tool" by CS in consultation with the Dean of Online Learning reveals that it will not actually migrate the most important and intricate part of CS coures, the Programming Labs (see Appendix, Note 6). We expect this to add unfunded (assuming no release time or compensation) prep time to each course, increasing workload and detracting from supporting students.

CMS RESOURCE IMPLICATIONS:
With so many courses and faculty, it is not unrealistic that this could take two to three years to overcome, and therefore belongs front and center in this comprehensive program review. The work must be done by the individual faculty with, preferably, the assistance of staff to take care of some of the repetitive work.

1. Extending Etudes for an additional three years (vs. one); this is the most valuable and least expensive way to guarantee continued growth.
2. Release time to allow faculty to carefully redesign each existing Etudes course to fit Canvas, which has a different teaching paradigm (e.g., the disparate use of the large "Modules" component and inadequate "Assignment" area for CS labs).
3. Finding embedded tutors outside the currently restrictive program.
4. Accepting fewer adds until the new system's bugs are fixed and work-arounds are implemented in the 2016-2019 time-frame.
5. Providing staff assistants to handle certain repetitive but time consuming tasks as directed by faculty.

INCREASE IN FACULTY RESPONSIBILITIES AND RESOURCE IMPLICATION:
The request by administration to add many responsibilities to the list of "Department Chair" duties and the increasing demands on general faculty in the face of the existing annual workload due to CS course prep updates and course development each has its own impact on faculty time, which is not offset by proposed compensation or release time. This, also, can only have a negative impact on productivity.

SECTION 2: COURSE COMPLETION & PROGRAM IMPROVEMENT

2A. Institutional Standard: This represents the lowest course completion (success) rate deemed acceptable by the College's accrediting body (ACCJC). The institutional standard is **55%**.

Program Level Course Completion:	☒ Above Standard	☐ At Standard	☐ Below Standard
Targeted Student Course Completion:	☐ Above Standard	☐ At Standard	☒ Below Standard
Online Student Course Completion:	☒ Above Standard	☐ At Standard	☐ Below Standard
In-Person/Hybrid Course Completion:	☒ Above Standard	☐ At Standard	☐ Below Standard

2B. Institutional Effectiveness (IEPI) Goal: This represents an aspirational goal for course completion (success) rates; all programs should strive to reach/surpass this goal. The IEPI goal is **71%**.
Program Level Course Completion: ☐ Above Goal   ☐ At Goal   ☒ Below Goal

Targeted Student Course Completion: ☐ Above Goal ☐ At Goal ☒ Below Goal
Online Student Course Completion: ☐ Above Goal ☐ At Goal ☒ Below Goal
In-Person/Hybrid Course Completion: ☐ Above Goal ☐ At Goal ☒ Below Goal

Please comment on your program's efforts to continually improve course completion (success) rates, especially for students with basic skills needs.

Members of the CS department are acutely aware of the need to bring up the success and completion rate of students in all classes, both targeted and non-targeted. Our current objectives and existing efforts to improve IEPI numbers are manifold:
1. New Honors Sections of the entry-level courses CS 1AH is being offered in Fall and is expected to take some of the stress off the general student population in the non-honors sections.
2. Faculty are adjusting their syllabi to enable students to stay in courses longer and get more personal help throughout the quarter.
3. The STEM center is working closely with individual faculty to support their courses. There are now more qualified tutors, and some are providing scheduled group review sessions.
4. The STEM center is working with CS faculty to offer online students help and participation in these sessions.
5. An increase in full and part-time faculty has been achieved, but more faculty are clearly needed as evidenced by the continued growth and turnover of part-time faculty.
6. Online ("OL") faculty are experimenting with regularly scheduled live, group tutoring and screen-sharing sessions.
7. One area that could be more successful is currently stifled by certain regulations: "Embedded Tutoring"(or "ET") support is limited to full-time students, and many potential qualified tutors are not full time. CS attracts and serves a large population of local but part-time students. Increasing the definition of ETs to include part-time or former students would be a great help here.

We believe targeted groups and basic skills students would benefit most by these existing and proposed faculty, staff and procedural changes.

If your program's course completion (success) rates are below the institutional standard (see above), please discuss your program objectives aimed at addressing this.

Completion rates are above the institutional standard, but not above the EIPI goal. Objectives and methods are in the prior section, 2B.

2C. Faculty Discussion: Does meaningful dialogue currently take place in shaping, evaluating, and assessing your program's Student Learning Outcomes (SLOs)? ☒ Yes ☐ No

Does meaningful dialogue currently take place around equity and course success rates? ☒ Yes ☐ No

If yes, in what venues do these discussions take place? (Check all that apply)
☒ Department Meetings ☒ Opening Day ☒ Online Discussions ☐ Other:

If no, please discuss what is missing and/or the obstacles to ensuring meaningful dialogue takes place.

2D. Course-Level: How has assessment and reflection of course-level Student Learning Outcomes (CL-SLOs) and course completion data led to course-level changes?

SLO reflections for 2014/15 exhibit reasonable success numbers, yet the withdrawal rate in almost all classes can be improved. We have implemented instructional changes (see bulleted list in section 2B) that mostly affect delivery rather than COR changes. However some COR modifications have been implemented and, when proposed, we always consider whether this is possible without jeopardizing articulation.

If your program's CL-SLOs are not being met, please indicate your program objectives aimed at addressing this.

Although we do believe the SLOs are being met (see attached 4-Column Reports), we still want to improve success and, thus, we have a common "Action Plan" listed for all courses. You can see this plan in CL-Report for most CORE courses, under the Action Plan column, but it pertains to all courses.

COMMON COURSE-LEVEL GOAL: Reduce withdrawals and failure rate in the course and increase success rate in targeted groups.

MAIN COURSE-LEVEL ACTION PLAN: 1. Add full-time and qualified adjunct faculty capable of teaching most offered courses. 2. Place embedded tutors in classes with markedly low completion or success. 3. Obtain support and resources for online version of the course to compensate for missing functionality in new CMS (Canvas) and/or cap seat count at the published maximum to avoid losing per-student evaluation/mentoring time.

2E. Program-Level: How has assessment and reflection of program-level Student Learning Outcomes (PL-SLOs) led to certificate/degree program changes and/or improvements?

This very much echoes the changes in course-level SLOs since the program is so tightly reliant upon successful course completion.   Since the PL-SLOs require 100% target, the fact that the combined CS and AS-T awards increased by 30% is a validation of the program's efficacy.   However, there is room for improvement. The techniques that we are employing to improve course success are identical with those for program success. SLO commentary reflects this.

The Action Plan, as seen in the attached 4-Column Report, reflects the major conclusions and projections about where we've been and where we're headed: improved retention and success in all groups, especially those relating to equity. The plan emphasizes new faculty, embedded tutors and minimizing the potential disruption caused by a new CMS.

What is being done at the program-level to assist students in achieving degree/certificate completion and/or transferring to a four-year institution?

We have created a "Women in STEM Club," enlarged our Computer Science Club, made improvements to the CS Blog that is posted to all course web pages and include incentives to learn and opportunities for students. The CS presence on STEM Day is one of the most popular and highest growing attended sections. Instructors are inviting high profile and active Silicon Valley workers to classes to stimulate and motivate students. Course content is annually updated, and new coureses are always added (and outdate dropped). These are just a few of the ongoing, fluid and ever-changing efforts.

If your department has a Workforce/CTE program, please complete Section 2F.
If your department does not have a Workforce/CTE program, please skip to Section 3.

2F. Workforce/CTE Programs: Refer to the program review website for labor market data.

What is the regional three-year projected occupational growth for your program? | 7%

What is being done at the program-level to assist students with job placement and workforce preparedness?

The curriculum for Cisco Academy and VMWare Certification classes is updated annually to match the knowledge demands of employers and better prepare students for constantly evolving certification exams.

If your program has other program-level outcomes assessments (beyond SLOs and labor market data), discuss how that information has been used to make program changes and/or improvements.

N/A

SECTION 3: SUMMARY OF PROGRAM OBJECTIVES & RESOURCE REQUESTS

3A. Past Program Objectives: Please list program objectives (not resource requests) from past program reviews and provide an update by checking the appropriate status box.

1. Exposure to Topics which go beyond the minimum	Year:	☐ Completed	☒ Ongoing	☐ No Longer a Goal
2. Improve retention	Year:	☐ Completed	☒ Ongoing	☐ No Longer a Goal
3. Customized and individualized support	Year:	☐ Completed	☒ Ongoing	☐ No Longer a Goal
4. Improve success	Year:	☐ Completed	☒ Ongoing	☐ No Longer a Goal
	Year:	☐ Completed	☐ Ongoing	☐ No Longer a Goal

Please comment on any challenges or obstacles with ongoing past objectives.

1. Skyrocketing annual growth of (avg. 50% per year for last two years)
2. Insufficient full-time and part-time faculty to teach courses
3. No funds for embedded tutors (unrestricted by full-time requirements) to assist faculty with large and diverse enrollments
4. Increasing non-instructional demand for faculty time (E.g., hiring, mentoring, evaluating, tenure review, departmental administration, SLOs, program review, new course curriculum, advisory committees, changing course management systems, student mentoring)
5. Required and fast-track change to a new course management system which uses a different paradigm for teaching than the existing CMS, with no proven benefits, but many tested and demonstrated omissions

Please provide rationale behind any objectives that are no longer a priority for the program.

3B. New Program Objectives: Please list all new program objectives discussed in Sections 1-2; do not list resource requests in this section.

Program Objective	Implementation Timeline	Progress Measures
Example: Offer 2 New Courses to Meet Demand	*Winter 2016 Term*	*Course Enrollment*
1. Offer more sections of core and support degree courses currently limited by qualified faculty available to teach	Following two years, any quarter, such as Fall 2016 and Fall 2017	Increase in the # of non-cancelled course and sections.

2. Improve drop (student withdrawal) numbers = update of old 2	Fall 2016 and Fall 2017	Success data for next two years.
3. Improve targeted group success rates of all courses	Fall 2016 and Fall 2017	Success data for next two years.
4. Improve overall success rates of online courses = update of old 4	Fall 2016 and Fall 2017	Success data for next two years.
5. Increase graduation rate of all programs	Spring 2016 and Spring 2017	Awards figures for next two years
6. Maintain high online productivity despite challenges of new course management system	Spring 2016 and Spring 2017	Productivity data for next two years

3C. EMP Goals. Please refer to the Educational Master Planning (EMP) website for more information. Indicate which EMP goals are supported by your program objectives (Check all that apply).

☒ Create a culture of equity that promotes student success, particularly for underserved students.

☐ Strengthen a sense of community and commitment to the College's mission; expand participation from all constituencies in shared governance.

☒ Recognize and support a campus culture that values ongoing improvement and stewardship of resources.

3D. Resource Requests: Using the table below, summarize your program's <u>unfunded</u> resource requests. Refer to the Operations Planning Committee (OPC) website for current guiding principles, rubrics and resource allocation information. Be sure to mention the resource request in your narrative above when discussing your program so the request can be fully vetted.

Resource Request	$	Program Objective (Section 3B)	Type of Resource Request			
			Full-Time Faculty/Staff Position	One-Time B-Budget Augmentation	Ongoing B-Budget Augmentation	Facilities and Equipment
Full Time Hire in next two years		1 - 5	☒	☐	☐	☐
Budget for TAs and embedded tutors not covered currently.		3 - 5	☐	☐	☒	☐
Course management licenses (~$50k/year for partial Etudes licence to allow teaching by CS in two+ year conversion (separate from migration) 2016-2018.	(would likely be budgeted outside the department.)	6	☐	☒	☐	☐

Multi-software, licenses: Camtasia ($20k), Windows 360 professional accounts that have desktop components not covered by district's web-only plan ($20k). Hardware, tablets, mics, mixers for supporting online live sessions ($20k), TBA web-design tools that are not free to support individual faculty in their courses, both online and hybrid. ($20k)	$80k	1 and 6	☐	☐	☐	☒
Staff assistance with course migration. Full time temporary staff member for three quarters	$20k	1 and 6	☐	☐	☒	☐
Larger, clearer room display to replace hard-to-read monitors in some rooms. (e.g. Screen Innovations HDTV 100-Inch Matte $500 x 8 rooms)	$4k	1 - 3	☐	☐	☐	☒
Second projectors in instructions classrooms	$10k	1 - 3	☐	☐	☐	☒
			☐	☐	☐	☐

3E. Unbudgeted Reassigned Time: Please list and provide rationale for requested reassign time.

The amount of instruction, constantly changing prep, never-ending new course development, and institutional/demands are unrealistic in computer science. We must somehow manage the consuming workload of these combined effects. Release time for deprtment chair and also for some non-chair faculty who are asked to engage in time-consuming duties in addition to those tasks already performed quarterly is one of the more obvious cures that gets at the heart of the problem.

In addition, release time for thoughtful migration to new CMS (perhaps one course release time for every three courses migrated, which includes time to emulate and work around the delivery techniques, separate from migration). This may work out to two quarters release time distributed to two or three faculty members in a two year period.

3F. Please review the resource requests that were granted over the last three years and provide evidence that the resource allocations supported your objectives and led to student success.

Incredible growth without loss of success or retention is evidence that we are managing the objectives as hoped. However, we are also being stretched to an unprecedented extent as a result and need some support to continue this success.

SECTION 4: PROGRAM SUMMARY

4A. Prior Feedback: Address the concerns or recommendations made in prior program review cycles, including any feedback from the Dean/VP, Program Review Committee (PRC), etc.

Concern/Recommendation	Comments
Insufficient number of FT faculty	Two new FT faculty members were hired, with additional to be requested to account for retirement and enrollment growth
Insufficient number of computer labs and classroom size	Additional computers have been authorized to be purchased to increase the size of two classrooms to 40 seats, with another classroom being a mixed Mac/PC arrangement with 40 seats.
Creating new curriculum to meet employer demand	New Big Data courses and an extension of the Python sequence have been submitted to the curriculum committee. Additional courses require new faculty with industrial experience.
Lower success rates of targeted versus non-targeted groups	Multiple initiatives have been presented in this PR to address this ongoing issue.
Only 1 FT faculty teaches Enterprise Networking classes.	With the continuing decline in enrollment in Enterprise Networking courses, additional adjunct faculty may be required to expand course offerings. Also, offering these courses in an online format may increase enrollment.

4B. Summary: What else would you like to highlight about your program (e.g. innovative initiatives, collaborations, community service/outreach projects, etc.)?

SECTION 5: LEARNING OUTCOMES ASSESSMENT SUMMARY

5A. Attach 2014-2015 Course-Level Outcomes: Four Column Report for CL-SLO Assessment from TracDat. Please contact the Office of Instruction to assist you with this step if needed.

5B. Attach 2014-2015 Program-Level Outcomes: Four Column Report for PL-SLO Assessment from TracDat. Please contact the Office of Instruction to assist you with this step if needed.

SECTION 6: FEEDBACK AND FOLLOW-UP

This section is for the <u>Dean/Supervising Administrator</u> to provide feedback.

6A. Strengths and successes of the program as evidenced by the data and analysis:

The faculty members of Computer Science have done an excellent job growing a revamped department over three years to the second largest department in the PSME Division, serving 2660 unduplicated students and generating 30,505 WSCH. The phenomenal growth rate of 19.7% WSCH comes on top of the previous year's gain of 87.6% with more room to grow as demonstrated in the data analysis above. The heavy lifting by the FT faculty should be commended and recognized.

In order to maintain this growth, the faculty have been diligent with developing new courses to meet the demands of transfer students and working individuals. This past Fall saw the implementation of a CS 1A Honors course and new CS 3A Python course. New curriculum recently submitted for approval include a Big Data series (4 courses) as well as a continuation of the Python sequence (CS 3B).

With regards to student success, the CS Department has begun implementing various tactics to improve course completion rates (both for targeted and untargeted populations), reducing the amount of drops/withdraws, and engaging in a variety of student support services such as embedded tutoring and online tutoring. The AS degree in CS is beginning to increase in popularity as well as the ADT.

To accommodate growth, a high rate of part-time faculty hiring has occurred this past year. The full-time faculty have done a good job orienting and acclimating these individuals to the online CMS, providing mentoring and best practices, and other instructor logistics which are time consuming. This well written Program Review is evidence of the large time commitment faculty devote outside the classroom to sustaining a strong CS program.

6B. Areas of concern, if any:

The CS Department has grown exponentially but the following important issues need to be addressed:

1. Course success rates of targeted populations average 44% for a 3-year period versus 64% overall for the department. The CS Department is aware of this achievement gap and has been actively addressing this concern.

2. The number of students from targeted populations enrolling in CS courses (15% of department enrollment) is much lower than the PSME Division average (25%) and College (34%). Most striking is the lower enrollment of Latino/Latina students (8%) versus the Division (17%).

3. Recruiting qualified part-time faculty remains a constant challenge, with very few (if any) individuals applying to the District HR website. An advertising campaign through LinkedIN this past Fall garnered zero responses. The CS Department cannot grow any further without additional faculty. Compounding this issue is the implementation of changes from the FA Load Task Force, which increased the overall load of a CS course, but limits the number of courses part-time faculy can teach from 6 to 5 annually. This will leave a large hole in the Spring Quarter.

4. For part-time faculty that are hired, many have strong technical skills but very little to no experience in the classroom. Training these new hires places an immense burden on the small number of senior FT faculty in the department. Additionally, the high turnover rate of part-time faculty limits the experience they have addressing equity issues and course quality standards.

5. There currently exists only 3 tenured FT faculty members, with one retiring at the end of June 2015. This will only leave 2 senior FT faculty to lead the department. It does not appear sustainable to have 2 senior FT faculty shoulder all of the expected duties of a department whose size is similar to the Chemistry Department (which has 8 full-time faculty members). The responsibilities of hiring new part-time faculty, mentoring and orienting them, participating in tenure review, serving on FT hiring committees, developing new curriculum annually, and assisting with scheduling is too high of a workload.

6. With the migration to a new CMS, the quality of online CS courses is in flux and varied. With a majority of the WSCH generated for the CS Department from online courses, developing robust and high quality online classes is time consuming and requires mentoring and input.

7. The effects of embedded tutoring are muted due to the restrictions limiting who can act as an embedded tutor.

8. Enterprise Networking courses comprise 9.5% of the overall CS Department, but have seen a 12% decrease in WSCH over the past year, despite the rest of the department experiencing exponential growth. A majority of courses routinely do not fill to capacity.

9. As the CS Department experiences more growth, additional classrooms need to be furnished to handle the 40 student seat limit. Currently, only 2-3 classrooms can handle a 40 student course.

10. Due to the speed of innovation in Silicon Valley, the current curriculum cycle renders many CORs out-of-date by the time enrollment can begin (usually 2 years after initial COR submission). Additionally, current faculty are too busy to be well-versed in all emerging technologies, which limits their ability to create or teach new "hot" skills/technologies seen at local employers.

6C. Recommendations for improvement:

Recommended improvements to the above 10 items listed include:

1. Incorporate additional initiatives that support student success including policies that discourage premature withdraws, personal emails to students to help identify deficiences, and encouraging use of the STEM Center. Starting Winter 2016, tutoring for the core programming languages has been greatly expanded in the STEM Center, and online tutoring will be available 6 days a week in the evenings.

2. Market the CS major to local students (particularly high school) through outreach events. STEM Day

each Fall helps to connect CS faculty to already registered students, but events that are open to the community and target historically disadvantaged populations may increase enrollment. Events can include a Hack-a-thon, free workshops on an introduction on how to build apps, speakers from industry discussing challenges they have faced, etc.

3. To lower the reliance of course offerings on part-time faculty availability, additional FTEF should be allocated to the CS department. In addition to the two requested in this PR, an out-of-cycle request will be presented to PaRC for their consideration to replace a retiring CS faculty member. With regards to part-time recruiting, a collaboration with Marketing and HR will need to occur that advertises part-time positions to local companies and trade groups.

4. Due to the unbalanced FT/PT faculty ratio (and only 2 senior FT faculty after Michael Loceff's retirement), supporting the part-time faculty will be a huge burden on the tenured faculty. The use of reassign time may be appropriate in this instance to maintain course standards and mentor the high number of new part-time faculty. Although reassign time does fractionally remove a FT faculty member from the classroom, it may reap greater rewards in course success and quality.

5. It is recommended that the department submit an out-of-cycle FT faculty request due to Michael Loceff's retirement.

6. Faculty are recommended to engage Heather Garcia, the online course instructional designer, to determine methods that help increase student success in online courses.

7. HR is currently setting policy that may permit part-time students (students below 12 units) to act as embedded tutors. This would greatly increase the number of available ET's to the department.

8. Since Enterprise Networking course needs are unique to the CS Department, it is recommended that the program be analyzed separately from the greater CS Department in future PR cycles by submission of separate documents. The decline in enrollment may possibly be stemmed by offering Cisco Academy and VMware courses fully online to make them more accessible to a broader audience. An analysis should also be completed determining how many students continue on to receive Cisco certification, as well as the demand for workers trained in Cisco or VMWare products.

9. Additional funding requests are recommended to augment more classrooms with computers to reach the 40 seat count maximum.

10. The President or Chancellor may need to advocate to the State Chancellor's Office that CS course creation does not fit well with the current approval timeline and model. An expedited timeline to react to changes in Silicon Valley would better serve students. Also, holding regular Advisory Board meetings would keep faculty abreast of emerging technologies in Silicon Valley and also help to connect the department to experts that may assist in creating new courses.

6D. Recommended Next Steps:
☒ Proceed as Planned on Program Review Schedule
☐ Further Review / Out-of-Cycle In-Depth Review

COMPREHENSIVE INSTRUCTIONAL PROGRAM REVIEW TEMPLATE for 2015-2016

This section is for the <u>Vice President/President</u> to provide feedback.

6E. Strengths and successes of the program as evidenced by the data and analysis:

The Computer Science Department is a strong and successful department serving the needs of students through workforce and transfer-level coursework. The program has done an excellent job of staying current with its curriculum and in the past several years has made changes to address student demand and emerging technology, resulting in significant growth. The faculty are to be commended for their work to grow this program and constantly adapt to the ever-changing nature of the discipline. In addition, this program review demonstrates the commitment to quality that the faculty have and their interest in improving student success. The program has a significant portion of its enrollment in fully online courses and has a high standard for online quality excellence. Faculty are actively engaged in campus discussions regarding online quality and are active in the campus conversion to Canvas. As mentioned in this program review, due to the nature of the discipline and our location in Silicon Valley, it is extremely difficult to find qualified adjunct faculty. The full time faculty do not have the same level of access to adjunct faculty as most departments do, and this is a challenge.

6F. Areas of concern, if any:

As noted in the program review and commented on by the Dean, the success rates for targeted groups are 20% below the college average and the percentage of total enrollment among target groups is lower than the college average. The program has put much thought and effort into looking at ways to address this but continued work in this area is needed. While it appears there were impediments to embedded tutors, I encourage the faculty and Dean to work with the LRC and other areas to consider finding student support options such as online tutoring, and supplemental instruction. The continuing decline of Enterprise Networking is a concern and a separate program analysis should be conducting in 16-17 to address ways to improve the program. The paucity of online faculty in the division is a major concern and recent efforts to recruit through additional marketing have not paid off. The program's request for additional FTEF has merit and needs to be evaluated through the resource allocation process.

6G. Recommendations for improvement:

Continued focus on improving student success for targeted groups and for recruiting enrollment from targeted groups, continued efforts in the hiring of adjunct faculty and in finding ways to support faculty in the conversion to Canvas. The Department should take advantage of the staff resources we have available through the Dean of Online Learning.

6H. Recommended Next Steps:
☒ Proceed as Planned on Program Review Schedule
☐ Further Review / Out-of-Cycle In-Depth Review

Upon completion of <u>Section 6</u>, the Program Review document should be returned to department faculty/staff for review, then submitted to the Office of Instruction and Institutional Research for public posting. Please refer to the Program Review timeline.

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Unit Course Assessment Report - Four Column

Foothill College
Department - Computer Science (C S)

Mission Statement: To provide an educational pathway to careers in computer science technology and research. To make computer technology accessible to students from all backgrounds. To provide a conduit between our students and both universities and companies, so that the training and learning that they acquire at Foothill can be leveraged to pursue professional and/or advanced research positions.

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
Department - Computer Science (C S) - C S 10 - COMPUTER ARCHITECTURE & ORGANIZATION - Compilation of C++ or Java to assembly language - The student will demonstrate the ability to analyze the assembly language instructions generated by a C, C++ or Java program. (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 09/24/2012 **End Date:** 06/30/2018 **Course-Level SLO Status:** Active	**Assessment Method:** Programming assignment the examines and analyzes the code generated by a C, C++ or Java program. **Target for Success:** 80% of the students will get a score of 7 or better on a 10 point rubric.	09/13/2015 - Of those who finished the course, 60% had 7/10 understanding or better. Retention of enrollment was best in Fall and worst in Spring. < 60% retention in Spring, > 60% in Fall. Improved over last year, but more needs to be done. **Result:** Target Not Met **Year This Assessment Occurred:** 2014-2015 **Resource Request:** another full time instructor would allow this course to be taught by a permanent faculty member, which may have benefits in success rate.	11/10/2015 - Common action plan for all CS courses based on common goals: reduce withdrawals and failure rate in the course and increase success rate in targeted groups 1. Add full-time and qualified adjunct faculty capable of teaching most offered courses. 2. Place embedded tutors in classes with markedly low completion or success. 3. Obtain support and resources for online version of the course to compensate for missing functionality in new CMS (Canvas) and if resourced are not adequate, cap seat count at the published maximum to give each student time and attention necessary in light of extra time needed to adapt to new CMS.
	Assessment Method: xx **Assessment Method Type:** Class/Lab Project		
Department - Computer Science (C S) - C S 10 - COMPUTER ARCHITECTURE & ORGANIZATION - Microprocessor Architecture - The student will demonstrate	**Assessment Method:** Test that includes questions about microcomputer architecture components.	09/13/2015 - Of those who finished the course, 60% had 7/10 understanding or better. Retention of enrollment was best in Fall and worst in Spring. < 60% retention in Spring, > 60% in Fall.	11/10/2015 - Common action plan for all CS courses based on common goals: reduce withdrawals and failure rate in the course and

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
knowledge of the architecture of a microprocessor including the use of registers, the program counter, and the arithmetic logic unit. (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 09/24/2012 **End Date:** 06/30/2018 **Course-Level SLO Status:** Active	**Assessment Method Type:** Pre/Post Test **Target for Success:** 80% of the students will get a score of 7 or better on a 10 point rubric.	Improved over last year, but more needs to be done. **Result:** Target Not Met **Year This Assessment Occurred:** 2014-2015 **Resource Request:** another full time instructor would allow this course to be taught by a permanent faculty member, which may have benefits in success rate.	increase success rate in targeted groups 1. Add full-time and qualified adjunct faculty capable of teaching most offered courses. 2. Place embedded tutors in classes with markedly low completion or success. 3. Obtain support and resources for online version of the course to compensate for missing functionality in new CMS (Canvas) and if resourced are not adequate, cap seat count at the published maximum to give each student time and attention necessary in light of extra time needed to adapt to new CMS.
Department - Computer Science (C S) - C S 18 - DISCRETE MATHEMATICS - Relations - Properly identify properties in a relation (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 06/30/2013 **End Date:** 06/30/2018 **Course-Level SLO Status:** Active	**Assessment Method:** questions on exams and/or quizzes. **Assessment Method Type:** Pre/Post Test **Target for Success:** 80% to have 7/10 understanding or better.	09/13/2015 - Of those who finished the course, 80% had 7/10 understanding or better. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	
Department - Computer Science (C S) - C S 18 - DISCRETE MATHEMATICS - Logic and Proofs - Use formal logic and various methods of arguments to formally write proofs involving number theory, set theory, combinatorics, and discrete probability. (Created By Department - Computer Science (C S))	**Assessment Method:** A formal proof written in mathematical English **Assessment Method Type:** Observation/Critique **Target for Success:** 80% of the students will get a score of 7 or better on a 10 point rubric.	09/13/2015 - Of those who finished the course, 80% had 7/10 understanding or better. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
Assessment Cycles: End of Academic Year **Start Date:** 06/30/2013 **End Date:** 06/30/2018 **Course-Level SLO Status:** Active			
Department - Computer Science (C S) - C S 18 - DISCRETE MATHEMATICS - Number theory and applications - Apply number theory, combinatorics, discrete probability, graph theory, and recursion to solve various application problems. (Created By Department - Computer Science (C S))	**Assessment Method:** homework assignments incorporating math problems and derivations. **Assessment Method Type:** Class/Lab Project **Target for Success:** 80% to have 7/10 understanding or better.	09/13/2015 - Of those who finished the course, 80% had 7/10 understanding or better. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	
Assessment Cycles: End of Academic Year **Start Date:** 06/30/2013 **End Date:** 06/30/2018 **Course-Level SLO Status:** Active			
Department - Computer Science (C S) - C S 1A - OBJECT-ORIENTED PROGRAMMING METHODOLOGIES IN JAVA - Java Control Structures and Methods - A successful student will be able to write and debug Java programs which make use of the fundamental control structures and method-building techniques common to all programming languages. Specifically, the student will use data types, input, output, iterative, conditional, and functional components of the language in his or her programs. (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:**	**Assessment Method:** Programming assignment that includes debugged source code and some evidence of a successful program run, testing the control structures and methods in the program. **Assessment Method Type:** Observation/Critique **Target for Success:** 80% of the students will get a score of 7 or better on a 10 point rubric.	09/13/2015 - Average scores on assignments #6, 7 and 8 (which included skill on this rubric) were 85, 80, 80 respectively. However, these statistics don't include the drops, which occurred before assignment #6. Overall course retention was only 55%. Instructor was fully engaged in helping students, and past experiments with an online instructional assistant, showed that this could improve retention by 20%. New faculty hires starting this year should help push numbers higher. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015 **Resource Request:**	11/10/2015 - Common action plan for all CS courses based on common goals: reduce withdrawals and failure rate in the course and increase success rate in targeted groups 1. Add full-time and qualified adjunct faculty capable of teaching most offered courses. 2. Place embedded tutors in classes with markedly low completion or success. 3. Obtain support and resources for online version of the course to compensate for missing functionality in new CMS (Canvas) and if resourced are not adequate, cap seat count at the published maximum to give each student time

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
09/24/2012 **End Date:** 06/30/2018 **Course-Level SLO Status:** Active		Online TA or another full time instructor to take up large enrollments.	and attention necessary in light of extra time needed to adapt to new CMS. _____
Department - Computer Science (C S) - C S 1A - OBJECT-ORIENTED PROGRAMMING METHODOLOGIES IN JAVA - Java OOP Design - A successful student will be able to use object-oriented programming techniques to design and implement a clear, well-structured Java program. Specifically, the student will use and design classes and objects in his or her programs. (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 09/24/2012 **End Date:** 06/30/2018 **Course-Level SLO Status:** Active	**Assessment Method:** Programming assignment that includes debugged source code and some evidence of a successful program run, testing the classes and objects in the program **Assessment Method Type:** Observation/Critique **Target for Success:** 80% of the students will get a score of 7 or better on a 10 point rubric.	09/13/2015 - Average scores on assignments #6, 7 and 8 (which included skill on this rubric) were 80, 80, 80 respectively. However, these statistics don't include the drops, which occurred before assignment #6. Overall course retention was only 55%. Instructor was fully engaged in helping students, and past experiments with an online instructional assistant, showed that this could improve retention by 20%. New faculty hires starting this year should help push numbers higher. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015 **Resource Request:** Online TA or another full time instructor to take up large enrollments.	11/10/2015 - Common action plan for all CS courses based on common goals: reduce withdrawals and failure rate in the course and increase success rate in targeted groups 1. Add full-time and qualified adjunct faculty capable of teaching most offered courses. 2. Place embedded tutors in classes with markedly low completion or success. 3. Obtain support and resources for online version of the course to compensate for missing functionality in new CMS (Canvas) and if resourced are not adequate, cap seat count at the published maximum to give each student time and attention necessary in light of extra time needed to adapt to new CMS. _____
Department - Computer Science (C S) - C S 1AH - HONORS OBJECT-ORIENTED PROGRAMMING METHODOLOGIES IN JAVA - Java Control Structures and Methods - A successful student will be able to write and debug Java programs which make use of the fundamental control structures and method-building techniques common to all programming languages. Specifically, the student will use data types, input, output,	**Assessment Method:** Programming assignment that includes debugged source code and some evidence of a successful program run, testing the control structures and methods in the program. **Assessment Method Type:** Observation/Critique **Target for Success:** 80% of the students will get a score of 7 or	09/13/2015 - Course will be taught for first time in Fall, 2015, so no reflection possible at this time. **Result:** Target Not Met **Year This Assessment Occurred:** 2014-2015	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
iterative, conditional, and functional components of the language in his or her programs. (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 01/01/2015 **End Date:** 12/31/2018 **Course-Level SLO Status:** Active	better on a 10 point rubric.		
Department - Computer Science (C S) - C S 1AH - HONORS OBJECT-ORIENTED PROGRAMMING METHODOLOGIES IN JAVA - Java OOP Design - A successful student will be able to use object-oriented programming techniques to design and implement a clear, well-structured Java program. Specifically, the student will use and design classes and objects in his or her programs. (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 01/01/2015 **End Date:** 12/31/2018 **Course-Level SLO Status:** Active	**Assessment Method:** Programming assignment that includes debugged source code and some evidence of a successful program run testing OOP objects and classes in the program. **Assessment Method Type:** Observation/Critique **Target for Success:** 80% of the students will get a score of 7 or better on a 10 point rubric.	09/13/2015 - Course will be taught for first time in Fall, 2015, so no reflection possible at this time. **Result:** Target Not Met **Year This Assessment Occurred:** 2014-2015	
Department - Computer Science (C S) - C S 1B - INTERMEDIATE SOFTWARE DESIGN IN JAVA - Java Inheritance - A successful student will be able to write and debug Java programs which make use of inheritance, i.e., the "is a" relationship, common to all OOP languages. Specifically, the student will define base and derived classes and use common techniques such as method chaining in his or her programs. (Created By	**Assessment Method:** Programming assignment that includes debugged source code and some evidence of a successful program run, testing inheritance in the program. **Assessment Method Type:** Observation/Critique **Target for Success:** 80% of the students will get a score of 7 or	09/13/2015 - Average scores on assignments #6, 7 and 8 (which included skill on this rubric) were 85, 80, 85 respectively. However, these statistics don't include the drops, which occurred before assignment #6. Overall course retention was only 50%. Instructor was fully engaged in helping students, and past experiments with an online instructional assistant, showed that this could improve retention by 20%.	11/10/2015 - Common action plan for all CS courses based on common goals: reduce withdrawals and failure rate in the course and increase success rate in targeted groups 1. Add full-time and qualified adjunct faculty capable of teaching most offered courses. 2. Place embedded tutors in classes with

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 09/24/2012 **End Date:** 06/30/2018 **Course-Level SLO Status:** Active	better on a 10 point rubric.	New faculty hires starting this year should help push numbers higher. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015 **Resource Request:** Online TA or another full time instructor to take up large enrollments.	markedly low completion or success. 3. Obtain support and resources for online version of the course to compensate for missing functionality in new CMS (Canvas) and if resourced are not adequate, cap seat count at the published maximum to give each student time and attention necessary in light of extra time needed to adapt to new CMS.
Department - Computer Science (C S) - C S 1B - INTERMEDIATE SOFTWARE DESIGN IN JAVA - Basic Java Abstract Data Types - A successful student will be able to use the Java environment to define the basic abstract data types (stacks, queues, lists) and iterators of those types to effectively manipulate the data in his or her program. (Created By Department - Computer Science (C S)) **Start Date:** 09/24/2012 **End Date:** 06/30/2018 **Course-Level SLO Status:** Active	**Assessment Method:** Programming assignment that includes debugged source code and some evidence of a successful program run, testing a variety of abstract data types in the program. **Assessment Method Type:** Observation/Critique **Target for Success:** 80% of the students will get a score of 7 or better on a 10 point rubr	09/13/2015 - Average scores on assignments #6, 7 and 8 (which included skill on this rubric) were 85, 80, 85 respectively. However, these statistics don't include the drops, which occurred before assignment #6. Overall course retention was only 50%. Instructor was fully engaged in helping students, and past experiments with an online instructional assistant, showed that this could improve retention by 20%. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015 **Resource Request:** Online TA or another full time instructor to take up large enrollments.	11/10/2015 - Common action plan for all CS courses based on common goals: reduce withdrawals and failure rate in the course and increase success rate in targeted groups 1. Add full-time and qualified adjunct faculty capable of teaching most offered courses. 2. Place embedded tutors in classes with markedly low completion or success. 3. Obtain support and resources for online version of the course to compensate for missing functionality in new CMS (Canvas) and if resourced are not adequate, cap seat count at the published maximum to give each student time and attention necessary in light of extra time needed to adapt to new CMS.
Department - Computer Science (C S) - C S 1B - INTERMEDIATE SOFTWARE DESIGN	**Assessment Method:** Programming assignment that includes	09/13/2015 - Average scores on assignments #6, 7 and 8 (which included skill on this rubric) were	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
IN JAVA - Java Generics - A successful student will be able to define and use Java generics to make their data and algorithms work with a variety of data types. (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 09/24/2012 **End Date:** 06/30/2018 **Course-Level SLO Status:** Active	debugged source code and some evidence of a successful program run, testing a variety of Java generics in the program. **Assessment Method Type:** Observation/Critique	85, 80, 85 respectively. However, these statistics don't include the drops, which occurred before assignment #6. Overall course retention was only 50%. Instructor was fully engaged in helping students, and past experiments with an online instructional assistant, showed that this could improve retention by 20%. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015 **Resource Request:** Online TA or another full time instructor to take up large enrollments.	11/10/2015 - Common action plan for all CS courses based on common goals: reduce withdrawals and failure rate in the course and increase success rate in targeted groups 1. Add full-time and qualified adjunct faculty capable of teaching most offered courses. 2. Place embedded tutors in classes with markedly low completion or success. 3. Obtain support and resources for online version of the course to compensate for missing functionality in new CMS (Canvas) and if resourced are not adequate, cap seat count at the published maximum to give each student time and attention necessary in light of extra time needed to adapt to new CMS.
Department - Computer Science (C S) - C S 1C - ADVANCED DATA STRUCTURES & ALGORITHMS IN JAVA - Time Complexity in Java - The successful student will be able to analyze the time complexity of a variety of algorithms and data structure access techniques and choose the best algorithm and/or data structure for the project at hand. (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 09/24/2012 **End Date:** 06/30/2018 **Course-Level SLO Status:**	**Assessment Method:** Programming assignment that includes debugged source code and some evidence of a successful program run, measuring the time complexity of various sort, search or merge algorithms in a program. **Assessment Method Type:** Observation/Critique **Target for Success:** 80% of the students will get a score of 7 or better on a 10 point rubric.	09/13/2015 - Average scores on assignments #6, 7 and 8 (which included skill on this rubric) were 80, 80, 90 respectively. However, these statistics don't include the drops, which occurred before assignment #6. Overall course retention was only 40%. Instructor was fully engaged in helping students, and past experiments with an online instructional assistant, showed that this could improve retention by 20%. New faculty hires starting this year should help push numbers higher. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015 **Resource Request:**	11/10/2015 - Common action plan for all CS courses based on common goals: reduce withdrawals and failure rate in the course and increase success rate in targeted groups 1. Add full-time and qualified adjunct faculty capable of teaching most offered courses. 2. Place embedded tutors in classes with markedly low completion or success. 3. Obtain support and resources for online version of the course to compensate for missing functionality in new CMS (Canvas) and if resourced are not adequate, cap seat count at the published maximum to give each student time

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
Active		Online TA or another full time instructor to take up large enrollments.	and attention necessary in light of extra time needed to adapt to new CMS.
Department - Computer Science (C S) - C S 1C - ADVANCED DATA STRUCTURES & ALGORITHMS IN JAVA - Advanced Data Structures - The successful student will be able to write and incorporate balanced trees, hash tables, directed graphs and priority queues in his or her software. (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 09/24/2012 **End Date:** 06/30/2018 **Course-Level SLO Status:** Active	**Assessment Method:** Programming assignments that includ debugged source code and some evidence of successful program runs, demonstrating the use of each advanced data structure covered in the course. **Assessment Method Type:** Observation/Critique **Target for Success:** 80% of the students will get a score of 7 or better on a 10 point rubric.	09/13/2015 - Average scores on assignments #6, 7 and 8 (which included skill on this rubric) were 80, 80, 90 respectively. However, these statistics don't include the drops, which occurred before assignment #6. Overall course retention was only 40%. Instructor was fully engaged in helping students, and past experiments with an online instructional assistant, showed that this could improve retention by 20%. New faculty hires starting this year should help push numbers higher. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015 **Resource Request:** Online TA or another full time instructor to take up large enrollments.	11/10/2015 - Common action plan for all CS courses based on common goals: reduce withdrawals and failure rate in the course and increase success rate in targeted groups 1. Add full-time and qualified adjunct faculty capable of teaching most offered courses. 2. Place embedded tutors in classes with markedly low completion or success. 3. Obtain support and resources for online version of the course to compensate for missing functionality in new CMS (Canvas) and if resourced are not adequate, cap seat count at the published maximum to give each student time and attention necessary in light of extra time needed to adapt to new CMS.
Department - Computer Science (C S) - C S 1M - INTERMEDIATE ALGORITHM & DATA STRUCTURE METHODOLOGIES IN JAVA - Basic Java Abstract Data Types - A successful student will be able to use the Java environment to define the basic abstract data types (stacks, queues, lists) and iterators of those types to effectively manipulate the data in his or her program. (Created By Department - Computer Science	**Assessment Method:** Programming assignment that includes debugged source code and some evidence of a successful program run, testing a variety of abstract data types in the program. **Assessment Method Type:** Observation/Critique **Target for Success:** 80% of the students will get a score of 7 or	09/13/2015 - Course being taught for first time in 2015-16 academic year so no reflections possible at this time. **Result:** Target Not Met **Year This Assessment Occurred:** 2014-2015	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
(C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 06/01/2015 **End Date:** 07/31/2019 **Course-Level SLO Status:** Active	better on a 10 point rubric.		
Department - Computer Science (C S) - C S 1M - INTERMEDIATE ALGORITHM & DATA STRUCTURE METHODOLOGIES IN JAVA - Time Complexity in Java - The successful student will be able to analyze the time complexity of a variety of algorithms and data structure access techniques and choose the best algorithm and/or data structure for the project at hand. (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 06/01/2015 **End Date:** 07/31/2019 **Course-Level SLO Status:** Active	**Assessment Method:** Programming assignment that includes debugged source code and some evidence of a successful program run, measuring the time complexity of various sort, search or merge algorithms in a program. **Assessment Method Type:** Observation/Critique **Target for Success:** 80% of the students will get a score of 7 or better on a 10 point rubric.	09/13/2015 - Course being taught for first time in 2015-16 academic year so no reflections possible at this time. **Result:** Target Not Met **Year This Assessment Occurred:** 2014-2015	
Department - Computer Science (C S) - C S 20A - PROGRAMMING IN C# - C# Control Structures and Methods - A successful student will be able to write and debug C# programs which make use of the fundamental control structures and method-building techniques common to all programming languages. Specifically, the student will use data types, input, output, iterative, conditional, and functional components of the language in his or her programs. (Created By Department - Computer Science (C S))	**Assessment Method:** C# programming assignment that includes source code built from various control structures, input/output and data types common to C#.		

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
Assessment Cycles: End of Academic Year **Start Date:** 01/07/2013 **End Date:** 06/30/2019 **Course-Level SLO Status:** Active			
Department - Computer Science (C S) - C S 20A - PROGRAMMING IN C# - C# OOP Design - A successful student will be able to use object-oriented programming techniques to design and implement a clear, well-structured Java program. Specifically, the student will use and design classes and objects in his or her programs. (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 01/07/2013 **End Date:** 06/30/2019 **Course-Level SLO Status:** Active	**Assessment Method:** C# programming assignment that includes classes and objects in an efficient manner. **Assessment Method Type:** Observation/Critique		
Department - Computer Science (C S) - C S 21A - PROGRAMMING IN PYTHON - Python Control Structures and Methods - A successful student will be able to write and debug Python programs which make use of the fundamental control structures and method-building techniques common to all programming languages. Specifically, the student will use data types, input, output, iterative, conditional, and functional components of the language in his or her programs. (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year	**Assessment Method:** Python programming assignment that includes debugged source code and some evidence of a successful use of control structures, methods, input and output as well as a smooth program run. **Assessment Method Type:** Observation/Critique	10/26/2015 - Of the students who finished the course, 80% had a 7/10 understanding of this SLO. This class had a good retention rate of >60%. It seemed that many of the students had taken some sort of programming course prior to this one and that helped their ability to master the concepts quickly. Of course, brand new college students who had not had any programming experience were still successful but the rigor of the course gave them a much greater challenge that they had to overcome. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	11/10/2015 - Common action plan for all CS courses based on common goals: reduce withdrawals and failure rate in the course and increase success rate in targeted groups 1. Add full-time and qualified adjunct faculty capable of teaching most offered courses. 2. Place embedded tutors in classes with markedly low completion or success. 3. Obtain support and resources for online version of the course to compensate for missing functionality in new CMS (Canvas) and if resourced are not adequate,

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
Start Date: 01/07/2013 **End Date:** 06/30/2019 **Course-Level SLO Status:** Active		**GE/IL-SLO Reflection:** Course does not always make due to enrollment. Consideration should be given to whether it can be maintained.	cap seat count at the published maximum to give each student time and attention necessary in light of extra time needed to adapt to new CMS.
		09/13/2015 - Of the students who finished the course, 85% had a 7/10 understanding of this SLO. This class had a good retention rate of 65%. It seemed that many of the students had taken some sort of programming course prior to this one and that helped their ability to master the concepts quickly. Of course, brand new college students who had not had any programming experience were still successful but the rigor of the course gave them a much greater challenge that they had to overcome. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	
Department - Computer Science (C S) - C S 21A - PROGRAMMING IN PYTHON - Python OOP Design - A successful student will be able to use object-oriented programming techniques to design and implement a clear, well-structured Python program. Specifically, the student will use and design classes and objects in his or her programs. (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 01/07/2013 **End Date:** 06/30/2019 **Course-Level SLO Status:**	**Assessment Method:** Python programming assignment that includes classes and objects in an efficient manner. **Assessment Method Type:** Observation/Critique	10/26/2015 - Of the students who finished the course, 80% had a 7/10 understanding of this SLO. This class had a good retention rate of >60%. It seemed that many of the students had taken some sort of programming course prior to this one and that helped their ability to master the concepts quickly. Of course, brand new college students who had not had any programming experience were still successful but the rigor of the course gave them a much greater challenge that they had to overcome. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	11/10/2015 - Common action plan for all CS courses based on common goals: reduce withdrawals and failure rate in the course and increase success rate in targeted groups 1. Add full-time and qualified adjunct faculty capable of teaching most offered courses. 2. Place embedded tutors in classes with markedly low completion or success. 3. Obtain support and resources for online version of the course to compensate for missing functionality in new CMS (Canvas) and if resourced are not adequate, cap seat count at the published maximum to give each student time

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
Active			and attention necessary in light of extra time needed to adapt to new CMS.
		09/13/2015 - Of the students who finished the course, 85% had a 7/10 understanding of this SLO. This class had a good retention rate of 65%. It seemed that many of the students had taken some sort of programming course prior to this one and that helped their ability to master the concepts quickly. Of course, brand new college students who had not had any programming experience were still successful but the rigor of the course gave them a much greater challenge that they had to overcome. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	
Department - Computer Science (C S) - C S 21B - INTERMEDIATE PYTHON PROGRAMMING - Python Graphical User Interfaces - A successful student will be able to develop an event driven Python program that interacts with the user through a graphical user interface that employs windows, dialog boxes, buttons, menus and text fields. (Created By Department - Computer Science (C S))	**Assessment Method:** Python programming assignment that includes debugged and documented code that includes successful interactions with the user through an easy-to-use graphical user interface. **Assessment Method Type:** Observation/Critique	10/26/2015 - Course was not offered in 2014/15 due to a combination of lack of student demand and qualified instructor to teach. We will consider whether to offer it in the coming year. **Result:** Target Not Met **Year This Assessment Occurred:** 2014-2015 **Resource Request:** Hire qualified faculty.	
Assessment Cycles: End of Academic Year **Start Date:** 01/14/2015 **End Date:** 01/14/2019 **Course-Level SLO Status:** Active			

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
Department - Computer Science (C S) - C S 21B - INTERMEDIATE PYTHON PROGRAMMING - Accessing Resources Over the Internet - A successful student will be able to develop a Python program that runs other programs, accesses a database, and transfers files over a network. (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 01/14/2015 **End Date:** 01/14/2019 **Course-Level SLO Status:** Active	**Assessment Method:** A Python programming assignment that gets a query from the user and processes that query in a database that resides elsewhere on the network. **Assessment Method Type:** Observation/Critique	10/26/2015 - Course was not offered in 2014/15 due to a combination of lack of student demand and qualified instructor to teach. We will consider whether to offer it in the coming year. **Result:** Target Not Met **Year This Assessment Occurred:** 2014-2015 **Resource Request:** Hire qualified faculty.	
Department - Computer Science (C S) - C S 22A - JAVSCRIPT FOR PROGRAMMERS - Development Environment - Use a web application development environment that includes a browser, editor, debugger and code libraries. (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 06/30/2013 **End Date:** 06/30/2019 **Course-Level SLO Status:** Active	**Assessment Method:** Programming assignment that includes debugged source code and some evidence of a successful program run, testing the control structures in the program. **Target for Success:** 80% of the students will get a score of 7 or better on a 10 point rubric.	10/26/2015 - Of the students who finished the course, 80% had a 7/10 understanding of this SLO. This class had a good retention rate of >60%. This is a basic course so should be able to sustain a better retention. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	
		09/13/2015 - For this rubric, 80% of the students were able to show 7/10 master or better. Retention was 60%, which is high for CS courses, so this was a good sign.Many students with a background in graphic design but no programming experience sign up for the course. The course is aimed at programmers so these students end up dropping the course or struggling in it. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
Department - Computer Science (C S) - C S 22A - JAVSCRIPT FOR PROGRAMMERS - Quality JavaScript Programs - Write modifiable JavaScript programs that modify the DOM, respond to user events and make requests to the server. (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year	**Assessment Method:** Javascript program that is hosted on a web server. Instructor can interact with the program to gain access to data, and examine the source code to see that the programming style is acceptable. **Target for Success:** 80% of the students will get a score of 7 or better on a 10 point rubric.		
Start Date: 06/30/2013 **End Date:** 06/30/2019 **Course-Level SLO Status:** Active	**Assessment Method:** Programming assignment that includes debugged source code, documentation and some evidence of a successful program run, testing the control structures and methods in the program. **Target for Success:** 80% of the students will get a score of 7 or better on a 10 point rubric.	10/26/2015 - Of the students who finished the course, 80% had a 7/10 understanding of this SLO. This class had a good retention rate of >60%. This is a basic course so should be able to sustain a better retention. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	
		09/13/2015 - For this rubric, 80% of the students were able to show 7/10 master or better. Retention was 60%, which is high for CS courses, so this was a good sign.Many students with a background in graphic design but no programming experience sign up for the course. The course is aimed at programmers so these students end up dropping the course or struggling in it. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	
		09/13/2015 - For this rubric, 80% of the students were able to show 7/10 master or better. Retention was 60%, which is high for CS courses, so this was a good sign.Many students with a background in graphic design but no programming experience sign up for the course. The course is aimed at programmers so these students end up dropping the course or struggling in it. **Result:** Target Met **Year This Assessment Occurred:**	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
		2014-2015	
Department - Computer Science (C S) - C S 2A - OBJECT-ORIENTED PROGRAMMING METHODOLOGIES IN C++ - C++ Control Structures and Methods - A successful student will be able to write and debug C++ programs which make use of the fundamental control structures and method-building techniques common to all programming languages. Specifically, the student will use data types, input, output, iterative, conditional, and functional components of the language in his or her programs. (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 09/24/2012 **End Date:** 06/30/2019 **Course-Level SLO Status:** Active	**Assessment Method:** Programming assignment that includes debugged source code and some evidence of a successful program run, testing the control structures and methods in the program. **Assessment Method Type:** Observation/Critique **Target for Success:** 80% of the students will get a score of 7 or better on a 10 point rubric.	09/13/2015 - Average scores on assignments #6, 7 and 8 (which included skill on this rubric) were 80, 85, 80, respectively. However, these statistics don't include the drops, which occurred before assignment #5. Overall course retention was only 38%. Instructor was fully engaged in helping students, and past experiments with an online instructional assistant, showed that this could improve retention by 20%. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	11/10/2015 - Common action plan for all CS courses based on common goals: reduce withdrawals and failure rate in the course and increase success rate in targeted groups 1. Add full-time and qualified adjunct faculty capable of teaching most offered courses. 2. Place embedded tutors in classes with markedly low completion or success. 3. Obtain support and resources for online version of the course to compensate for missing functionality in new CMS (Canvas) and if resourced are not adequate, cap seat count at the published maximum to give each student time and attention necessary in light of extra time needed to adapt to new CMS.
Department - Computer Science (C S) - C S 2A - OBJECT-ORIENTED PROGRAMMING METHODOLOGIES IN C++ - C++ OOP Design - A successful student will be able to use object-oriented programming techniques to design and implement a clear, well-structured C++ program. Specifically, the student will use and design classes and objects in his or her programs. (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 09/24/2012	**Assessment Method:** Programming assignment that includes debugged source code and some evidence of a successful program run, testing the classes and objects in the program. **Assessment Method Type:** Observation/Critique **Target for Success:** 80% of the students will get a score of 7 or better on a 10 point rubric.	09/13/2015 - Average scores on assignments #6, 7 and 8 (which included skill on this rubric) were 80, 85, 80, respectively. However, these statistics don't include the drops, which occurred before assignment #5. Overall course retention was only 38%. Instructor was fully engaged in helping students, and past experiments with an online instructional assistant, showed that this could improve retention by 20%. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	11/10/2015 - Common action plan for all CS courses based on common goals: reduce withdrawals and failure rate in the course and increase success rate in targeted groups 1. Add full-time and qualified adjunct faculty capable of teaching most offered courses. 2. Place embedded tutors in classes with markedly low completion or success. 3. Obtain support and resources for online version of the course to compensate for missing

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
End Date: 06/30/2019 **Course-Level SLO Status:** Active			functionality in new CMS (Canvas) and if resourced are not adequate, cap seat count at the published maximum to give each student time and attention necessary in light of extra time needed to adapt to new CMS.
Department - Computer Science (C S) - C S 2AH - HONORS OBJECT-ORIENTED PROGRAMMING METHODOLOGIES IN C++ - C++ Control Structures and Methods - A successful student will be able to write and debug C++ programs which make use of the fundamental control structures and method-building techniques common to all programming languages. Specifically, the student will use data types, input, output, iterative, conditional, and functional components of the language in his or her programs. (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 01/01/2015 **End Date:** 12/31/2019 **Course-Level SLO Status:** Active	**Assessment Method:** Programming assignment that includes debugged source code and some evidence of a successful program run, testing the control structures and methods in the program. **Assessment Method Type:** Observation/Critique **Target for Success:** 80% of the students will get a score of 7 or better on a 10 point rubric.	09/13/2015 - to be taught for first time in 2015-16 or 61-17. **Result:** Target Not Met **Year This Assessment Occurred:** 2014-2015	
Department - Computer Science (C S) - C S 2AH - HONORS OBJECT-ORIENTED PROGRAMMING METHODOLOGIES IN C++ - C++ OOP Design - A successful student will be able to use object-oriented programming techniques to design and implement a clear, well-structured C++ program. Specifically, the student will use	**Assessment Method:** Programming assignment that includes debugged source code and some evidence of a successful program run, testing OOP, classes and objects in the program. **Assessment Method Type:** Observation/Critique **Target for Success:**	09/13/2015 - to be taught for first time in 2015-16 or 61-17. **Result:** Target Not Met **Year This Assessment Occurred:** 2014-2015	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
and design classes and objects in his or her programs. (Created By Department - Computer Science (C S)) **Start Date:** 01/01/2015 **End Date:** 12/31/2019 **Course-Level SLO Status:** Active	80% of the students will get a score of 7 or better on a 10 point rubric.		
Department - Computer Science (C S) - C S 2B - INTERMEDIATE SOFTWARE DESIGN IN C++ - C++ Inheritance - A successful student will be able to write and debug C++ programs which make use of inheritance, i.e., the "is a" relationship, common to all OOP languages. Specifically, the student will define base and derived classes and use common techniques such as method chaining in his or her programs. (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 09/24/2012 **End Date:** 06/30/2019 **Course-Level SLO Status:** Active	**Assessment Method:** Programming assignment that includes debugged source code and some evidence of a successful program run, testing inheritance in the program. **Assessment Method Type:** Observation/Critique **Target for Success:** 80% of the students will get a score of 7 or better on a 10 point rubric.	09/13/2015 - Average scores on assignments #6, 7 and 8 (which included skill on this rubric) were 90, 80, 90, respectively. However, these statistics don't include the drops, which occurred before assignment #6. Overall course retention was only 35%. Instructor was fully engaged in helping students, and past experiments with an online instructional assistant, showed that this could improve retention by 20%. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	11/10/2015 - Common action plan for all CS courses based on common goals: reduce withdrawals and failure rate in the course and increase success rate in targeted groups 1. Add full-time and qualified adjunct faculty capable of teaching most offered courses. 2. Place embedded tutors in classes with markedly low completion or success. 3. Obtain support and resources for online version of the course to compensate for missing functionality in new CMS (Canvas) and if resourced are not adequate, cap seat count at the published maximum to give each student time and attention necessary in light of extra time needed to adapt to new CMS.
Department - Computer Science (C S) - C S 2B - INTERMEDIATE SOFTWARE DESIGN IN C++ - Basic C++ Abstract Data Types - A successful student will be able to use the C++ environment to define the basic abstract data types (stacks, queues, lists) and iterators of those types to effectively manipulate the data in his or her program.	**Assessment Method:** Programming assignment that includes debugged source code and some evidence of a successful program run, testing a variety of abstract data types in the program. **Assessment Method Type:** Observation/Critique **Target for Success:**	09/13/2015 - Average scores on assignments #6, 7 and 8 (which included skill on this rubric) were 90, 80, 90, respectively. However, these statistics don't include the drops, which occurred before assignment #6. Overall course retention was only 35%. Instructor was fully engaged in helping students, and past experiments with an online instructional assistant, showed that this could	11/10/2015 - Common action plan for all CS courses based on common goals: reduce withdrawals and failure rate in the course and increase success rate in targeted groups 1. Add full-time and qualified adjunct faculty capable of teaching most offered courses. 2. Place

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
(Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 09/24/2012 **End Date:** 06/30/2019 **Course-Level SLO Status:** Active	80% of the students will get a score of 7 or better on a 10 point rubric.	improve retention by 20%. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	embedded tutors in classes with markedly low completion or success. 3. Obtain support and resources for online version of the course to compensate for missing functionality in new CMS (Canvas) and if resourced are not adequate, cap seat count at the published maximum to give each student time and attention necessary in light of extra time needed to adapt to new CMS.
Department - Computer Science (C S) - C S 2B - INTERMEDIATE SOFTWARE DESIGN IN C++ - C++ Templates - A successful student will be able to define and use C++ templates to make their data and algorithms work with a variety of data types. (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 09/23/2012 **End Date:** 06/30/2019 **Course-Level SLO Status:** Active	**Assessment Method:** Programming assignment that includes debugged source code and some evidence of a successful program run, testing a variety of C++ templates in the program. **Assessment Method Type:** Observation/Critique **Target for Success:** 80% of the students will get a score of 7 or better on a 10 point rubric.	09/13/2015 - Average scores on assignments #6, 7 and 8 (which included skill on this rubric) were 90, 80, 90, respectively. However, these statistics don't include the drops, which occurred before assignment #6. Overall course retention was only 35%. Instructor was fully engaged in helping students, and past experiments with an online instructional assistant, showed that this could improve retention by 20%. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	11/10/2015 - Common action plan for all CS courses based on common goals: reduce withdrawals and failure rate in the course and increase success rate in targeted groups 1. Add full-time and qualified adjunct faculty capable of teaching most offered courses. 2. Place embedded tutors in classes with markedly low completion or success. 3. Obtain support and resources for online version of the course to compensate for missing functionality in new CMS (Canvas) and if resourced are not adequate, cap seat count at the published maximum to give each student time and attention necessary in light of extra time needed to adapt to new CMS.

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
Department - Computer Science (C S) - C S 2C - ADVANCED DATA STRUCTURES & ALGORITHMS IN C++ - Time Complexity in C++ - The successful student will be able to analyze the time complexity of a variety of algorithms and data structure access techniques and choose the best algorithm and/or data structure for the project at hand. (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 09/24/2012 **End Date:** 06/30/2019 **Course-Level SLO Status:** Active	**Assessment Method:** Programming assignment that includes debugged source code and some evidence of a successful program run, measuring the time complexity of various sort, search or merge algorithms in a program. **Assessment Method Type:** Observation/Critique **Target for Success:** 80% of the students will get a score of 7 or better on a 10 point rubric.	09/13/2015 - Average scores on assignments #5, 6, 7 and 8 (which included skill on this rubric) were 85, 90, 95, 95, respectively. However, these statistics don't include the drops, which occurred before assignment #5. Overall course retention was only 45%. Instructor was fully engaged in helping students, and past experiments with an online instructional assistant, showed that this could improve retention by 20%. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	11/10/2015 - Common action plan for all CS courses based on common goals: reduce withdrawals and failure rate in the course and increase success rate in targeted groups 1. Add full-time and qualified adjunct faculty capable of teaching most offered courses. 2. Place embedded tutors in classes with markedly low completion or success. 3. Obtain support and resources for online version of the course to compensate for missing functionality in new CMS (Canvas) and if resourced are not adequate, cap seat count at the published maximum to give each student time and attention necessary in light of extra time needed to adapt to new CMS.
Department - Computer Science (C S) - C S 2C - ADVANCED DATA STRUCTURES & ALGORITHMS IN C++ - Advanced Data Structures - The successful student will be able to write and incorporate balanced trees, hash tables, directed graphs and priority queues in his or her software. (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 09/24/2012 **End Date:** 06/30/2019 **Course-Level SLO Status:** Active	**Assessment Method:** Programming assignments that includ debugged source code and some evidence of successful program runs, demonstrating the use of each advanced data structure covered in the course. **Target for Success:** 80% of the students will get a score of 7 or better on a 10 point rubric.	09/13/2015 - Average scores on assignments #5, 6, 7 and 8 (which included skill on this rubric) were 85, 90, 95, 95, respectively. However, these statistics don't include the drops, which occurred before assignment #5. Overall course retention was only 45%. Instructor was fully engaged in helping students, and past experiments with an online instructional assistant, showed that this could improve retention by 20%. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	11/10/2015 - Common action plan for all CS courses based on common goals: reduce withdrawals and failure rate in the course and increase success rate in targeted groups 1. Add full-time and qualified adjunct faculty capable of teaching most offered courses. 2. Place embedded tutors in classes with markedly low completion or success. 3. Obtain support and resources for online version of the course to compensate for missing functionality in new CMS (Canvas) and if resourced are not adequate, cap seat count at the published maximum to give each student time

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
			and attention necessary in light of extra time needed to adapt to new CMS.
Department - Computer Science (C S) - C S 2M - INTERMEDIATE ALGORITHM & DATA STRUCTURE METHODOLOGIES IN C++ - Basic C++ Abstract Data Types - A successful student will be able to use the C++ environment to define the basic abstract data types (stacks, queues, lists) and iterators of those types to effectively manipulate the data in his or her program. (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 06/01/2015 **End Date:** 07/31/2019 **Course-Level SLO Status:** Active	**Assessment Method:** Programming assignment that includes debugged source code and some evidence of a successful program run, testing a variety of abstract data types in the program. **Assessment Method Type:** Observation/Critique **Target for Success:** 80% of the students will get a score of 7 or better on a 10 point rubric.	09/13/2015 - new course will be taught in upcoming year. no reflection possible at this time. **Result:** Target Not Met **Year This Assessment Occurred:** 2014-2015	
Department - Computer Science (C S) - C S 2M - INTERMEDIATE ALGORITHM & DATA STRUCTURE METHODOLOGIES IN C++ - Time Complexity in C++ - The successful student will be able to analyze the time complexity of a variety of algorithms and data structure access techniques and choose the best algorithm and/or data structure for the project at hand. (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 06/01/2015	**Assessment Method:** Programming assignment that includes debugged source code and some evidence of a successful program run, measuring the time complexity of various sort, search or merge algorithms in a program. **Assessment Method Type:** Observation/Critique	09/13/2015 - new course will be taught in upcoming year. no reflection possible at this time. **Result:** Target Not Met **Year This Assessment Occurred:** 2014-2015	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
End Date: 07/31/2019 **Course-Level SLO Status:** Active			
Department - Computer Science (C S) - C S 30A - INTRODUCTION TO LINUX & UNIX - Unix/Linux Operating System Components - A successful student will be able to describe the various aspects of the Unix operating system from a user and administrator perspective. (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year	**Assessment Method:** Written tests which measure the student's knowledge of specific attributes of different Unix flavors. **Assessment Method Type:** Pre/Post Test	09/13/2015 - The rubric that cover this SLO showed the following percentage of students were successful in this area: Total: 80%. This SLO is based on material taught early in the course and generally students turned in more work near the beginning of the quarter. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	
Start Date: 01/07/2013 **End Date:** 06/30/2019 **Course-Level SLO Status:** Active			
Department - Computer Science (C S) - C S 30A - INTRODUCTION TO LINUX & UNIX - Unix/Linux Operating System Configuration and Control - A successful student will be able to perform basic sysadmin tasks, write simple shell scripts, make changes to the OS file system and use regular expressions for searching the file system. (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year	**Assessment Method:** Assignments which require the student to perform basic Unix tasks like writing shell scripts and making changes to the OS file systems. **Assessment Method Type:** Observation/Critique	09/13/2015 - The rubric that cover this SLO showed the following percentage of students were successful in this area: Total: 80%. This SLO is based on material taught early in the course and generally students turned in more work near the beginning of the quarter. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	
Start Date: 01/07/2013 **End Date:** 06/30/2019 **Course-Level SLO Status:** Active			
Department - Computer Science (C S) - C S 30B - LINUX & UNIX SHELL PROGRAMMING - BASH Fundamentals - A	**Assessment Method:** Assignments which require the student to write scrips in the OS shell, BASH, that	10/26/2015 - Of the students who finished the course, 80% had a 7/10 understanding of this SLO. This class had a good retention rate of 60%.	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
successful student will be able to code basic commands in the BASH programming environment using a structured approach that shows mastery of the write/test/debug cycle. In particular, the student will be able to use arrays, iterative and conditional structures, sorts, regular expressions and nesting in shell scripts. (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 01/07/2013 **End Date:** 06/30/2019 **Course-Level SLO Status:** Active	exercise the various control structures. **Assessment Method Type:** Observation/Critique	**Result:** Target Met **Year This Assessment Occurred:** 2014-2015 **Resource Request:** TAs and full time hire to help with retention.	
Department - Computer Science (C S) - C S 30B - LINUX & UNIX SHELL PROGRAMMING - Scripting Techniques - A successful student will be able to make us of redirection, pipes, advanced regular expressions, awk, jobs, signals and other advanced scripting techniques. (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 01/07/2013 **End Date:** 06/30/2019 **Course-Level SLO Status:** Active	**Assessment Method:** Assignments that require the use of advanced scripting techniques like pipes, awk and regular expressions. **Assessment Method Type:** Observation/Critique	10/26/2015 - Of the students who finished the course, 80% had a 7/10 understanding of this SLO. This class had a good retention rate of 60%. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015 **Resource Request:** TAs and full time hire to help with retention.	
Department - Computer Science (C S) - C S 30C - LINUX & UNIX SYSTEM ADMINISTRATION - Unix/Linux System Set-up and Responsibilities - A successful student will be able to configure an OS and be capable of planning for the routine maintenance of the system's many components. (Created By Department -	**Assessment Method:** Assignments that require the student to configure a Unix/Linux OS. **Assessment Method Type:** Observation/Critique	10/26/2015 - Of the students who finished the course, 80% had a 7/10 understanding of this SLO. This class had a good retention rate of 70%. This is an advanced course and has a limited audience, but those that enroll tend to succeed. **Result:** Target Met	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
Computer Science (C S)) **Assessment Cycles:**		**Year This Assessment Occurred:** 2014-2015	
End of Academic Year			
Start Date: 01/07/2013 **End Date:** 06/30/2019 **Course-Level SLO Status:** Active			
Department - Computer Science (C S) - C S 30C - LINUX & UNIX SYSTEM ADMINISTRATION - Advanced System Management - A successful student will be able to manage and repair the many aspects of the operating system including networking, file sharing, accounting, logging, printing and disk file system. (Created By Department - Computer Science (C S)) **Assessment Cycles:**	**Assessment Method:** Assignments that challenge the student to manage and repair aspects or the operating system. **Assessment Method Type:** Interviews/Focus Groups	10/26/2015 - Of the students who finished the course, 80% had a 7/10 understanding of this SLO. This class had a good retention rate of 70%. This is an advanced course and has a limited audience, but those that enroll tend to succeed. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	
End of Academic Year			
Start Date: 01/07/2013 **End Date:** 06/30/2019 **Course-Level SLO Status:** Active			
Department - Computer Science (C S) - C S 31A - INTRODUCTION TO DATABASE MANAGEMENT SYSTEMS - Database Design - Create a conceptual database design (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 06/30/2013 **End Date:** 06/30/2019 **Course-Level SLO Status:** Active	**Assessment Method:** Design a database with at least 10 fields in each record. **Assessment Method Type:** Observation/Critique **Target for Success:** Processes used in industry are employed to design a database that can be used efficiently.	09/13/2015 - Based on those assignments that addressed this SLO about 80% had an understanding that was 7/10 or better. However, these statistics don't include the drops, which occurred before week five. Overall course retention was only 45%. Instructor was fully engaged in helping students, and past experiments with an online instructional assistant, showed that this could improve retention by 20%. A significant percentage of students seemed to have had initial misconceptions about the formalisms required to develop and understand the concepts of Database Systems (Relational Algebra, Normal Forms). **Result:**	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
		Target Met **Year This Assessment Occurred:** 2014-2015	
Department - Computer Science (C S) - C S 31A - INTRODUCTION TO DATABASE MANAGEMENT SYSTEMS - Querying a Database - Use Structured Query Language to perform queries on a database (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 06/30/2013 **End Date:** 06/30/2019 **Course-Level SLO Status:** Active	**Assessment Method:** Perform queries to generate a report on a database using SQL **Assessment Method Type:** Observation/Critique **Target for Success:** Queries are expressed efficiently in SQL and the resulting reports are easy for humans to read.	09/13/2015 - Based on those assignments that addressed this SLO about 80% had an understanding that was 7/10 or better. However, these statistics don't include the drops, which occurred before week five. Overall course retention was only 45%. Instructor was fully engaged in helping students, and past experiments with an online instructional assistant, showed that this could improve retention by 20%. A significant percentage of students seemed to have had initial misconceptions about the formalisms required to develop and understand the concepts of Database Systems (Relational Algebra, Normal Forms). **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	
Department - Computer Science (C S) - C S 3A - OBJECT-ORIENTED PROGRAMMING METHODOLOGIES IN PYTHON - Python Control Structures and Functions - A successful student will be able to write and debug Python programs which make use of the fundamental control structures and function-building techniques common to all programming languages. Specifically, the student will use data types, input, output, iterative, conditional, and functional components of the language in his or her programs. (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year	**Assessment Method:** Programming assignment that includes debugged source code and some evidence of a successful program run, testing the control structures and methods in the program. **Assessment Method Type:** Observation/Critique **Target for Success:** 80% of the students will get a score of 7 or better on a 10 point rubric.		

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
Start Date: 09/24/2012 **End Date:** 06/30/2019 **Course-Level SLO Status:** Active			
Department - Computer Science (C S) - C S 3A - OBJECT-ORIENTED PROGRAMMING METHODOLOGIES IN PYTHON - Python OOP Design - A successful student will be able to use object-oriented programming techniques to design and implement a clear, well-structured Python program. Specifically, the student will use and design classes and objects in his or her programs. (Created By Department - Computer Science (C S))	**Assessment Method:** Programming assignment that includes debugged source code and some evidence of a successful program run, testing the classes and objects in the program **Assessment Method Type:** Observation/Critique **Target for Success:** 80% of the students will get a score of 7 or better on a 10 point rubric.	10/26/2015 - New course will be taught in upcoming year. no reflection possible at this time. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015 **Resource Request:** Hire qualified faculty.	
Assessment Cycles: End of Academic Year **Start Date:** 09/24/2012 **End Date:** 06/30/2019 **Course-Level SLO Status:** Active			
Department - Computer Science (C S) - C S 40A - SOFTWARE ENGINEERING METHODOLOGIES - MVC - Design a computer program that employs the Model/View/Controller pattern (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 06/30/2013 **End Date:** 06/30/2019 **Course-Level SLO Status:** Active	**Assessment Method:** Programming assignments which require the student to implement the model/view/controller pattern. **Assessment Method Type:** Observation/Critique	09/13/2015 - Based on those assignments that addressed this SLO about 95% had an understanding that was 7/10 or better. However, these statistics don't include the drops, which occurred before week five. Overall course retention was only 60%. Instructor was fully engaged in helping students, and past experiments with an online instructional assistant, showed that this could improve retention by 20%. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	
Department - Computer Science (C S) - C S 40A - SOFTWARE ENGINEERING			

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
METHODOLOGIES - Iterative Development - Use an iterative, agile process to develop a quality software product (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 06/30/2013 **End Date:** 06/30/2019 **Course-Level SLO Status:** Active	**Assessment Method:** Assign group projects that employ the agile process and demonstrate iterative approach to designing a software product. **Assessment Method Type:** Observation/Critique	09/13/2015 - Based on those assignments that addressed this SLO about 95% had an understanding that was 7/10 or better. However, these statistics don't include the drops, which occurred before week five. Overall course retention was only 60%. Instructor was fully engaged in helping students, and past experiments with an online instructional assistant, showed that this could improve retention by 20%. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	
Department - Computer Science (C S) - C S 49 - FOUNDATIONS OF COMPUTER PROGRAMMING - Control Structures and Methods - A successful student will be able to write and debug computer programs which make use of the fundamental control structures and method-building techniques common to all programming languages. Specifically, the student will use data types, input, output, iterative, conditional, and functional components of the language in his or her programs. (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 09/24/2012 **End Date:** 06/30/2019 **Course-Level SLO Status:** Active	**Assessment Method:** Programming assignment that includes debugged source code and some evidence of a successful program run, testing the control structures and methods in the program. **Assessment Method Type:** Observation/Critique **Target for Success:** 80% of the students will get a score of 7 or better on a 10 point rubric.	09/13/2015 - Based on those assignments that addressed this SLO about 80% had an understanding that was 7/10 or better. However, these statistics don't include the drops, which occurred before week five. Overall course retention was only 55%. Instructor was fully engaged in helping students, and past experiments with an online instructional assistant, showed that this could improve retention by 20%. A handful of students did very well so it is encouraging. The students are young and old and from all backgrounds. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	
Department - Computer Science (C S) - C S 49 - FOUNDATIONS OF COMPUTER PROGRAMMING - Object Oriented Design - A successful student will be able to use object-oriented programming techniques to	**Assessment Method:** A successful student will be able to describe the algorithms used in programs by clear documentation. **Target for Success:**	09/13/2015 - Based on those assignments that addressed this SLO about 80% had an understanding that was 7/10 or better. However, these statistics don't include the drops, which occurred before week five. Overall course	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
design and implement a clear, well-structured computer program. Specifically, the student will use and design classes and objects in his or her programs. (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 09/24/2012 **End Date:** 06/30/2019 **Course-Level SLO Status:** Active	Evaluation of programs in which students achieve a score of 7 on a scale of 10. 80% of students should meet this.	retention was only 55%. Instructor was fully engaged in helping students, and past experiments with an online instructional assistant, showed that this could improve retention by 20%. A handful of students did very well so it is encouraging. The students are young and old and from all backgrounds. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	
Department - Computer Science (C S) - C S 50A - NETWORK FUNDAMENTALS (CCNA) - Network Communications - The student will demonstrate an understanding of communications between two hosts on an IP network connected by an arbitrary collection of routers and switches. The student will perform a lab experiment requiring them to analyze the flow of data between two host using Wireshark or Packet Tracer. (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Course-Level SLO Status:** Active	**Assessment Method:** The student will successfully design and configure a network **Assessment Method Type:** Observation/Critique **Target for Success:** 80% of the students will successfully complete the lab exercise	01/20/2016 - This SLO was measured by lab assignments 6 of the computer labs. The average scores were between 90%, respectively. Careful analysis of the individual assignments revealed, we met the 7/10 goal on more than 80% of the students. However, these results don't reflect an attrition of about 40% of the students (drops/withdrawals) by the sixth week of the quarter. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	
Department - Computer Science (C S) - C S 50A - NETWORK FUNDAMENTALS (CCNA) - OSI Model - The student demonstrate understanding of the role of IP addressing in the TCP/IP Network Reference Model in Networking. (Created By Department - Computer Science (C S)) **Course-Level SLO Status:** Active	**Assessment Method:** The student will be tested in chapter 6 exam on their understanding of IP address and subnet masks through the use of a multiple choice test. **Assessment Method Type:** Pre/Post Test **Target for Success:** Target for Success: 80% of the students will get a score of 70 or better on a 100 point rubric.	01/20/2016 - This SLO was measured by lab assignments 6 of the computer labs. The average scores were between 80%, respectively. Careful analysis of the individual assignments revealed, we met the 7/10 goal on more than 80% of the students. However, these results don't reflect an attrition of about 40% of the students (drops/withdrawals) by the sixth week of the quarter. **Result:** Target Met **Year This Assessment Occurred:**	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
		2014-2015	
Department - Computer Science (C S) - C S 50B - IP ROUTING PROTOCOL FUNDAMENTALS (CCNA) - Routing Protocols - The student will demonstrate the ability to configure the interior gateway routing protocols RIP, RIPv2, OSPF, and EIGRP. (Created By Department - Computer Science (C S)) **Start Date:** 09/24/2012 **Course-Level SLO Status:** Active	**Assessment Method:** The students will complete laboratory experiments design to demonstrate their understanding and ability to configure and debug network configurations employing RIP, RIPv2, OSPF, and EIGRP. **Assessment Method Type:** Observation/Critique **Target for Success:** Target for Success: 80% of the students will get a score of 7 or better on a 10 point rubric in the Lb experiments.	01/20/2016 - This SLO was measured by lab assignments 3, 4, 7, and 11 of the computer labs. The average scores were between 80%, respectively. Careful analysis of the individual assignments revealed, we met the 7/10 goal on more than 70% of the students. However, these results don't reflect an attrition of about 30% of the students (drops/withdrawals) by the sixth week of the quarter. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	
Department - Computer Science (C S) - C S 50B - IP ROUTING PROTOCOL FUNDAMENTALS (CCNA) - Selection of Interior Gateway Routing Protocols - The student will demonstrate the process of selecting the appropriate routing protocol for specific network requirements. (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 09/30/2012 **Course-Level SLO Status:** Active	**Assessment Method:** The student will perform a laboratory experiment requiring them to design a layer 3 network to satisfy specific size and performance requirements. **Assessment Method Type:** Observation/Critique **Target for Success:** Target for Success: 80% of the students will get a score of 7 or better on a 10 point rubric.	01/20/2016 - This SLO was measured by lab assignment 3 of the computer labs. The average scores was 85%. Careful analysis of the individual assignments revealed, we met the 7/10 goal on more than 80% of the students. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	
Department - Computer Science (C S) - C S 50C - THE LOCAL AREA NETWORK: ETHERNET & WIRELESS NETWORKS - LAN Design - The student will demonstrate knowledge of the Composite LAN Design Model. (Created By Department - Computer Science (C S))	**Assessment Method:** The students will be tested in a multiple choice exam which requires them to demonstrate knowledge of the Composite LAN Design Model. They will be asked to demonstrate knowledge of the purpose and use of each layer and of the tools and designed techniques to ensure reliability,		

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
Assessment Cycles: End of Academic Year **Start Date:** 09/24/2012 **Course-Level SLO Status:** Active	availability, and security in the network, **Assessment Method Type:** Pre/Post Test **Target for Success:** Target for Success: 80% of the students will get a score of 70 or better on a 100 point rubric.		
Department - Computer Science (C S) - C S 50C - THE LOCAL AREA NETWORK: ETHERNET & WIRELESS NETWORKS - Spanning Tree Protocol - The student will demonstrate knowledge of the Spanning Tree and Rapid Spanning Tree protocols. (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 09/24/2012 **Course-Level SLO Status:** Active	**Assessment Method:** The student will be given a set of criteria for the design of a network using Spanning Tree and ask to select the appropriate protocol, design the topology, and test and analyze the results. **Assessment Method Type:** Observation/Critique **Target for Success:** Target for Success: 80% of the students will get a score of 7 or better on a 10 point rubric.	01/20/2016 - This SLO was measured by questions on the chapter 5 exam. The average score was 85%. Careful analysis of the individual assignments revealed, we met the 7/10 goal on more than 80% of the students. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	
Department - Computer Science (C S) - C S 50D - INTRODUCTION TO WIDE AREA NETWORKS, NETWORK SECURITY & IP ADDRESSING SERVICES - WAN Design - The student will demonstrate knowledge of the design and configuration of Wide Area Networks utilizing point-to-point (PPP) and point-to-multipoint (Frame Relay) topologies. (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 09/24/2012 **Course-Level SLO Status:** Active	**Assessment Method:** The student will be given a specific communications requirement and asked to determine the appropriate protocol to deploy and then to design, deploy, and verify the configuration of the network. **Assessment Method Type:** Observation/Critique **Target for Success:** Target for Success: 80% of the students will get a score of 7 or better on a 10 point rubric.	01/20/2016 - This SLO was measured by exam 3. The average scores was 80%, respectively. Careful analysis of the assignment revealed, we met the 7/10 goal on more than 80% of the students. However, these results don't reflect an attrition of about 30% of the students (drops/withdrawals) by the sixth week of the quarter. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	
Department - Computer Science (C S) - C S 50D - INTRODUCTION TO WIDE AREA			

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
NETWORKS, NETWORK SECURITY & IP ADDRESSING SERVICES - Network Security - The student will demonstrate the ability to secure a local area and wide area network. (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 09/24/2012 **Course-Level SLO Status:** Active	**Assessment Method:** The students will be tested using a multiple choice exam designed to determine their knowledge of current security requirements and the deployment of secure LANs and WANs. **Assessment Method Type:** Pre/Post Test **Target for Success:** Target for Success: 80% of the students will get a score of 70 or better on a 100 point rubric.	01/20/2016 - This SLO was measured by lab assignment 3 of the computer labs. The average scores was 85%. Careful analysis of the individual assignments revealed, we met the 7/10 goal on more than 80% of the students. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	
Department - Computer Science (C S) - C S 50E - INTRODUCTION TO IP NETWORK SECURITY - Firewalls - The student will demonstrate the ability to configure and use firewalls to provide security for a campus network. (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 09/24/2012 **Course-Level SLO Status:** Active			
Department - Computer Science (C S) - C S 50E - INTRODUCTION TO IP NETWORK SECURITY - Intrusion Prevention - The student will demonstrate the configuration use of Intrusion Prevention Systems to increase the security of a campus network (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 09/24/2012 **Course-Level SLO Status:** Active	**Assessment Method:** The student will configure to the Intrusion Prevention System function on a Cisco IOS based router **Assessment Method Type:** Class/Lab Project	01/21/2016 - This SLO was measured by lab assignment 27 of the computer labs. The average score was 90%. Careful analysis of the individual assignments revealed, we met the 7/10 goal on more than 80% of the students. However, these results don't reflect an attrition of about 20% of the students (drops/withdrawals) by the sixth week of the quarter. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
Department - Computer Science (C S) - C S 52A - ADVANCED IP ROUTING PROTOCOLS & SERVICES (CCNP) - Route Maps - The student will demonstrate the use of route maps. (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 09/24/2012 **Course-Level SLO Status:** Active	**Assessment Method:** The student will perform a laboratory experiment involving route filtering for redistribution where there will use a route map to select the routes. **Assessment Method Type:** Observation/Critique **Target for Success:** Target for Success: 80% of the students will get a score of 7 or better on a 10 point rubric.	01/20/2016 - This SLO was measured by lab assignments 5 of the computer labs. The average scores was 80%. Careful analysis of the individual assignment revealed, we met the 7/10 goal on more than 80% of the students. However, these results don't reflect an attrition of about 30% of the students (drops/withdrawals) by the sixth week of the quarter. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	
Department - Computer Science (C S) - C S 52A - ADVANCED IP ROUTING PROTOCOLS & SERVICES (CCNP) - Border Gateway Protocol (BGP) - The student will demonstrate knowledge of the Border Gateway Protocol (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 09/24/2012 **Course-Level SLO Status:** Active	**Assessment Method:** The students will be tested using a multiple choice assessment which is designed to determine their knowledge of both eBGP and iBGP. The assessment will cover when to use BGP, the differences between eBGP and iBGP, and other details of the protocol. **Assessment Method Type:** Pre/Post Test **Target for Success:** Target for Success: 80% of the students will get a score of 70 or better on a 100 point rubric.	01/20/2016 - This SLO was measured by exam 8. The average scores was 85%. Careful analysis of the individual assignment revealed, we met the 7/10 goal on more than 80% of the students. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	
Department - Computer Science (C S) - C S 52B - ADVANCED SWITCHING & CAMPUS LAN DESIGN (CCNP) - Private VLANs - The student will demonstrate the application and configuration of private VLANs. (Created By Department - Computer Science (C S)) **Start Date:** 06/30/2013 **Course-Level SLO Status:**	**Assessment Method:** The student will perform a laboratory experiment requiring the use of private VLANs for traffic separation. **Target for Success:** Target for Success: 80% of the students will get a score of 7 or better on a 10 point rubric.	01/22/2016 - This course was not offered during the assessment period. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
Active			
Department - Computer Science (C S) - C S 52B - ADVANCED SWITCHING & CAMPUS LAN DESIGN (CCNP) - First Hop Redundancy Protocols - The student will demonstrate the knowledge of three first-hop redundancy protocols, HSRP, GLBP, and VRRP, (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Course-Level SLO Status:** Active	**Assessment Method:** The student will perform laboratory experiments and will be ask to choose the most appropriate protocol for the problem presented. **Assessment Method Type:** Observation/Critique **Target for Success:** Target for Success: 80% of the students will get a score of 7 or better on a 10 point rubric.		
Department - Computer Science (C S) - C S 52C - ADVANCED NETWORK TROUBLESHOOTING (CCNP) - Troubleshooting connectivity problems in a campus LAN - The student will demonstrate the ability to describe the methodology of troubleshooting and correcting connectivity problems in a campus LAN. (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 09/24/2012 **Course-Level SLO Status:** Active	**Assessment Method:** The student will be given a configured campus LAN topology and told to test connectivity among all of the LANs and make the necessary changes to the topology to ensure connectivity. The student will also be told to force a specific switch to be the STP root switch. **Assessment Method Type:** Observation/Critique **Target for Success:** Target for Success: 80% of the students will get a score of 7 or better on a 10 point rubric.	01/22/2016 - This course was not offered during the assessment period. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	
Department - Computer Science (C S) - C S 52C - ADVANCED NETWORK TROUBLESHOOTING (CCNP) - BGP Attributes - The student will demonstrate the use of BGP attributes to influence the BGP route selection decision. (Created By Department - Computer Science (C S))	**Assessment Method:** The student will be given a configured topology which is not choosing the correct routes for packet forwarding. The student will be required to troubleshoot the problem. The solution to the problem will require the student to modify the BGP attributes of the route. **Assessment Method Type:**		

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
Assessment Cycles: End of Academic Year **Start Date:** 09/24/2012 **Course-Level SLO Status:** Active	Observation/Critique **Target for Success:** Target for Success: 80% of the students will get a score of 7 or better on a 10 point rubric.		
Department - Computer Science (C S) - C S 53A - CYBERSECURITY FUNDAMENTALS - Public Key Infrastructure - A successful student will be able to demonstrate an understanding of the role certificates and be able to explain basic concepts of Key Management and Certificate Lifecycles (Created By Department - Computer Science (C S)) **Start Date:** 12/08/2014 **Course-Level SLO Status:** Active	**Assessment Method:** The student will be tested on their understanding of Key Management and Certificate Lifecycles through the use of a multiple choice test. **Assessment Method Type:** Pre/Post Test **Target for Success:** 80% of the students will score 70% or higher on the relevant questions	01/22/2016 - The class was not taught during the assessment period. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	
Department - Computer Science (C S) - C S 53A - CYBERSECURITY FUNDAMENTALS - Remote Access Security - A successful student will be able to recognize and understand the administration of basic remote access security technologies (Created By Department - Computer Science (C S)) **Start Date:** 12/08/2014 **Course-Level SLO Status:** Active	**Assessment Method:** The student will perform a laboratory experiment to successfully demonstrate their ability to recognize and understand the administration of basic remote access security technologies. **Assessment Method Type:** Observation/Critique		
Department - Computer Science (C S) - C S 53B - THREAT MANAGEMENT - Network Security Vulnerabilities - A successful student will be able to describe basic network security vulnerabilities (Created By Department - Computer Science (C S)) **Start Date:** 12/08/2014	**Assessment Method:** The student will be tested on their understanding of basic network security vulnerabilities through the use of a multiple choice test. **Assessment Method Type:** Pre/Post Test **Target for Success:**	01/22/2016 - This class was not offered during the assessment period. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
Course-Level SLO Status: Active	80% of the students will score 70% or higher on the relevant questions.		
Department - Computer Science (C S) - C S 53B - THREAT MANAGEMENT - Firewalls - A successful student will be able to apply techniques used by firewalls to counteract vulnerabilities (Created By Department - Computer Science (C S)) **Start Date:** 12/08/2014 **Course-Level SLO Status:** Active	**Assessment Method:** The student will perform a laboratory exercise to successfully demonstrate their ability the to configure a firewall. **Assessment Method Type:** Observation/Critique **Target for Success:** 80% of the students will successfully complete the lab exercise		
Department - Computer Science (C S) - C S 53C - ETHICAL HACKING - Role of the Ethical Hacker - A successful student will be able to explain what an ethical hacker can and can not do legally, and explain the credentials and roles of penetration testers (Created By Department - Computer Science (C S)) **Start Date:** 12/08/2014 **Course-Level SLO Status:** Active	**Assessment Method:** The student will be tested on their understanding of what an ethical hacker can and can not do legally, and show an understanding of the credentials and roles of penetration testers through the use of a multiple choice test **Assessment Method Type:** Pre/Post Test **Target for Success:** 80% of the students will score 70% or higher on the relevant questions	01/22/2016 - This class was not offered during the assessment period. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	
Department - Computer Science (C S) - C S 53C - ETHICAL HACKING - Footprinting - A successful student will be able to perform footprinting to learn about a company and its network (Created By Department - Computer Science (C S)) **Start Date:** 12/08/2014 **Course-Level SLO Status:** Active	**Assessment Method:** The student will perform a laboratory exercise to successfully demonstrate their ability footprint to a network. **Assessment Method Type:** Observation/Critique **Target for Success:** 80% of the students will successfully complete the lab exercise.		
Department - Computer Science (C S) - C S 53D - INTRODUCTION TO COMPUTER	**Assessment Method:** The student will be tested on their	01/22/2016 - This class was not offered during the	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
FORENSICS - Computer Forensics Professional - A successful student will be able to describe computer forensics and investigations as a profession (Created By Department - Computer Science (C S)) **Start Date:** 12/08/2014 **Course-Level SLO Status:** Active	understanding of computer forensics and investigations through the use of a multiple choice test. **Assessment Method Type:** Pre/Post Test **Target for Success:** 80% of the students will score 70% or higher on the relevant questions	assessment period. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	
Department - Computer Science (C S) - C S 53D - INTRODUCTION TO COMPUTER FORENSICS - Forensic Tools - A successful student will be able to use and classify a variety of forensic tools (Created By Department - Computer Science (C S)) **Start Date:** 12/08/2014 **Course-Level SLO Status:** Active	**Assessment Method:** The student will be tested on their understanding of forensic tools through the use of a multiple choice test. **Assessment Method Type:** Pre/Post Test **Target for Success:** 80% of the students will score 70% or higher on the relevant questions.		
Department - Computer Science (C S) - C S 54A - STORAGE AREA NETWORKS - Network Attached Storage - The student will demonstrate the use of Network Attached Storage in a data center environment (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 09/24/2012 **Course-Level SLO Status:** Active	**Assessment Method:** The student will perform a laboratory experiment requiring the configuring of a Network Attached Server (NAS) and connecting to it and sharing files from both Windows and Linux servers. **Assessment Method Type:** Observation/Critique **Target for Success:** Target for Success: 80% of the students will get a score of 7 or better on a 10 point rubric.	01/20/2016 - This SLO was measured by lab assignment 4 of the computer labs. The average scores was 1000%. Careful analysis of the individual assignments revealed, we met the 7/10 goal on more for 100% of the students. However, these results don't reflect an attrition of about 20% of the students (drops/withdrawals) by the sixth week of the quarter. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	
Department - Computer Science (C S) - C S 54A - STORAGE AREA NETWORKS - Data Backup and Recovery - The student will demonstrate the knowledge of recovery time option (RTO) and recovery point option (RPO) in backup and recovery. (Created By	**Assessment Method:** The students will take a multiple choice assessment requiring them to demonstrate their knowledge of recovery time option (RTO) and recovery point option (RPO) and to use the appropriate backup and recovery	01/20/2016 - This SLO was measured by questions on the midterm and final exams. The average score was 80%. Careful analysis of the individual assignments revealed, we met the 7/10 goal on more than 80% of the students. However,	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Course-Level SLO Status:** Active	technologies to meet the objectives. **Assessment Method Type:** Pre/Post Test **Target for Success:** Target for Success: 80% of the students will get a score of 70 or better on a 100 point rubric.	these results don't reflect an attrition of about 20% of the students (drops/withdrawals) by the sixth week of the quarter. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	
Department - Computer Science (C S) - C S 54B - VMWARE VSPHERE INSTALL, CONFIGURE, MANAGE - vMotion - The student will demonstrate the use of vMotion in a virtual infrastructure environment. (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 01/07/2013 **End Date:** 09/27/2013 **Course-Level SLO Status:** Active	**Assessment Method:** The student will configure to two ESXi hosts using Virtual Center to use vMotion to move a running virtual machine from one host to the other automatically. **Assessment Method Type:** Observation/Critique **Target for Success:** Target for Success: 80% of the students will get a score of 7 or better on a 10 point rubric.	01/20/2016 - This SLO was measured by lab assignment 6 of the computer labs. The average scores was 100%. Careful analysis of the individual assignments revealed, we met the 7/10 goal on more than 80% of the students. However, these results don't reflect an attrition of about 15% of the students (drops/withdrawals) by the sixth week of the quarter. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	
Department - Computer Science (C S) - C S 54B - VMWARE VSPHERE INSTALL, CONFIGURE, MANAGE - Distributed Virtual Switches - The student will demonstrate knowledge of the configuration and use of Virtual Distributed switches in a virtual infrastructure. (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 01/07/2013 **End Date:** 09/27/2013 **Course-Level SLO Status:** Active	**Assessment Method:** The student will take a multiple choice assessment which will determine the student's knowledge of VIrtual Distributed Switches, when to deploy them, how to configure them and and to verify their functionality. **Assessment Method Type:** Pre/Post Test **Target for Success:** Target for Success: 80% of the students will get a score of 70 or better on a 100 point rubric.	01/20/2016 - This SLO was measured by a question on the Final Exam. The average scores was 85. Careful analysis of the individual assignment revealed, we met the 7/10 goal on more than 80% of the students. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
Department - Computer Science (C S) - C S 54C - VMWARE VIEW INSTALLATION, CONFIGURATION & MANAGEMENT - Install and configure View components - The successful student will be able to install and configure the View Connection Server, Virtual desktops, Client systems, the View Composer. (Created By Department - Computer Science (C S)) **Start Date:** 12/17/2012 **Course-Level SLO Status:** Active	**Assessment Method:** The student will install and configure the View Connection Server, Virtual desktops, Client systems, the View Composer in a lab activity, **Assessment Method Type:** Class/Lab Project	01/22/2016 - This course was not offered during the assessment period. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	
Department - Computer Science (C S) - C S 54C - VMWARE VIEW INSTALLATION, CONFIGURATION & MANAGEMENT - Analyzing design choices in a VMware View deployment - The successful student will be able to analyze design choices in the following areas: View Manager infrastructure, View desktop options, vSphere infrastructure, network infrastructure, client access devices, end-user management,and construct a comprehensive View solution. (Created By Department - Computer Science (C S)) **Start Date:** 12/17/2012 **Course-Level SLO Status:** Active	**Assessment Method:** The students will take a multiple choice assessment requiring them to demonstrate their knowledge of the design choices in the following areas: View Manager infrastructure, View desktop options, vSphere infrastructure, network infrastructure, client access devices, end-user management,and construct a comprehensive View solution. **Assessment Method Type:** Exam - Course Test/Quiz		
Department - Computer Science (C S) - C S 54D - CLOUD COMPUTING - Virtual Data Centers - The student will demonstrate knowledge of the architecture of a virtual data center. (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:**	**Assessment Method:** The students will take a multiple choice assessment requiring them to demonstrate their knowledge of the architecture of a virtual data center. **Assessment Method Type:** Exam - Course Test/Quiz **Target for Success:**	01/20/2016 - This SLO was measured by a 2 questions on the Final Exam. The average scores was 90. Careful analysis of the individual assignment revealed, we met the 7/10 goal on more than 80% of the students. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
06/02/2014 **Course-Level SLO Status:** Active	Target for Success: 80% of the students will get a score of 70 or better on a 100 point rubric.		
Department - Computer Science (C S) - C S 54D - CLOUD COMPUTING - Self-Service Deployment - The student will be able to demonstrate knowledge of the requirement for self-service deployment model in a public cloud. (Created By Department - Computer Science (C S)) **Start Date:** 07/01/2014 **Course-Level SLO Status:** Active	**Assessment Method:** The students will take a multiple choice assessment requiring them to demonstrate their knowledge of the requirement for self-service deployment model in a public cloud. **Assessment Method Type:** Exam - Course Test/Quiz **Target for Success:** 80% of the students will get a score of 70 or better on a 100 point rubric.		
Department - Computer Science (C S) - C S 56A - ENTERPRISE WIRELESS LOCAL AREA NETWORKS - Autonomous Access Points and Wireless Lan Controllers - The student will demonstrate knowledge of the application and use of autonomous access points and thin access points in a wireless LAN controller environment. (Created By Department - Computer Science (C S))	**Assessment Method:** The students will take a multiple choice assessment requiring them to demonstrate their knowledge of the application and use of autonomous access points and thin access points in a wireless LAN controller environment. **Assessment Method Type:** Exam - Course Test/Quiz	01/22/2016 - This course was not offered during the assessment period. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	
Department - Computer Science (C S) - C S 56B - IT ESSENTIALS - Operating Systems - A successful student will be able to install and describe the purpose of a PC operating system (Created By Department - Computer Science (C S)) **Start Date:** 12/08/2014 **Course-Level SLO Status:** Active	**Assessment Method:** The student will perform a laboratory exercise to successfully demonstrate their ability install a PC operating system. **Assessment Method Type:** Observation/Critique **Target for Success:** 80% of the students will successfully complete the lab exercise.	01/20/2016 - This SLO was measured by lab assignments 2 & 3 of the computer labs. The average score was 90%. Careful analysis of the individual assignments revealed, we met the 7/10 goal on more than 80% of the students. However, these results don't reflect an attrition of about 20% of the students (drops/withdrawals) by the sixth week of the quarter. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
Department - Computer Science (C S) - C S 56B - IT ESSENTIALS - Laptop Computers - A successful student will be able to explain the key features and use of laptop computers (Created By Department - Computer Science (C S)) **Start Date:** 12/08/2014 **Course-Level SLO Status:** Active	**Assessment Method:** The student will be tested on their understanding of key features and uses of laptop computers through the use of a multiple choice test. **Assessment Method Type:** Exam - Course Test/Quiz **Target for Success:** 80% of the students will score 70% or higher on the relevant questions		
Department - Computer Science (C S) - C S 60A - INSTALLING & CONFIGURING WINDOWS SERVER 2012 - Active Directory Installation - The student will be able to install Active Directory Domain Services (AD DS) on a Server Core installation (Created By Department - Computer Science (C S)) **Start Date:** 12/17/2012	**Assessment Method:** The student will be tested on their ability to install Active Directory Domain Services (AD DS) on a Server Core installation. **Assessment Method Type:** Exam - Course Test/Quiz	01/20/2016 - This SLO was measured by a 3 questions on the Final Exam. The average scores was 80. Careful analysis of the individual assignment revealed, we met the 7/10 goal on more than 80% of the students. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	
Course-Level SLO Status: Active			
Department - Computer Science (C S) - C S 60A - INSTALLING & CONFIGURING WINDOWS SERVER 2012 - DHCP Deployment and Comfiguration - The student will be able to deploy and configure the Dynamic Host Configuration Protocol (DHCP) service (Created By Department - Computer Science (C S))	**Assessment Method:** The student will be tested on their knowledge of how to deploy and configure the Dynamic Host Configuration Protocol (DHCP) service **Assessment Method Type:** Exam - Course Test/Quiz		
Start Date: 12/17/2012			
Course-Level SLO Status: Active			
Department - Computer Science (C S) - C S 60B - ADMINISTERING WINDOWS SERVER 2012 - Configure File and Print Services - The student will be able to	**Assessment Method:** The student will demonstrate their ability to configure file and print services on a Windows 2012 Server. The student will also	01/20/2016 - This SLO was measured by 4 questions on the Final Exam. The average scores was 90. Careful analysis of the individual assignment revealed, we met the 7/10 goal on	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
configure file and print services on a Windows 2012 Server. This includes accessing the files and print services from a remote computer. (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 12/17/2012 **Course-Level SLO Status:** Active	be able to demonstrate their ability to access the file and print services from a remote computer. **Assessment Method Type:** Exam - Course Test/Quiz	more than 80% of the students. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	
Department - Computer Science (C S) - C S 60B - ADMINISTERING WINDOWS SERVER 2012 - Configure DNS Services - The student will be able to configure a DNS Server. This includes configuring two DNS zones and the required resource records. (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 12/17/2012 **Course-Level SLO Status:** Active	**Assessment Method:** The student will demonstrate their ability to configure a DNS Server includes configuring two DNS zones and the required resource records. **Assessment Method Type:** Exam - Course Test/Quiz		
Department - Computer Science (C S) - C S 60C - CONFIGURING ADVANCED WINDOWS SERVER 2012 SERVICES - Configure and Manage High Availability - The student will be able to demonstrate their knowledge of the configuration of Network Load Balancing (NLB) and failover clustering (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 12/17/2012 **Course-Level SLO Status:** Active	**Assessment Method:** The student will perform lab activities demonstrating the ability to configure Network Load Balancing (NLB) and failover clustering. **Assessment Method Type:** Class/Lab Project	01/22/2016 - This SLO was measured by lab assignments 6 of the computer labs. The average score was 90%. Careful analysis of the individual assignments revealed, we met the 7/10 goal on more than 80% of the students. However, these results don't reflect an attrition of about 20% of the students (drops/withdrawals) by the sixth week of the quarter. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
Department - Computer Science (C S) - C S 60C - CONFIGURING ADVANCED WINDOWS SERVER 2012 SERVICES - Implement Business Continuity and Disaster Recovery - The student will be able to demonstrate their knowledge of the configuration and management of backups, recover servers, and configure site-level fault tolerance (Created By Department - Computer Science (C S))	**Assessment Method:** The student will demonstrate their knowledge of the skills required to configure and manage backups, recover servers, and to configure site-level fault tolerance. **Assessment Method Type:** Exam - Course Test/Quiz	01/22/2016 - This SLO was measured by a 4 questions on the Final Exam. The average scores was 80. Careful analysis of the individual assignment revealed, we met the 7/10 goal on more than 80% of the students. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	
Assessment Cycles: End of Academic Year **Start Date:** 12/17/2012 **Course-Level SLO Status:** Active			
Department - Computer Science (C S) - C S 61A - CONFIGURING WINDOWS 8 - Install and Upgrade to Windows 8 - The stident will be able to evaluate hardware readiness and compatibility, install Windows 8, and migrate and configure user data on the new system. (Created By Department - Computer Science (C S))	**Assessment Method:** The students will take a multiple choice assessment requiring them to demonstrate their knowledge of the evaluation of hardware readiness and compatibility, installation of Windows 8, and migrate and the configuration user data on the new system. **Assessment Method Type:** Exam - Course Test/Quiz	01/22/2016 - This course was not offered during the assessment period. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	
Start Date: 12/17/2012 **Course-Level SLO Status:** Active			
Department - Computer Science (C S) - C S 61A - CONFIGURING WINDOWS 8 - Configure Hardware and Applications - The student will be able to configure hardware and applications, install and configure desktop applications, install and configure Windows Store applications, and control access to local hardware and applications (Created By Department - Computer Science (C S))			
Department - Computer Science (C S) - C S			

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
63A - DEVELOPING APPLICATIONS FOR IOS - Objective-C - Produce clearly written Objective-C code that solves a given problem. (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 06/30/2013 **End Date:** 06/30/2019 **Course-Level SLO Status:** Active	**Assessment Method:** Programming assignment that includes debugged source code and some evidence of a successful Objective C program run. **Assessment Method Type:** Observation/Critique		
Department - Computer Science (C S) - C S 63A - DEVELOPING APPLICATIONS FOR IOS - Persist data - Write a program that stores user data in between sessions. (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 06/30/2013 **End Date:** 06/30/2019 **Course-Level SLO Status:** Active	**Assessment Method:** Assignments that require the student to develop apps that store data between sessions.		
Department - Computer Science (C S) - C S 64A - WRITING APPS FOR THE ANDROID IN JAVA - Basic Activity Lifecycle - A successful student will be able to configure an Android SDK emulator and use it to write and debug basic apps that can be uploaded and tested on an actual Android device. (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 01/07/2013 **End Date:**	**Assessment Method:** Programming assignment that includes use of Android SDK emulator to write and debugged source code and some evidence of a successful app. **Assessment Method Type:** Observation/Critique		

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Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
06/30/2019 **Course-Level SLO Status:** Active			
Department - Computer Science (C S) - C S 64A - WRITING APPS FOR THE ANDROID IN JAVA - Apps Programming Specifics - A successful student will be able to write many different types of Android apps, making use of diverse aspects such as user interface layout, XML, the Android support library, location-awareness, 2-D and 3-D graphics, and app signing and publishing. (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 01/07/2013 **End Date:** 06/30/2019 **Course-Level SLO Status:** Active	**Assessment Method:** Several Android app assignments which cover a variety of application areas. **Assessment Method Type:** Observation/Critique		
Department - Computer Science (C S) - C S 80A - OPEN SOURCE CONTRIBUTION - Tool-Based Topics - A successful student will be able to install a Git repository and issue the various commands for checking-in, checking-out, and forking a project's source code. (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 01/07/2013 **End Date:** 06/30/2019 **Course-Level SLO Status:** Active	**Assessment Method:** Assignment that includes creation of a repository and some evidence of a successful checking-in and -out of an evolving project. **Assessment Method Type:** Observation/Critique		
Department - Computer Science (C S) - C S 80A - OPEN SOURCE CONTRIBUTION - Concept-Based Topics - A successful	**Assessment Method:** Student demonstration of membership in a public repository and productive interaction		

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
student will be able to join a team that handles the workflow of a specific open-source project and become a productive contributor to such a team. (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 01/07/2013 **End Date:** 06/30/2019 **Course-Level SLO Status:** Active	with others in the team. **Assessment Method Type:** Observation/Critique		
Department - Computer Science (C S) - C S 81A - 3-D GRAPHICS PROGRAMMING - 3D API Mastery - A successful student will be able to write code using a specific 3D API such as OpenGL that generates 3-D images and motion. Aspects of the API that will be mastered include setting up the configuration space, specifying the projection, camera positions and lighting parameters, and attaching material properties to the scene members. (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 01/07/2013 **End Date:** 06/30/2019 **Course-Level SLO Status:** Active	**Assessment Method:** Programming assignment that includes debugged source code and some evidence of a successful program that produces dynamically animated 3-D scenes through use of the OpenGL library. **Assessment Method Type:** Observation/Critique	09/13/2015 - Course was not offered in 2014/15 due to a qualified instructor to teach. Student interest is high and will offer in 2015/16 **Result:** Target Met **Year This Assessment Occurred:** 2014-2015 **Resource Request:** Hire qualified faculty.	
Department - Computer Science (C S) - C S 81A - 3-D GRAPHICS PROGRAMMING - Dynamics of 3D Scenes and Motion - A successful student will apply the mathematical tools of matrices, normal vectors and linear transformations to the design of graphics programs. (Created By Department - Computer Science (C S))	**Assessment Method:** Tests that reveal student knowledge of mathematical tools needed to write 3-D animated programs. **Assessment Method Type:** Observation/Critique	09/13/2015 - Course was not offered in 2014/15 due to a qualified instructor to teach. Student interest is high and will offer in 2015/16 **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
Assessment Cycles: End of Academic Year		**Resource Request:** Hire qualified faculty.	
Start Date: 01/07/2013 **End Date:** 06/30/2019 **Course-Level SLO Status:** Active			
Department - Computer Science (C S) - C S 82A - INTRODUCTION TO SOFTWARE QUALITY ASSURANCE - Writing a Test Plan - Write a QA test plan that reveals defects in source code (Created By Department - Computer Science (C S))	**Assessment Method:** Assignment that includes writing a QA plan for specific project specification. **Assessment Method Type:** Observation/Critique	10/26/2015 - Of the students who finished the course, 80% had a 7/10 understanding of this SLO. This class had a good retention rate of >70%. This is above average retention for our courses.	
Assessment Cycles: End of Academic Year **Start Date:** 06/30/2013 **End Date:** 06/30/2019 **Course-Level SLO Status:** Active		**Result:** Target Met **Year This Assessment Occurred:** 2014-2015	
Department - Computer Science (C S) - C S 82A - INTRODUCTION TO SOFTWARE QUALITY ASSURANCE - Testing Tools - Use test automation software (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 06/30/2013	**Assessment Method:** Assignment that includes using test automation tools for specific project specification and testing the project using those tools for success and failure.	10/26/2015 - Of the students who finished the course, 80% had a 7/10 understanding of this SLO. This class had a good retention rate of >70%. This is above average retention for our courses. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	
End Date: 06/30/2019 **Course-Level SLO Status:** Active			
Department - Computer Science (C S) - C S 83A - INTRODUCTION TO QUANTUM COMPUTING - Quantum Computing Fundamentals - A successful student will be able to apply basic mathematical tools of	**Assessment Method:** Evaluation of student performance on homework and tests that require computational proficiency in quantum mechanics and its application to quantum-bit	09/13/2015 - course being taught for first time in 15-16 so no possible reflection yet. **Result:** Target Met **Year This Assessment Occurred:**	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
quantum mechanics to describe the fundamental component of a quantum computer: the qubit. In addition, the student will be capable of describing and analyzing simple quantum circuits, and explain how they work differently from their classical binary counterparts. (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 01/07/2013 **End Date:** 06/30/2019 **Course-Level SLO Status:** Active	(qubit) logic gates. **Assessment Method Type:** Pre/Post Test	2014-2015	
Department - Computer Science (C S) - C S 83A - INTRODUCTION TO QUANTUM COMPUTING - Applications of Quantum Logic - A successful student will be able to describe and derive the fundamental algorithms of quantum computing in the areas of teleportation, superdense coding and the quantum Fourier transform. (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 01/07/2013 **End Date:** 06/30/2019 **Course-Level SLO Status:** Active	**Assessment Method:** Assignments which test the student's ability to describe and utilize quantum mechanical algorithms for computing. **Assessment Method Type:** Observation/Critique		
Department - Computer Science (C S) - C S 83B - QUANTUM COMPUTING II: FORMALISM & THEORY - Density Operator Formulation of Quantum Mechanics - A successful student will be able to use the density formulation of quantum mechanics to model non-orthogonal measurement and	**Assessment Method:** Evaluation of student performance on homework and tests that require computational proficiency in density matrices and their application to noisy quantum systems.	09/13/2015 - course being taught for first time in 16-17 so no possible reflection yet. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
environmental noise in quantum computers. (Created By Department - Computer Science (C S)) **Start Date:** 11/01/2013 **End Date:** 06/30/2019 **Course-Level SLO Status:** Active	**Assessment Method Type:** Pre/Post Test **Target for Success:** Scores of 70% or better.		
Department - Computer Science (C S) - C S 83B - QUANTUM COMPUTING II: FORMALISM & THEORY - Application to Quantum Search and Noise Reduction - The successful student will be able to write pseudocode and quantum circuits for algorithms that implement quantum search and environmental noise reduction in the quantum channels. (Created By Department - Computer Science (C S)) **Start Date:** 11/01/2013 **End Date:** 06/30/2019	**Assessment Method:** Assignments that test the student's ability to describe and utilize density matrices and tensor purifications in the modeling of search and noise reduction algorithms. **Assessment Method Type:** Observation/Critique **Target for Success:** 70% score on assignments.	09/13/2015 - course being taught for first time in 16-17 so no possible reflection yet. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	
Department - Computer Science (C S) - C S 83C - QUANTUM COMPUTING III: ADVANCED LOGIC & ALGORITHM DESIGN - Algorithm Complexity - A successful student will be able define the problem classes P and NP, and compare classical vs. quantum mechanical algorithms in this context. (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 11/01/2013 **End Date:** 06/30/2019 **Course-Level SLO Status:** Active	**Assessment Method:** Assignments which test the student's ability to categorize algorithms as being P vs. NP, and define NP-Completness. **Assessment Method Type:** Observation/Critique **Target for Success:** 70% or better on assignments.	09/13/2015 - course being taught for first time in 16-17 so no possible reflection yet. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
Department - Computer Science (C S) - C S 83C - QUANTUM COMPUTING III: ADVANCED LOGIC & ALGORITHM DESIGN - Error Correction Codes - A successful student will be able define the stabilizer code, and test whether given error correction codes satisfy certain analytically-defined bounds. (Created By Department - Computer Science (C S))	**Assessment Method:** Evaluation of student performance on homework and tests that require computational proficiency in error correction codes.	09/13/2015 - course being taught for first time in 16-17 so no possible reflection yet. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	
Assessment Cycles: End of Quarter	**Assessment Method Type:** Pre/Post Test **Target for Success:** 70% or better on tests or assignments		
Start Date: 11/01/2013 **End Date:** 06/30/2019 **Course-Level SLO Status:** Active			
Department - Computer Science (C S) - C S 84A - DATABASE-DRIVEN WEB APPLICATION DEVELOPMENT - Installation/Configuration - The student will be able to download, install, configure and test the MySQL system on a local operating system. (Created By Department - Computer Science (C S))	**Assessment Method:** Assignments which require the student to download, install, and test MySQL. **Assessment Method Type:** Observation/Critique	10/26/2015 - Course was not offered in 2014/15 due to a qualified instructor to teach. Student interest is high and will offer in 2015/16 **Result:** Target Met **Year This Assessment Occurred:** 2014-2015 **Resource Request:** Hire qualified faculty.	
Assessment Cycles: End of Academic Year			
Start Date: 06/01/2013 **End Date:** 06/30/2019 **Course-Level SLO Status:** Active			
Department - Computer Science (C S) - C S 84A - DATABASE-DRIVEN WEB APPLICATION DEVELOPMENT - PHP Scripting - The student will be able to write web pages that have PHP scripts embedded for access to MySQL databases. (Created By Department - Computer Science (C S))	**Assessment Method:** Assignments which require the student to write and deploy web pages that contain PHP code and successfully test the code in its ability to access MySQL databases. **Assessment Method Type:** Observation/Critique **Target for Success:**	10/26/2015 - Course was not offered in 2014/15 due to a qualified instructor to teach. Student interest is high and will offer in 2015/16 **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
Assessment Cycles: End of Academic Year	80% success getting > 7/10	**Resource Request:** Hire qualified faculty.	
Start Date: 06/01/2013 **End Date:** 06/30/2019 **Course-Level SLO Status:** Active	**Assessment Method:** Assignments which require the student to write and deploy data integration plans. **Assessment Method Type:** Observation/Critique **Target for Success:** 80% success getting > 7/10		
Department - Computer Science (C S) - C S 84B - DISTRIBUTED DATABASES - Design - Design a distributed database with implementation strategies to maintain transaction and concurrency control (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 11/01/2013 **End Date:** 06/30/2019 **Course-Level SLO Status:** Active	**Assessment Method:** Assignments which require the student to write transaction implementation strategies. **Assessment Method Type:** Observation/Critique **Target for Success:** 80% success getting > 7/10	10/26/2015 - Course was not offered in 2014/15 due to a qualified instructor to teach. Student interest is high and will offer in 2015/16 **Result:** Target Not Met **Year This Assessment Occurred:** 2014-2015 **Resource Request:** Hire qualified faculty.	
Department - Computer Science (C S) - C S 84B - DISTRIBUTED DATABASES - Query Processing - Develop query processing and optimization strategies for an existing distributed database design (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 11/01/2013 **End Date:** 06/30/2019 **Course-Level SLO Status:** Active	**Assessment Method:** Assignments which require the student to develop optimization strategies. **Target for Success:** 80% success getting > 7/10	10/26/2015 - Course was not offered in 2014/15 due to a qualified instructor to teach. Student interest is high and will offer in 2015/16 **Result:** Target Not Met **Year This Assessment Occurred:** 2014-2015	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
Department - Computer Science (C S) - C S 84B - DISTRIBUTED DATABASES - Replication and Integration - Develop data replication and integration plans for an existing distributed database design (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 11/01/2013 **End Date:** 06/30/2019 **Course-Level SLO Status:** Active	**Assessment Method:** Assignments which require the student to write and deploy data integration plans. **Assessment Method Type:** Observation/Critique **Target for Success:** 80% success getting > 7/10	10/26/2015 - Course was not offered in 2014/15 due to a qualified instructor to teach. Student interest is high and will offer in 2015/16 **Result:** Target Not Met **Year This Assessment Occurred:** 2014-2015	
Department - Computer Science (C S) - C S 85A - RUBY & FUNCTIONAL PROGRAMMING - Ruby Control Structures and Methods - A successful student will be able to write and debug Ruby programs which make use of the fundamental control structures and method-building techniques common to all programming languages. Specifically, the student will use data types, input, output, iterative, conditional, and functional components of the language in his or her programs. (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year **Start Date:** 07/01/2015 **End Date:** 06/30/2019	**Assessment Method:** Programming assignment that includes debugged source code and some evidence of a successful program run, testing the control structures and methods in the program. **Assessment Method Type:** Observation/Critique **Target for Success:** 80% of the students will get a score of 7 or better on a 10 point rubric.	10/26/2015 - Course was not offered in 2014/15 due to a qualified instructor to teach. Student interest is high and will offer in 2015/16 **Result:** Target Met **Year This Assessment Occurred:** 2014-2015 **Resource Request:** Hire qualified faculty.	
Department - Computer Science (C S) - C S 85A - RUBY & FUNCTIONAL PROGRAMMING - Ruby Functional Design - A successful student will be able to use functional paradigm to design and implement a clear, well-structured Ruby program. Specifically, the student will immutability,	**Assessment Method:** Programming assignment that includes debugged source code and some evidence of a successful program run, incorporating the functional paradigm in the program **Assessment Method Type:**	10/26/2015 - Course was not offered in 2014/15 due to a qualified instructor to teach. Student interest is high and will offer in 2015/16 **Result:** Target Met	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
currying, recursion and lazy evaluation in his or her programs. (Created By Department - Computer Science (C S)) **Assessment Cycles:** End of Academic Year	Observation/Critique **Target for Success:** 80% of the students will get a score of 7 or better on a 10 point rubric.	**Year This Assessment Occurred:** 2014-2015 **Resource Request:** Hire qualified faculty.	
Start Date: 07/01/2015 **End Date:** 06/30/2019 **Course-Level SLO Status:** Active			

Foothill College
Program (PSME-C S) - Computer Science AS

PL-SLOs	Means of Assessment & Target / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
Program (PSME-C S) - Computer Science AS - Software Development Expertise - The successful student will be able to develop quality, maintainable software using current tools and object oriented design techniques. **Year PL-SLO implemented:** End of Academic Year **Start Date:** 09/19/2012 **End Date:** 06/29/2018 **SLO Status:** Active	**Assessment Method:** The development of a program that follows a given set of style guidelines and satisfies the given user requirements. The student must demonstrate that the program meets the requirements, and must be prepared to answer questions about why she solved the problem the way she did. **Assessment Method Type:** Class/Lab Project **Target:** 100% of students awarded this degree must pass the assessment.	11/05/2015 - The number of students graduating in this degree, has increased when considering that the AS-T degree is now a second path that some students are taking. All graduates must satisfy this SLO in multiple courses to be awarded the degree. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015 **Resource Request:** Full Time Faculty and Support with new Course Management System	11/09/2015 - 1. Increase the number of total awards by reducing the withdrawals and failure rate in core courses and the software development course. 2. Increase success rate and graduation in targeted groups by use full-time and qualified adjunct faculty in the field of software development and OOP. 3. Increase success rate and graduation in targeted groups by placing embedded tutors in classes emphasizing software development. 4. Reduce the negative impact of a new CMS on students taking online software development and OOP-based courses either by obtaining support and resources for new online deliver paradigm or capping seat count at the published maximum so as each student gets more attention
Program (PSME-C S) - Computer Science AS - Ability to design data structures - The successful student will be able to design a complex program using different types of data structures and their corresponding algorithms. **Year PL-SLO implemented:** End of Academic Year **Start Date:**	**Assessment Method:** The development, test and modification of a program that contains complex data structures. The student must be able to tell how her chosen data structure and algorithm works, and why she chose the design that she used in the project. **Assessment Method Type:** Class/Lab Project	11/05/2015 - The number of students graduating in this degree, has increased when considering that the AS-T degree is now a second path that some students are taking. All graduates must satisfy this SLO in multiple courses to be awarded the degree. **Result:** Target Met **Year This Assessment Occurred:**	11/09/2015 - 1. Increase the number of total awards by reducing the withdrawals and failure rate in core courses utilizing data structures. 2. Increase success rate and graduation in targeted groups by use full-time and qualified adjunct faculty in the field of data structures..

PL-SLOs	Means of Assessment & Target / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
09/19/2012 **End Date:** 06/29/2018 **SLO Status:** Active	**Target:** 100% of the students earning this degree will pass this assessment.	2014-2015 **Resource Request:** More qualified faculty and support for new CMS	3. Increase success rate and graduation in targeted groups by placing embedded tutors in classes emphasizing data structures.. 4. Reduce the negative impact of a new CMS on students taking online courses utilizing data structures-based courses either by obtaining support and resources for new online deliver paradigm or capping seat count at the published maximum so as each student gets more attention
Program (PSME-C S) - Computer Science AS - Pursuit of Excellence Toward Further Education and Vocation - Each student will be exposed to topics and courses which go beyond the minimum required for graduation in order to maximize their ability to succeed in the field of computer science. The student will work cooperatively with ohter students of all levels and backgrounds, lending support to, and getting support from, other members of the college's uniquely diverse and experienced student population. **Start Date:** 11/01/2013 **End Date:** 06/29/2018 **SLO Status:** Active	**Assessment Method:** Evaluation of the optional, application-specific, assignments, which can be selected by the students based on their individual interests and goals. Evaluation of group projects in courses admitting those. Evaluation of peer support and group forum contributions **Target:** At least 70% of the students should be showing active participation in either optional/advanced assignments or engaging in forums and group participation with some passing or excelling evaluation by the instructor.	11/05/2015 - The number of students graduating in this degree, has increased when considering that the AS-T degree is now a second path that some students are taking. All graduates must satisfy this SLO in multiple courses to be awarded the degree. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015 **Resource Request:** More qualified faculty and support for new CMS	11/09/2015 - 1. Increase the number of total awards by reducing the withdrawals and failure rate in courses utilizing advanced methods and group cooperation. 2. Increase success rate and graduation in targeted groups by use full-time and qualified adjunct faculty teaching courses incorporating advanced methods and group cooperation. 3. Increase success rate and graduation in targeted groups by placing embedded tutors in classes emphasizing advanced methods and group cooperation. 4. Reduce the negative impact of a new CMS on students taking online courses utilizing advanced methods and group cooperation either by obtaining support and resources for new online deliver paradigm or capping seat count at the published maximum so as each student gets

PL-SLOs	Means of Assessment & Target / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
			more attention