LMC Comprehensive Program Review

Instructional Units

2017-2018

Process Technology / PTEC

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)

No major changes have been made to the PTEC degree or certificates. Minor changes include the contextualization of physics, chemistry and math requirements.

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 are planning to introduce courses in biomanufacturing process sciences, quality assurance, Good Manufacturing Practices (cGMP), and Advanced Manufacturing.

The goal of these changes is to increase student employability and to meet industry needs. Specifically, a course in bio-manufacturing, will prepare the student to transfer to Solano Collage for a bachelor's degree in bio-manufacturing and will allow the student to enter the growing field of biotechnology.

These changes will require additional resources for faculty salaries and training, equipment, and changes to facilities.

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:

PROCESS TECHNOLOGY				
Semester	Semester 1	Semester 2	Semester 3	Semester 4
Courses Needed for Degree or Certificate.	PTEC-007 PTEC-009 PTEC-010 PTEC-012 PHYS-015	PTEC-024 PTEC-025 PTEC-035 CHEM-006	PTEC-027 PTEC-044 PTEC-045 PTEC-048 PTEC-060	

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.

NA – All courses were offered every semester

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?

NA – All courses were offered every semester

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**
PTEC-007	**2**	**2**	**2**	**2**
PTEC-009	**1**	**1**	**2**	**2**
PTEC-010	**2**	**2**	**2**	**2**
PTEC-012	**2**	**2**	**2**	**2**
PTEC-024	**1**	**1**	**1**	**1**
PTEC-025	**1**	**1**	**1**	**1**
PTEC-027	**1**	**1**	**1**	**1**
PTEC-035	**1**	**1**	**1**	**1**
PTEC-044	**1**	**1**	**1**	**1**
PTEC-045	**1**	**1**	**1**	**1**
PTEC-048	**1**	**1**	**1**	**1**
PTEC-060	**1**	**1**	**1**	**1**
PTEC-170	**1**	**1**	**1**	**1**

PTEC-180	**1**	**1**	**1**	**1**
Rationale for any Major Changes				
For PTEC-009, we are anticipating an increase in course enrollment as students become aware of the course and requirement.				

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
None	All COOR are up to date.

4.2. Course Offerings/Content

How have your courses changed over the past 5 years (new courses, significant changes to existing courses)?	In 2017 we introduced PTEC-009: PTEC Mathematics. This course contextualized the math content required to complete the program.
How do these changes improve your program?	This change improves comprehension of math and process technology principles. Increase comprehension of basic program principles can lead to increase retention and program completion.

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?	• **Biomanufacturing Process Science** • **Biomanufacturing Quality Control**

	• **Good Manufacturing Practices (cGMP)**
What significant changes to existing course content would need to be made to support the new degree or certificate?	In PTEC-044 we would need to purchase biomanufacturing simulation software.

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

The **Purpose** of the Process Technology Advisory Board is to provide guidance for the Process Technology degree offerings through Los Medanos College. And to ensure the success and credibility of the program by:

- Maintaining a partnership between Los Medanos College, local industry, and County Board of Supervisors to ensure the program meets the needs of industry
- Contributing to the Process Technology Program through the Los Medanos College Foundation
- Actively recruiting quality, diverse students into the program
- Making the PTEC program accessible and beneficial to incumbent operators
- Providing preparatory guidance for potential students
- Providing internships, job shadowing opportunities, and mentorship for students with industrial partners
- Promoting industry support in hiring of program graduates
- Promoting participation and support with local school districts
- Promoting participation and support from local unions
- Recommending enhancements to the training materials and aids
- Participating in the evaluation of the effectiveness of the program
- Suggesting information to be shared with institutions having similar programs.

Advisory Board **Structure** consist of: Industry representatives, faculty, staff, current students, program alumni, Department Dean, Department Chair, Workforce Development representatives, High School representatives, and members of the Pittsburg/Antioch community.

Board Membership includes:

Industry Representatives

- Chevron (Tom Miller, James Broker); Conoco-Phillips (Terri Finklestein); The Dow Chemical Company (George Russo); Shell Oil (David Esquibel, Bob Muller, Nick Plurkowski); Tesoro (Diana Gonzalez); Delta Diablo Sanitation (Dennis Laniohan); Calpine (Rick Lloyd).
- Workforce Development Board; George Carter (Business Service Representative)

PTEC Instructors and Staff:

- A'kilah Moore, William Cruz, Cecil Nasworthy, Jim Broker, Jim Martin, Fred Ferrante, Scott Sechler, David Kail, Tara Sanders, David Wahl

Effectiveness

Our Advisory Board has been instrumental in maintaining recruitment into the program; our industrial partners have added a PTEC degree and/or certificate as a desirable criterion for employment; donations have been made to pay for staffing a supervised tutorial; scholarships, apprenticeships, and internships have been made available to our students. And most important of all, our students are being hired and the companies hiring them are happy with their performance.

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.

PTEC-004 Process Technology Career Exploration has not been offered in the past three years. Career aspects of the course are now being taught in PTEC-060. The course is not required for the PTEC certificate or degree and was only offered online during the summer. The course was designed to generate interest in process technology as a career path and to attract students to the program.

PTEC-060 Industrial Technology Career Preparation is a required course for the PTEC certificate and degree. It is currently being offered twice per year. It is an oversight that this course was not assessed in Cycle 1 and it needs to be assessed right away.

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

The option for PTEC-004 is “Other”. We are beginning to add an online component to the program and this course may still serve a recruitment role when offered with other credit bearing courses. A decision to keep or delete the course should be made within a year.

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.

Meaningful: 3

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: 3

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: 2

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?

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

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.

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

7.2.3. What resource needs, if any, were identified in your program level assessment?
The one resource that is badly needed in the program is an administrative assistant. This resource will be key in increasing recruitment, retention, and improvement of pedagogy by allowing faculty to focus on teaching rather than non-instructional tasks. This resource can be a part-time staff serving the Industrial Technology Department (ETEC and PTEC).

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)	78.9% (FA16) 96.7% (SP17)	90.0% (FA16) 95.8% (SP17)	91.7% (FA16) 95.1% (SP17)
Success Rate (program/discipline)	71.1% (FA16) 90.0% (SP17)	78.8% (FA16) 89.4% (SP17)	81.2% (FA16) 87.5% (SP16)

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

Yes, our Spring classes have fewer students and the completion and success rates are higher for all students.

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?

Reduce the maximum size of introductory classes from 40 to 30 students. Smaller classes encourage students to ask questions, participate, and to form networking relationships. Fund our supervised tutorial, this is where students get hands-on instruction in small groups (3 to 5). These small groups bond and help each other succeed.

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?	
Were there any goals that did not go according to plan? What were the key elements that impeded the progress on these goals?	

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:		
Goal 2:		
Goal 3:		
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 #	
Department/Unit Name	**Position Name/Classification**	**FTE**
Industrial Technology/Process Technology	Part-Time Administrative Assistant	

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

Justification:

Operating Resource Request

Department/Unit Goal - Reference #	Strategic Objective - Reference #
Department/Unit Name	**Resource Type**
Industrial Technology/Process Technology	☑ 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**
Industrial Technology/Process Technology	☑ Conference/Meeting ☐ Materials/Supplies ☑ Online Learning ☐ IT Hardware/Software ☐ Other
General Description	Est. Expense
Justification:	