2016-2017 Instructional Program Review Annual Update

ENGINEERING

1. Discipline/Area Name: **ENGINEERING:MSE**	For: **2016-2017**

2. Name of person leading this review: **Jonathan Compton, Christos Valiotis (Chair)**

3. Names of all participants in this review: **Jonathan Compton, Christos Valiotis (Chair)**

4. Status Quo option: Year 1: Comprehensive review ☐ Year 2: Annual update or status quo option ☐ Year 3: Annual update ☒ Year 4: Annual update or status quo option ☐	In years two and four of the review cycle, programs may determine that the program review conducted in the previous year will guide program and district planning for another year. ☐ Check here to indicate that the program review report written last year accurately reflects program planning for the current academic year. (Only programs with no updates or changes may exercise the status quo option. All others will respond to questions 6 – 13.)

Number of Full-time Faculty 1   **Number of Part-time Faculty** 3

Data/Outcome Analysis and Use

5. **Please review the subject level data and comment on trends (more data will be available the Program Review web page):**

Indicator	2012-2013	2013-2014	2014-2015	2015-2016	Recent trends?	Comment
Enrollment #	370	425	437	535	Increase	
# of Sections offered	21	28	27	30	Increase	
# of Online Sections offered	N/A	N/A	N/A	N/A	No Change	
# of Face-to-Face Sections offered	21	28	27	30	Increase	After the development of the local degree and the establishment of the transfer agreement with CSU Long

						Beach, the number of sections increased by more than 50%.
# of Sections offered in Lancaster	21	28	27	30	Increase	
# of Sections in other locations	0	0	0	0	No Change	
# of Certificates awarded	1	1	0	0	Decrease	
# of Degrees awarded	2	1	0	0	Decrease	
Subject Success Rates	81	79	73	85	Increase	Success and retention rates were higher in 2016 after a small decrease in 2014 and 2015.
Subject Retention Rates	91	87	81	94	Increase	
Full-time Load (Full-Time FTEF)	.88	1.03	.40	1.3	Increase	
Part-time Load (Part-time FTEF)	1.5	2.08	2.83	2.07	No Change	
PT/FT FTEF Ratio	1.7	2	7.1	.63	Decrease	The program has one full time faculty and 3 part-time faculty. Due to the wide variety of specialties and associated skills that are necessary, a significant number of adjunct faculty will always be needed to operate the program.

#	Indicator	Comments and Trend Analysis
7.	If applicable, report program/area data showing the quantity of services provided over the past four years (e.g. #	

	of workshops or events offered, ed.plans developed, students served)	
8.	Student success and retention rates by equity groups within discipline	Review and interpret the subject data by race/ethnicity and gender. Identify achievement gaps. List actions that are planned to meet the Institutional Standard of **69.1%** for student success and to close achievement gaps:

Race/Ethni	20012-13	Achvmnt Gap	2013-14	Achvmnt Gap	2014-15	Achvmnt Gap	2015-16	Achvmnt Gap	All Years	Achvmnt Gap
Afr-Am	64%	**23%**	57%	**25%**	65%	**10%**	73%	**17%**	65%	**18%**
Hispanic	77%	**10%**	79%	**3%**	72%	**3%**	85%	**5%**	79%	**4%**
Other	85%		85%		79%		85%		83%	
White	87%		82%		75%		90%		83%	

(Success by race or ethnicity.)

Gender	20012-13	Achvmnt Gap	2013-14	Achvmnt Gap	2014-15	Achvmnt Gap	2015-16	Achvmnt Gap	All Years	Achvmnt Gap
Female	84%	**-4%**	81%	**-2%**	77%	**-4%**	93%	**-9%**	84%	**-5%**
Male	80%		79%		73%		84%		79%	

(Success by gender)

Success rates have increased during the 2016 academic year. We will monitor those rates in the coming years in order to ascertain whether this will become a trend. The success rate gap between Hispanics and whites has fluctuated somewhat from 2012 to 2016 and it about 4% on average for all years. The overall success rate for Hispanics at 79% is well above the institutional goal of 69.1%. The achievement gap between African American and white students shows large fluctuations with black students preforming on average 18% worse than whites. We need to explore ways to first increase the success rate of AA students above the 69.1% institutional goal, and second to close achievement gap.

Although female students are succeeding at a slightly lower rate than male students, statistically the two groups are performing

		equally. The average success rate for both groups significantly exceeds the institutional goal of 69.1%.
9.	Career Technical Education (CTE) programs: Review the labor market data on the California Employment Development Department website for jobs related to your discipline.	Comment on the occupational projections for employment in your discipline for the next two years and how the projections affect your planning: N/A

10. Cite examples of using action plans (for SLOs, PLOs, OOs, ILOs) as the basis for resource requests and how the allocation of those resources or other changes resulted in improved outcomes over the past four years.

SLO/PLO/OO/ILO	Action Plan	Current Status	Impact of Action
PLO	**Second Full Time Faculty**	Ongoing	**Based on the demand of the program, there is an apparent need for a second full-time faculty member to help facilitate more offerings to meet the revitalization of the ENGR program and to assist with the admin duties (SLOs, PLOs, Program Review, Ed Master Plan).**
PLO	**Appropriate Classrooms for Engineering**	Completed	**In the past multiple Engineering classes were held in inappropriate classrooms. All classes, such as Engr 210, have been successfully moved into appropriate classrooms and the required equipment for classroom instruction obtained through the STEM grant. Appropriate classrooms, software, and instructional equipment have been obtained as new/resurrected classes are brought on-line, such as was done with**

			Engr 125. Instructional equipment has already been obtained for Engr 215, 220, 221 through the STEM grant. This has helped not only the instructors feel confident teaching, but has aided the students by being in the correct environment for learning.
SLO	Funds needed to update ENGR lab	Completed	ENGR 130L and ENGR 220L: This update to our lab makes the students feel more confident in our ENGR program and AVC in general. We now how state of the art equipment and a new lab to go with it. Instructors do not have to spend extended amounts of time trying to get old equipment functioning while wasting valuable teaching time. We should expect an increase in the number of students that take our lab courses based on these facts.
SLO	Course prerequisite is increasing	Completed	ENGR 125: The prereq increase has better prepared students for the required math background that MATLAB programming demands. Just in one and a half semesters I have seen students being able to focus on the programming instead of math. This makes it easier for the students to understand the difficult nature of programming. This increase took place in the Fall of 2016.

11. Review the goals identified in your most recent comprehensive self-study report and any subsequent annual reports. Briefly discuss your progress in achieving those goals.

Goals/Objectives	Current Status	Impact of Action (describe any relevant measures/data used to evaluate the impact)
#1: Offer AS in Engineering-TMC at AVC	Ongoing	No action taken. The AS-T is no longer pursued by the state.
#2: Close Achievement Gaps in Success Rates Among Racial/Ethnic Groups	Ongoing	No measurable improvement so far.
Briefly discuss your progress in achieving those goals: Goal #1: There is no formal agreement to offer an AS-T statewide due to the high number of units and the large diversity among the engineering disciplines. Instead, AVC is currently exploring the option of revising the existing local engineering degree to include three different tracks: 1) Mechanical, Bio, Aero; 2) Electrical and 3) UC transfer. It is expected that the change will be completed by Spring of 2018. Goal #2: This is an ongoing effort. African American students still achieving at a much lower rate than their peers. Since this is a college wide occurrence, engineering faculty are willing to collaborate with other areas to explore ways of closing the achievement gaps of AA		

students.

Please describe how resources provided in support of previous program review contributed to program improvements: N/A

12. Based on data analysis, outcomes, program indicators, assessment and summaries, list discipline/area goals and objectives to advancing district Strategic Goals, improving outcome findings and/or increasing the completion rate of courses, certificates, degrees and transfer requirements in 2018-2019. Discipline/area goals must be guided by **district Strategic Goals** in the Educational Master Plan (EMP), p.90. They **must be supported by an outcome or other reason (e.g., health and safety, data analysis, national or professional standards, a requirement or guideline from legislation or an outside agency).**

Goal #	Discipline/area goal and objectives	Relationship to Strategic Goals* in Educational Master Plan (EMP) and/or Outcomes	Action plan(s) or steps needed to achieve the goal**	Resources needed (Y/N)?
1	**Develop three distinct transfer tracks:1) Mechanical, Aero, Bio; 2) Electrical; 3) UC general transfer**	- Other Reasons	APP reps have been contacted to initiate the process. All necessary curriculum is in place.	Yes
2	**Close Achievement Gaps in Success Rates Among Racial/Ethnic Groups**	*4. Advance more students to college-level coursework.	No specific plans are in place to address this issue. Faculty are willing to join a college-wide effort (when one begins) to collectively identify methods and resources that will help AA students succeed at higher rates.	No

Action plan verbs: **expand, reduce, maintain, eliminate, outsource, reorganize, re-engineer, study further, etc.

13. Identify significant resource needs that should be addressed currently or in near term. For each request type identify which **discipline/program goal(s) from #12 guide this need**.

Indicate which Goal(s) guide this need	Type of Request (Personnel[1], Technology[2], Physical[3], Professional development[4], Other[5])	New or Repeat Request?	Briefly describe your request here	Amount, $	One-time or Recurring Cost, $?	Contact's name
#1	Technology	New	Computer upgrades in APL 204A and B	$20,000	One-time	Jonathan Compton

[1]List needed human resources in priority order. For faculty and staffing request attach Faculty Position Request form.

[2]List needed technology resources in priority order.

[3] In priority order, list facilities/physical resources (remodels, renovations, or new) needed for safer and appropriate student learning and/or work environment.

[4]List needed professional development resources in priority order. This request will be reviewed by the professional development committee.

[5]List any other needed resources in priority order.