

# Physics/Astronomy

## 2019 Program Review

### MJC Program Review 2019

Modesto Junior College's Program Review process is divided into 3 sections:

- Program Analysis (SWOT Analysis)
- Goal Setting and Activities
- Resource Request

### Program Analysis

#### Internal Strengths

##### **1. What strengths does the analysis of student data reveal?**

Post census retention rate is considerable higher than the college average

Physics Program Student Award Trend continues upwards

##### **2. Are there specific aspects of the program that are exemplary or could serve as a model?**

Higher than college average Hispanic population

Controlling costs for our students through OER curricula and with original homework sets that are independent of the current textbook edition

##### **3. What do others see as the program's strengths?**

Quality of instruction

High rate of transfer to high quality four year institutions, such as UC Berkeley, UC Davis, UCLA, etc...

##### **4. How well are students meeting program learning outcomes, skills, or competencies; and how are they relevant to careers in your discipline or industries for which you help prepare students?**

The lab programs have high correlation with the lecture topics providing students with meaningful reinforcement of course concepts

## Internal Weaknesses

### **5. What gaps are observed by reviewing the student data?**

The white/non-Hispanic is below college averages

### **6. What disproportionate gaps need to be addressed?**

Fewer female students taking physics courses and completing transfer

### **7. What are areas in which the program could improve? (curriculum, scheduling, modality, other?)**

Physics labs require equipment and there are no equipment budgets allowed at the college. Equipment monies are not consistent for adequate instructional planning and replacement of equipment.

The physics courses must return to five credit hours, where the discussion hour is mandatory for all student and not a separate course.

### **8. Where are there gaps in the program on how students are meeting learning outcomes, skills, or competencies?**

Entering students lack critical thinking skills and studies skills to be successful in a college science program.

There is a severe lack of tutors for physics

## External Opportunities

### **9. Where are potential opportunities for expansion, improvement, or new program development?**

Strong Workforce Grant may provide opportunities for students with technical skills

If the engineering program is reinstated, there will be probable expansion in the number of students in physics courses.

### **10. What are some industry or disciplinary trends that could enhance the program?**

Increased number of STEM majors seeking skills and degrees in science related fields

## External Threats

### **11. How are changing resources, technology, employer, or transfer requirements affecting the program's ability to serve students?**

We have very strong students that are routinely denied access to California public universities because of MJC's lack of an engineering program

Transfer programs and the 60-unit limit have produced a lack of contact time with students seeking high levels of understanding and critical thinking skills in the sciences

**12. What are some current industry or disciplinary trends that could have a negative impact on the program?**

The California Student Success Initiative could prompt a reduction of academic standards

**13. What other obstacles does the program face?**

Part-time parity is poor, leaving this program with limited quality adjunct

## Goal Setting and Activities

### Goals

Program Goal	Mission Alignment	Area of Focus
Enhance problem solving skills by merging the Discussion 1 unit courses back into the lecture/lab course	Programs / Services based on Scholarship of Teaching and Learning	Curriculum
Working towards reinstating the engineering program at MJC	Programs / Services based on Scholarship of Teaching and Learning	Program Design
Continue working on offering low cost program textbook options	Innovative Education	Student Support

### Activities

Activities	In Support of Goal #	Outcome or Deliverable
Assist dean of SME and Tech Ed in developing Strong Workforce grant for offering engineering courses at MJC	Goal #2	Fall 2020
Continue to work on problem sets independent of the text books, such that students can purchase old editions.	Goal #3	Fall 2021
Continue to work with dean of SME and representatives on the Academic Senate and Curriculum Committee to reinstate five contact/four unit physics courses.	Goal #1	Fall 2021
Continue to build and revise lab program with modern and innovative equipment.	Goal #2	Fall 2021

### Resource Requests

Category	Request	Activity #	Estimated Cost
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Equipment	Physics, physical science, and astronomy labs require hardware, that is equipment. There needs to be a recognition of this simple fact that equipment budgets must be consistent and adequate. Estimated cost is yearly.	4	7500
Equipment	Astronomy Observatory telescope requires periodic maintenance, most likely every other year.	4	6000
Equipment	Observatory telescope camera requires repair.	4	3000
Personnel	Engineering Instructor	1	100000
Other	Qualified Tutors	1	5000