LMC Comprehensive Program Review

Instructional Units

2017-2018

Program/Discipline: Computer Science

The following provides an outline of the required elements for a comprehensive unit/program review for Instructional Programs and Units. Upon completion of this report, please upload your document in the unit/program review application data/documents tab.

1. Program Changes

1.1. How have your degree and certificate offerings changed over the last 5 years? (e.g. new programs, discontinued or major changes to existing programs)

We have modified our Networking & Security (now called Information Technology) AA degree with the state's Model Curriculum. Modifications to our Computer Support Specialist AA degree and both COA's were required due to the course changes we made to support our Information Technology programs. These changes were approved by the curriculum committee and sent to the governing board in Fall 2017.

We made no changes to the Computer Science AS-T Degree, Computer Science College Skills COA, Game Design Skills Certificate, PC Repair A+ Skills Certificate, or Web Design Skills Certificate. No programs have been discontinued.

1.2. What changes are you planning to your degree and certificate offering over the next 5 years? What is the rationale for the anticipated changes? Will these changes require any additional resources?

We will continue to assess change proposals Information Technology AA Degree on an ongoing basis. There are no specific plans currently in place.

In light of the changes we already made (Information Technology) programs and the introduction of the Business Information Worker Programs (Business Department) we will should reassess the need for Computer Science College Skills COA and the PC Repair A+ Skills Certificate. These programs both internally and with the advisory board.

The Computer Science AS-T degree has recently completed the state's five-year review cycle and has made some changes that are optional. We would like to implement these changes and plan to present the changes to the curriculum committee in Spring 2018. Currently, it requires the average student more than 60 units to complete the degree. The added option allows students to complete the degree in 60. The changes will not require any additional resources.

The Game Design Skills Certificate and Web Design Skills Certificate. Need something here.

We are currently investigating the feasibility of pursuing CAE2Y Cybersecurity certification. It may require small changes to our Information Technology AA Degree. It definitely require additional non-curricular college resources. We don't know what they are at this time as we are still in the investigation process.

We do not plan on any additional degrees and certificates in the next 5 years.

2. Degree and Certificate Requirements

Please review the data provided on all degree/certificate completions in your program, including locally approved College Skills Certificates from Fall 2012—Spring 2017.

2.1. For each degree/certificate offered, map a pathway to completion of courses within the major in a maximum of 4 semesters, assuming a maximum of 6-10 units of major courses within a semester. Use the following format:

Name of Degree or Certificate				
Semester	Semester 1	Semester 2	Semester 3	Semester 4
Computer Science AS-T Degree	COMSC-122 MATH-050	COMSC-132 MATH-060 PHYS-040	COMSC-142 MATH-070 PHYS-041	MATH-160
Information Technology - COA (Basic) (Previously called Networking & Security)	COMSC-040 COMSC-010	COMSC-044 COMSC-091		

Information Technology (COA Advanced) (Previously called Networking & Security)	COMSC-040 COMSC-010	COMSC-044 COMSC-091 COMSC-012	COMSC-011 COMSC-120	
Information Technology (AS-Degree) (Previously called Networking & Security)	COMSC-040 COMSC-010 BUS-059	COMSC-044 COMSC-091 COMSC-012	COMSC-011 COMSC-120	MATH-034
Computer Support Specialist (COA Basic)	COMSC-040 COMSC-010 COMSC-091	COMSC-037 COMSC-092		
Computer Support Specialist (AS Degree and COA Advanced)	COMSC-040 COMSC-010 COMSC-091	COMSC-037 COMSC-060 COMSC-092	COMSC-061	
Computer Science College Skills (COA)	COMSC-040 COMSC-030 COMSC-031	COMSC-060 COMSC Elective	COMSC-061 COMSC Elective	C OMSC-044 COMSC Elective

Game Design (Skills Certificate)		COMSC-110	COMSC-111	COMSC-112
PC Repair A+ (Skills Certificate)	COMSC-091	COMSC-092		
Web Design (Skills Certificate)	COMSC-030 COMSC-031 COMSC-040	COMSC-032		

3. Frequency of Course Offerings

Please review the data provided on frequency of all courses offered in your discipline in the last 2 years (Fall 2015-Spring 2017).

3.1. If a course has not been offered in the past two years, but is required for a degree or certificate, please explain why it has not been offered, and what the plan is to offer it in the future.

N/A.

3.2. If the course is not required for a degree or certificate, is the course still needed in the curriculum or is the department considering deleting it?

Yes, COMSC-126.

3.3. For the next two years, project how frequently your program intends to offer each course. Please provide a rationale for any major changes from the last 2 years that you anticipate.

Course	Estimated Number of Sections Offered by Semester			
	Fall 2018	Spring 2019	Fall 2019	Spring 2020
COMSC-010	1	1	1	1
COMSC-011	1	1	1	1
COURSE 012	0	1	0	1
COMSC-030	1	0	1	0
COMSC-031	1	0	1	0
COMSC-032	0	1	0	1
COMSC-037	1	0	1	0
COMSC-040	6	5	6	5
COMSC-041	0	0	0	0
COMSC-044	1	2	1	2
COMSC-049	0	0	0	0
COMSC-051	1	1	1	1
COMSC-060	0	1	0	1
COMSC-061	0	1	0	1
COMSC-080	0	0	0	0
COMSC-091	1	1	1	1
COMSC-092	0	1	0	1
COMSC-110	0	1	0	0
COMSC-111	0	0	1	0
COMSC-112	0	0	0	1
COMSC- 120	1	0	1	0
COMSC-121	0	0	0	0
COMSC-122	2	2	2	2
COMSC-123	0	0	0	0
COMSC-126	0	0	0	0
COMSC-132	0	1	0	1
COMSC-142	1	0	1	0
Rationale for any Major Changes				

4. Existing Curriculum Analysis

4.1. Course Outline Updates

Please review the data provided on the status of COORs in your discipline. (Note: This data does not reflect courses submitted after May 2017.) For each COOR that has *not* been updated since Spring

2012, please indicate the faculty member responsible for submitting the updated COOR to the Curriculum Committee by April 18, 2018.

Course	Faculty Responsible for COOR Update
COMSC-092	James Lipscomb
COURSE 002	
COURSE 003	

4.2. Course Offerings/Content

How have your courses changed over the past 5 years (new courses, significant changes to existing courses)?	We have combined COMSC-11 & COMSC-80, into COMSC-11. We have combined COMSC-12 & COMSC-123, into COMSC-12. We have combined COMSC-90 & COMSC-91, into COMSC-91. We have added COMSC-122, COMSC-132 and COMSC-142 to implement the Computer Science AS-T degree.
How have these changes enhanced your program?	We have no data on this since we just offered the converted courses this semester.

5. New Curriculum Analysis

5.1. If you are creating new degrees or certificates in the next 5 years: (Indicate N/A if no new degrees or certificates are planned.)

What additional courses will need to be created to support the new degree or certificate?	N/A
What significant changes to existing course content would need to be made to support the new degree or certificate?	N/A

6. Advisory Board Update (For all CTE TOP coded programs)

Give an overview of the current purpose, structure, and effectiveness of your Advisory Board. Include: membership, dates of last meetings over the past two years.

Purpose	Structure	List of Members	Meeting Dates	Effectiveness

To receive input from the business community and staff. We also discuss current data , updates to programs, changes in	Faculty & Staff Department Dean Department Chair	Travis Cox Tom Canale Jeff Montanez Kit Pho Alex Worlow LouieGiambattista Clayton Smith James Spagnol Karen Stanton Michael Berringer Lucio Haro Jenny Geschwind Jim Morton Tri Vo Gail Wilson Sandy Jones	January 22, 2015 March 9, 2016	We were able to better understand what basic knowledge the industry is looking for. Also, the industry people helped determine what changes should be made to the Information Technology degree and ceriticates.

7. Assessment Effectiveness:

7.1. Course Level Assessment

Please review the data provided on assessment status of courses in your discipline in Cycle 1 (2012-2017).

7.1.1. If there were any courses that were not assessed in Cycle 1, please explain why they were not assessed.

COMSC-049, 51, 60, 80 and 120 are shown not to have been assessed but we did them and have the reports.

COMSC-122, 126, 132, 142. COMSC-122, 132 and 142 were courses that were newly developed for the Computer Science AS-T degree and were put into cohorts that had already passed.

COMSC-126 was not offered.

7.1.2. If a course was not assessed in Cycle 1 because it was not offered, what is the future of that course?

a. Delete the course
b. Market/promote the course to gain enrollments
c. Other

COMSC-126 was not offered. We will discuss the future of this course in our next advisory board meeting.

7.1.3. Course level assessment should be meaningful, measurable and manageable. Overall, reflecting on the course level assessment, please rate the degree to which you feel your assessments meet these 3M's.

For this part we would rate it a 2 across the board.

Meaningful:

1	2	3
The assessment was not meaningful in collecting data or information that supported course improvement or pedagogical changes.	The intent was understood, but the outcome fell short of meeting the objective of course assessment, which is to improve student learning. The changes to the course or pedagogy to support the course were not clear.	Changes were made to the course content or delivery to improve course effectiveness. The process promoted pedagogical dialog within the department, and changes were adopted accordingly.

Measurable:

1	2	3
The data collected did not inform teaching and learning.	The assessment produced some measurable information, but created more questions than answers.	Results were straightforward and easy to interpret. The course of action to improve the course or its delivery was clear from the data that was collected.

Manageable:

1	2	3
Assessment was not manageable.	The assessment process was somewhat manageable, but posed challenges to implement across the program.	The assessment was easily scaled across the department so that full- and part-time faculty could participate with meaningful outcomes.

7.1.4. What changes in the assessment process itself would result in more meaningful data to improve student learning?

The ability to assess a subset of CSLOs, instead all of them in courses with larger numbers of CSLOs, in order to focus on the most salient areas of instructional improvement in that course.

7.1.5. Share an outcome where assessment had a positive impact on student learning and program effectiveness.

In the Networking and Security Associate Degree sequence, higher levels of proficiency were demonstrated with "hands on" labs. With this as guidance and the establishment of the Bay Area Netlab Consortium, several courses in this degree sequence added more labs of this nature.

7.2. Program Level Assessment

7.2.1. In 2016-2017, units engaged in program level assessment. **Please submit all Program Level Assessment Reports using the link provided**. Describe one important thing you learned from your program level assessment.

Reflecting 7.1.5 above, the use of "hands on" labs, such as configuring a wireless access point, improved proficiency and completion.

7.2.2. What was the biggest challenge in conducting program level assessment?

Having similar courses of study defined as different "programs" within the meaning of PSLO assessment added to the workload with no corresponding benefit. Put another way, with so many sets of PSLOs, separating the wheat from the chaff was more difficult.

7.2.3. What resource needs, if any, were identified in your program level assessment?

The continued addition of "hands on" or more interactive course work not only for the CTE degrees/certificates, but the Computer Science Transfer Degree as well. This would require having more classes scheduled in rooms with computers.

8. Course Success/Retention Analysis

Please review the data provided on course retention and success, which has been disaggregated by as many elements as district can provide in their SQL Report

One of our college goals as stated in our Integrated Plan is to "Increase successful course completion, and term to term persistence." Our Equity Plan identifies African- American and low income students as disproportionally impacted in terms of successful course completion. (Foster youth are also disproportionately impacted on this indicator, but numbers are too small to disaggregate by discipline/program) Please indicate how well students in these groups are succeeding in your discipline.

	African-American	Low Income Students	All students in program/discipline

Completion Rate (program/discipline)	66.1%	75.1%	74.9%
Success Rate (program/discipline)	47.6%	59.6%	61.3%

8.1. In looking at disaggregated data on success/retention, is there anything else that stands out?

Completion Rate: We have had an overall 3.7% drop, a low-income drop rate of 3.2% and an African-American drop of 0.5% since 2014. So, our completion rate for these targeted groups are higher relative to the overall groups.

Success Rate: We have had an overall 2.5% drop, a low-income drop rate of 3.2% and an African-American **increase** of 4.9% since 2014. So, our completion rate for these targeted groups are higher relative to the overall groups.

8.2. What are some strategies that might help students, particularly African-American, foster youth, and low income students successfully complete courses in your discipline? What resources would be needed to implement these strategies?

Don't know at this time. It would require more thought and discussion.

9. Goals

9.1. Review your program's goals as listed in response to the final question of your 2012-2013 Comprehensive Program Review posted in the Data Repository of the PRST.

Highlight some of the key goals that were achieved over the past 5 years. What were the key elements that led to success?	**BIW & ITTP Pathways:** We successfully worked with the Business Dept. to identify responsibility for the program and select and modify the curriculum to meet the state defined program. The Business Dept. really did all the heavy lifting here. We just provided support. **Revise ICT and IT curriculum:** We collaborated with the advisory board and DVC's and CCC's departments to establish common curriculum so that students could transfer courses between colleges to complete the degree. **Develop pathways for high**

	demand courses: We have articulated many courses with several local high-schools. This could not have been with the additional staff hired for this purpose.
Were there any goals that did not go according to plan? What were the key elements that impeded the progress on these goals?	**Research and potentially develop and degree and or program in Digital Media:** We need to collaborate with the Art Dept., which we have not been able to do successfully as of yet.

9.2. Consider the College's Strategic Directions along with our Integrated Planning Goals listed here:

College Strategic Directions 2014-2019	Integrated Planning Goals
1. Increase equitable student engagement, learning, and success. **2. Strengthen community engagement and partnerships.** **3. Promote innovation, expand organizational capacity, and enhance institutional effectiveness.** **4. Invest in technology, fortify infrastructure, and enhance fiscal resources.**	**1. ACCESS: increase access through enrollment of students currently underserved in our community.** **2. IDENTIFYING PATHWAYS: Increase the number of students that define a goal and pathway by the end of their first year.** **3. COLLEGE-LEVEL TRANSITION: Increase the number of students successfully transitioning into college level math and English courses.** **4. PERSISTENCE & COMPLETION: Increase successful course completions, and term to term persistence.** **5. EQUITABLE SUCCESS: Improve the number of LMC students who earn associates degrees, certificates of achievement, transfer, or obtain career employment.** **6. LEARNING CULTURE: Enhance staff, faculty and administration's understanding and use of culturally inclusive practices/pedagogy, demonstrating empathy and compassion when working with students.**

List 3 – 5 longer term (5 year) new goals for your program. For each goal, pick 1 – 2 College Strategic Directions and/or 1 – 2 Integrated Planning Goals to which your new goal aligns.

Goals	Aligned College Strategic Direction(s)	Aligned Integrated Planning Goal(s)

Goal 1: Research and develop a Cybersecurity program.	1	2
Goal 2: Continue with ITTP Pathways development	1	2
Goal 3: Develop course for high demand pathways	1	2
Goal 4:		
Goal 5:		

OPTIONAL

9.3 Resource needs to meet five-year goals

Faculty/Staff Resource Request

Department/Unit Goal - Reference #	Strategic Objective - Reference #	
1	1	
Department/Unit Name	**Position Name/Classification**	**FTE**
Computer Science	Assistant Professor	0.6

Position Type	Funding Duration	Funding Source	Est. Salary & Benefits
☑ Faculty R/T ☐ Classified ☐ Manager ☑ Student	☑ On-going/Permanent ☐ One-time	☐ Operations (Fund 11) ☐ Other	$22,176+

Justification:

New instructor to teach Cybersecurity courses. ($???)

Student assistants are needed to keep the Drop-In lab covered so that the Computer Technician's working there will be capable of supporting the BUS, COMSC, and PTEC labs from 10am to 10pm Monday-Thursday and 10am-1pm on Fridays. ($22,176)

Operating Resource Request

Department/Unit Goal - Reference #	Strategic Objective - Reference #
Department/Unit Name	**Resource Type**

	☐ Equipment ☐ IT Hardware/Software ☐ Supplies ☐ Facility Improvement ☐ Service/Contract ☐ Other

General Description	Est. Expense

Justification:

Professional Development Resource Request

Department/Unit Goal - Reference #	Strategic Objective - Reference #
Department/Unit Name	**Resource Type**
	☐ Conference/Meeting ☐ Materials/Supplies ☐ Online Learning ☐ IT Hardware/Software ☐ Other

General Description	Est. Expense

Justification: