Santa Rosa Junior College
Program Resource Planning Process

Engineering 2019

1.1a Mission

Engineering Transfer Program Mission:

- To provide the academic and professional training for students pursuing engineering careers through course offerings and a robust range of engineering support activities and services.

- To improve the technological literacy in our general population and the awareness of the essential role engineering plays in our society and economy.

1.1b Mission Alignment

The Engineering Transfer Program aligns directly with the district's central educational mission. The program's lower division academic coursework and support services build the knowledge and skills of our engineering transfer students. The Engineering Transfer Program also plays an important role in our community's economic development and global competitiveness because of the pivotal role engineers play in those arenas. SRJC is the only academic institution in Sonoma County delivering the complete spectrum of lower division engineering coursework and thus has a crucial role to play in meeting the engineering needs of our community.

1.1c Description

The Engineering Transfer Program provides the standard core of lower division engineering courses to prepare students to transfer to four-year universities and complete an engineering bachelor's degree. The program also offers an AS degree in Engineering. Engineering is one of the largest cohorts of STEM students with about 50 engineering students trasferring each year and about 240 engineering students on campus any one semester. Our students are in demand by the top engineering schools and are extremely successful at those institutions.

In addition to developing math, science and engineering concepts and applying them to the world in which we live, the engineering courses develop analytical thinking, problem solving, visualization, design, and laboratory skills. The program has linkages with local engineering industry partners who have paid for classes, provided guest speakers and field trips, supplied internship opportunities, and built an engineering endowment.

1.1d Hours of Office Operation and Service by Location

Santa Rosa :

The engineering classes and labs are typically offered Mondays through Fridays in the Spring and Fall semesters during daytime hours on the Santa Rosa Campus. These past few years, ENGR 45 lecture (Materials) and ENGR 10 (Intro) have moved to the evenings to accomodate adjunct faculty work schedules.

Each summer, we offer a section of ENGR 10 (Intro to Engineering) and ENGR 6 (Matlab). We've offered ENGR 25 (Graphics) in the summer as well when enrollment has allowed.

Petaluma :
ENGR 10 (Intro to the Engineering Profession) was being offered on the Petaluma Campus in the Fall and Spring. It is not scheduled in Petaluma for the Fall.

1.2 Program/Unit Context and Environmental Scan

Engineering Transfer Program

High School Student & Industry Demand for Engineering
The national, regional, and local job market for engineers remains extremely strong. To meet their engineering needs, companies hire foreign engineers using the H1-B visa system (currently 59,400 per year). Both national and state-wide statistics continue to show strong student demand for engineering. The engineering education pipeline is full at every level with students eager for the training that leads to a rewarding career.

Local Program's Status and Future
In contrast, SRJC's engineering program has shrunk about 15% in recent years, counter to the trends at almost every other CCC engineering program. The fire and resulting housing crunch is one cause. Another is the retirement of the full time facutly member that was shared between engineering and physics. Most engineering classes these past five years have been taught by adjunct faculty. And budget driven reorganizations cut to a third the release time that maintained the rich variety of engineering related student enrichment programs that made ETP so successful. The next few years promise to be a bit chaotic as engineering will be spread around the west side of campus as the new STEM building is built. Yet there are some recent positive developments upon which we can build. We have a MakerSpace in Rm 1447/48 Bussman and a part time Lab SLIA specifically for engineering. We also have solid collaboration with physics faculty interested in expanding enrichment activities for our shared students with grants and other initiatives.

Project Based Instruction
A principle enrichment activity targetted for expansion this next year is to build program energy and intertest with project based educational opportunities. The Engineering & Ap Tech deparment has a light fabrication/maker space facility necessary for project based instruction and skill development (Bussman 1447/48). Friday morning open lab is available for students to work on Engr 49 projects, MESA poster projects, TEC club projects, and projects in engineering classes like ENGR 45 & ENGR 25. ENGR 770 is on the books to collect the apportionment for those activities. In the future, as budget pressures allow, we can bring back the engineering project classes: Engr 101, Engr 102, Engr 103.

Technological Literacy

An important trend in engineering education is the move to foster technological literacy of our society through the development of general education courses related to engineering. Down the road, as we move into our new facilities and budgets allow, the program hopes to expand in this area by offering the approved Engr 12 How Stuff Works course and developing the Engr 14 America's Technological Infrastructure course.

2.1a Budget Needs

No requests at this time.

2.1b Budget Requests

Rank	Location	SP	M	Amount	Brief Rationale

2.2a Current Classified Positions

Position	Hr/Wk	Mo/Yr	Job Duties
Engineering SLIA (shared with Physics)	9.00	10.00	Support Engineering Labs 9 hrs per week

2.2b Current Management/Confidential Positions

Position	Hr/Wk	Mo/Yr	Job Duties
Engineering Coordinator	2.00	10.00	Coordinate scholarships, budget, hiring, purchases, staff, student enrichment. Mentor adjunct faculty.

2.2c Current STNC/Student Worker Positions

Position	Hr/Wk	Mo/Yr	Job Duties

2.2d Adequacy and Effectiveness of Staffing

The currently staffing of the Engineering Transfer Program is adequate to maintain our current reduced offerings. Historically, the support system for the engineering labs has relied on sharing lab staff with physics, electronics, applied technology, and IT. Fortunately, those staffers are genuinely helpful people willing to help out with engineering when asked. Last year's addition of a 9 hr/wk Engineering SLIA position was important to stabilizing the patchwork lab support situation. Going into this next year, this person's top priority is to support ENGR 45 (both the migration to a new temporary facility and to support the adjunct faculty member). The second priority is to help with the expansion of engineering projects in the MakerSpace. Third is to jump in with ENGR 16 (Circuits & Devices).

Expansion of the Engineering Transfer Program will require an increase in support. The next step is to stabilize the funding for the engineering coordinator position and to increase those hours. Through the 1990's, the Engineering Transfer Program tripled in size. This was facilitated by having shared faculty with physics and 30% release time for coordinating engineering and advising engineering students. The students benefited from a much wider spectrum of engineering enrichment activities and the increase number of students drove increased enrollment in math, chemistry, and physics. The

program is participating in grants that might help move the program forward, and the college needs to step up as well.

2.2e Classified, STNC, Management Staffing Requests

Rank	Location	SP	M	Current Title	Proposed Title	Type
0001	Santa Rosa	02	07	Engineering Coordinator (2 hr/wk, from chair load)	Engineering Coordinator (4 hrs/wk, funded)	Unknown

2.3a Current Contract Faculty Positions

Position	Description
Engineering	Engineering transfer focus, qualified in physics & ap tech.

2.3b Full-Time and Part-Time Ratios

Discipline	FTEF Reg	% Reg Load	FTEF Adj	% Adj Load	Description
Engineering	1.0000	45.4500	1.2000	54.5400	

2.3c Faculty Within Retirement Range

The lone FT engineering faculty member is of retirement age, but won't likely retire for another 8 years.

2.3d Analysis of Faculty Staffing Needs and Rationale to Support Requests

The Engineering Transfer Program has an urgent need for increased full time faculty support, if we are to improve and expand the program. The tasks involved in supporting a complicated set of engineering disciplines with many students and adjunct faculty is a heavy load for just one full time faculty member. A strong program needs more full time involvement expecially if it hopes to grow. The effective historical system at SRJC (and at most other CCC's) was to put engineering in the same department with physics and hire at least one FT faculty member that could teach in both. A few colleges have engineering with technology and those college's would also hire faculty that could teach in both areas. Unfortunately, I don't see the path to increased FT engineering faculty; the best I can see is to forge stronger connections with the physics faculty who share in the education of our engineering students.

2.3e Faculty Staffing Requests

Rank	Location	SP	M	Discipline	SLO Assessment Rationale

2.4b Rationale for Instructional and Non-Instructional Equipment, Technology, and Software

The Engineering Transfer Program's top priority is to make gradual progress on refurbishing the materials lab in preparation for the move to temporary facilities and then to the new building. We've surplused the large Tinius Olsen Tensile tester and have only one desktop replacement. We are looking to build to a set of 4. The next priority is to begin replacing the damaged microscopes and add image/video capture capability. Sample presses have moved to a lower priority as we have a donated automated sample maker that we are bringing online.

2.4c Instructional Equipment Requests

Rank	Location	SP	M	Item Description	Qty	Cost Each	Total Cost	Requestor	Room/Space	Contact
0001	Santa Rosa	02	01	Tensile Tester, Pasco ME 8236 (to make 3)	2	$2,900.00	$5,800.00	Vince Bertsch	2039	Vince Bertsch
0002	Santa Rosa	02	01	Microscope w video capture	1	$700.00	$700.00	Vince Bertsch	2039	Vince Bertsch
0003	Santa Rosa	02	01	Tensile Tester, Pasco ME 8236 (to make 4)	1	$2,900.00	$2,900.00	Vince Bertsch	2039	Vince Bertsch
0004	Santa Rosa	02	01	Sample Press (to make 4)	2	$2,200.00	$4,400.00	Vince Bertsch	2039	Vince Bertsch

2.4d Non-Instructional Equipment and Technology Requests

Rank	Location	SP	M	Item Description	Qty	Cost Each	Total Cost	Requestor	Room/Space	Contact

2.5a Minor Facilities Requests

Rank	Location	SP	M	Time Frame	Building	Room Number	Est. Cost	Description

2.5b Analysis of Existing Facilities

No requests at this time. The program is transitioning into temporary facilities while the new STEM building is under construction.

3.1 Develop Financial Resources

The engineering faculty member is continuing his involvement with the MILES S-STEM grant and participating in the planning for the next NSF HSI related grant. Another area that has been very effective in the past, is financing from our local industry to support student enrichment, scholarships, and even pay to reinstate cut classes. Tappingg into that resource may require increased FT faculty involvement.

3.2 Serve our Diverse Communities

The Engineering Transfer Program has seen a significant demographic shift over the past 5 years from 20% Hispanic to about 33% Hispanic. Enrollments by women in the program hovers at about 15% down significantly from the 25% of a decade ago. The program hopes to launch a SHPE chapter and relaunch the SWE chapter in September. Diversity of our faculty took a hit these past two years as two faculty withdrew to care for children and parents. Restoring diversity to our adjunct faculty ranks may be challenging with the limitations of our contract and a flat schedule size.

5.7a Students Served - by Ethnicity The number of students in each Discipline at first census broken down by ethnicity (duplicated headcount).

Engineering, All Locations	Ethnicity	2015-16	Percent	2016-17	Percent	2017-18	Percent	2018-19	Percent
	White	219	56.4%	164	47.7%	172	43.4%	168	44.3%
	Asian	33	8.5%	34	9.9%	37	9.3%	23	6.1%
	Black	12	3.1%	1	0.3%	13	3.3%	8	2.1%
	Hispanic	92	23.7%	103	29.9%	135	34.1%	124	32.7%
	Native American	1	0.3%	0	0.0%	1	0.3%	0	0.0%
	Pacific Islander	0	0.0%	1	0.3%	0	0.0%	0	0.0%
	Filipino	7	1.8%	5	1.5%	4	1.0%	7	1.8%
	Other Non-White	23	5.9%	25	7.3%	14	3.5%	22	5.8%
	Decline to state	1	0.3%	11	3.2%	20	5.1%	27	7.1%
	ALL Ethnicities	**388**	**100.0%**	**344**	**100.0%**	**396**	**100.0%**	**379**	**100.0%**

5.7b Students Served - by Gender The number of students in each Discipline at first census broken down by gender (duplicated headcount).

Engineering, All Locations	Gender	2015-16	Percent	2016-17	Percent	2017-18	Percent	2018-19	Percent
	Male	320	82.5%	294	85.5%	328	82.8%	314	82.8%
	Female	61	15.7%	43	12.5%	61	15.4%	53	14.0%
	Unknown	7	1.8%	7	2.0%	7	1.8%	12	3.2%
	ALL Genders	**388**	**100.0%**	**344**	**100.0%**	**396**	**100.0%**	**379**	**100.0%**

5.7c Students Served - by Age The number of students in each Discipline at first census broken down by age (duplicated headcount).

Engineering, All Locations	Age Range	2015-16	Percent	2016-17	Percent	2017-18	Percent	2018-19	Percent
	0 thru 18	61	15.7%	65	18.9%	76	19.2%	84	22.2%
	19 and 20	113	29.1%	133	38.7%	111	28.0%	108	28.5%
	21 thru 25	131	33.8%	101	29.4%	145	36.6%	124	32.7%
	26 thru 30	52	13.4%	26	7.6%	34	8.6%	36	9.5%
	31 thru 35	17	4.4%	7	2.0%	21	5.3%	20	5.3%
	36 thru 40	8	2.1%	7	2.0%	3	0.8%	3	0.8%
	41 thru 45	4	1.0%	3	0.9%	2	0.5%	1	0.3%
	46 thru 50	0	0.0%	0	0.0%	1	0.3%	1	0.3%
	51 thru 60	2	0.5%	2	0.6%	2	0.5%	2	0.5%
	61 plus	0	0.0%	0	0.0%	1	0.3%	0	0.0%
	ALL Ages	**388**	**100.0%**	**344**	**100.0%**	**396**	**100.0%**	**379**	**100.0%**

3.3 Cultivate a Healthy Organization

The Engineering Transfer Program would greatly benefit from more interaction between the engineering faculty.

3.4 Safety and Emergency Preparedness

Handled at the department level. See the Applied Technology PRPP.

3.5 Establish a Culture of Sustainability

Handled at the department level. See the Applied Technology PRPP.

4.1a Course Student Learning Outcomes Assessment

All the engineering courses have up-to-date COR's with SLO's. All engineering SLO assessments were completed during the last 6 year cycle. For this cylce, three courses have been assessed (27%): ENGR 16, 34, 6. SLO still to be completed: ENGR 10, 25, 45, 49, 770, as well as courses that have not been scheduled recently: ENGR 101, 102, 103. Progress on SLO Assessments will be made this year, after our transition to new facilities. Top priorities are: Program SLO Assessment (with data collected last Spring) and ENGR 25 SLO Assessment (in conjunction with COR update due this year). The next good candidates are ENGR 49 & 770 which should have ramped up utilization this year and ENGR 10 which will likely be taught by the full timer Spring 2020.

4.1b Program Student Learning Outcomes Assessment

Engineering Transfer Program SLO's are incorporated into the Engineering Major (Approved by state: 7/15/09). The program's SLO's align closely with ABET (Accrediting Board for Engineering and Technology) and university articulation requirements. Program SLO Assessment was completed in Summer 2011. Data was collected in Spring 2015 and Spring 2019 to complete this cycle's Program SLO Assessment during the Summer of 2019.

4.1c Student Learning Outcomes Reporting

Type	Name	Student Assessment Implemented	Assessment Results Analyzed	Change Implemented
Course	Engr 6 Matlab Programming	Spring 2014	Spring 2014	N/A
Course	Engr 10 Intro to Engineering	Spring 2014	Spring 2014	N/A
Course	Engr 16 Circuits and Devices	Spring 2014	Spring 2014	N/A
Course	Engr 25 Engineering Graphics	Fall 2013	Fall 2013	N/A
Course	Engr 34 Statics	Fall 2013	Fall 2013	N/A
Course	Engr 45 Engineering Materials	Fall 2013	Fall 2013	N/A
Course	Engr 49 Independent Study	Spring 2014	Spring 2014	N/A
Course	Engr 101 Design Project	Fall 2012	Fall 2012	N/A
Course	Engr 102 Robotics Project	Fall 2013	Fall 2013	N/A
Course	Engr 770 Suppl Instructr E&AT	N/A	N/A	N/A

4.2a Key Courses or Services that address Institutional Outcomes

Course/Service	1a	1b	1c	2a	2b	2c	2d	3a	3b	4a	4b	5	6a	6b	6c	7
Engineering Job Shadow Program				X				X	X							X
ENGR 10		X		X	X		X	X	X	X		X	X	X		X
ENGR 101	X	X		X				X	X	X	X	X				
ENGR 102	X	X		X				X	X	X	X	X				
ENGR 770		X			X		X			X		X				X
The Engineer's Club				X	X							X				X

4.2b Narrative (Optional)

5.0 Performance Measures

The Engineering Transfer Program has a strong record of successful preparation and transfer of students to 4-year institutions. The program has consistenly high course fill and completion rates. The program's productivity numbers remain lower than the 17.5 FTES/FTEF metric because of small class sizes and single course offerings each semester. Of concern is the ~20% decline in enrollment over the past four years; imperiling course offerings. This reduction is only partly accounted for in the enrollment reductions across campus caused by demographic shifts and the fires. The other factors that have influenced this decline include:
1) Retiring of the FT shared faculty between engineering and physics. This increased the workload of the sole remaining FT faculty member through increase adjunct mentoring needs and consolidation of all program coordination tasks.
2) Reduction of coordination time for engineering with the merger into Applied Technology.
3) Increased inefficiencies and disruption of student cohorts with the split between Engineering and Physics.
4) Sabatical leave of the lone FT engineering faculty. (now solved)
5) Shift of lone FT engineering faculty to chair the Engr&ApTech Department. (now solved)

5.1 Student Headcounts The number of students enrolled in each Discipline at first census (duplicated headcount).

Engineering	X2015	F2015	S2016	X2016	F2016	S2017	X2017	F2017	S2018	X2018	F2018	S2019
Santa Rosa Campus	26	180	184	54	150	168	79	159	163	70	155	
Petaluma Campus	0	22	23	0	30	16	0	29	23	0	23	
All Locations	26	202	207	54	180	184	79	188	186	70	178	149

5.1 Effective Class Schedule: Course Offerings, Times, Locations, and Delivery Modes (annual)

The Engineering Transfer Program effectively schedules classes. The greatest scheduling challenge is avoiding conflicts between the engineering and physics classes. Coordination could be improved. Another challenge is accomodating adjunct faculty's limited availability. Most adjunct's have full time jobs and that pushes engineering classes into the evenings. Most engineering students also have 7 or 7:30 AM math classes.

5.2a Enrollment Efficiency

The Engineering Transfer Program's enrollment efficiency has dipped this past year, reflecting our drop in enrollment. Petaluma has always had lower percentages, and that one class (ENGR 10) has now been cancelled (despite mid 20's enrollment numbers). As a result, we will be turning away students each semester from the ENGR 10 course as we only have three sections (Fall, Spring, Summer, all on SR Campus).

Engineering	X2015	F2015	S2016	X2016	F2016	S2017	X2017	F2017	S2018	X2018	F2018	S2019
Santa Rosa Campus	72.2%	97.8%	115.0%	64.3%	89.3%	105.0%	98.8%	94.6%	90.3%	83.3%	92.3%	
Petaluma Campus	0.0%	61.1%	76.7%	0.0%	83.3%	53.3%	0.0%	80.6%	76.7%	0.0%	63.9%	
All Locations	72.2%	91.8%	108.9%	64.3%	88.2%	96.8%	98.8%	92.2%	88.3%	83.3%	87.3%	

5.2b Average Class Size

The Engineering Trasfer Program's average class size has moved down slightly.

Engineering	X2015	F2015	S2016	X2016	F2016	S2017	X2017	F2017	S2018	X2018	F2018	S2019
Santa Rosa Campus	26.0	22.5	26.3	18.0	21.4	24.0	26.3	22.7	19.9	23.3	22.1	
Petaluma Campus	0.0	22.0	23.0	0.0	30.0	16.0	0.0	29.0	23.0	0.0	23.0	
All Locations	26.0	22.4	25.9	18.0	22.5	23.0	26.3	23.5	20.2	23.3	22.3	

5.3 Instructional Productivity

The Engineering Transfer Program's instructional productivity shows similar slight declines.

Engineering Santa Rosa		X2015	F2015	S2016	X2016	F2016	S2017	X2017	F2017	S2018	X2018	F2018	S2019
	FTES	1.19	22.30	23.86	4.54	17.33	21.55	6.45	18.45	20.34	5.32	21.93	
	FTEF	0.10	1.72	1.54	0.54	1.60	1.55	0.54	1.63	1.71	0.54	1.81	
	Ratio	**12.01**	**12.93**	**15.48**	**8.49**	**10.83**	**13.92**	**11.89**	**11.30**	**11.93**	**9.79**	**12.14**	

Engineering Petaluma Campus		X2015	F2015	S2016	X2016	F2016	S2017	X2017	F2017	S2018	X2018	F2018	S2019
	FTES	0.00	1.17	1.23	0.00	1.60	0.85	0.00	1.55	1.23	0.00	1.53	
	FTEF	0.00	0.10	0.10	0.00	0.10	0.10	0.00	0.10	0.10	0.00	0.13	
	Ratio	**0.00**	**11.73**	**12.27**	**0.00**	**16.00**	**8.53**	**0.00**	**15.47**	**12.27**	**0.00**	**11.50**	

Engineering All Locations		X2015	F2015	S2016	X2016	F2016	S2017	X2017	F2017	S2018	X2018	F2018	S2019
	FTES	1.19	23.47	25.09	4.54	18.93	22.40	6.45	19.99	21.57	5.32	23.46	
	FTEF	0.10	1.82	1.64	0.54	1.70	1.65	0.54	1.73	1.81	0.54	1.94	
	Ratio	**12.01**	**12.86**	**15.29**	**8.49**	**11.14**	**13.60**	**11.89**	**11.54**	**11.95**	**9.79**	**12.10**	

5.4 Curriculum Currency

The Engineering Transfer Program's curriculum is up to date, but does have 4 courses due for review in the coming year.

5.5 Successful Program Completion

The Engineering Transfer Program has a terrific track record of student completion success. CSU & UC databases for 2017-2018 report 33 transfers to the CSU system and 32 transfers to the UC system. Some students also transfer to private and out-of-state colleges. The program also awards AS degrees these past 4 years at the following rates: 17, 14, 22, 22.

5.6 Student Success

The Engineering Transfer Program has solid retention and completion numbers.

5.6a Retention The percentage of students receiving a grade of A,B,C,D,CR, or I in each Discipline (duplicated headcount).

Engineering	X2015	F2015	S2016	X2016	F2016	S2017	X2017	F2017	S2018	X2018	F2018	S2019
Santa Rosa Campus	84.6%	81.1%	91.3%	82.7%	74.2%	76.2%	87.2%	88.5%	79.6%	0.0%	82.7%	
Petaluma Campus	0.0%	63.6%	75.0%	0.0%	76.7%	62.5%	0.0%	89.7%	69.6%	0.0%	78.3%	
All Locations	84.6%	79.2%	89.4%	82.7%	74.6%	75.0%	87.2%	88.6%	78.4%	0.0%	82.1%	

5.6b Successful Course Completion The percentage of students receiving a grade of A,B,C, or CR in each Discipline (duplicated headcount).

Engineering	X2015	F2015	S2016	X2016	F2016	S2017	X2017	F2017	S2018	X2018	F2018	S2019
Santa Rosa Campus	84.6%	75.0%	90.2%	82.7%	71.5%	74.4%	85.9%	84.6%	77.2%	0.0%	80.1%	
Petaluma Campus	0.0%	63.6%	75.0%	0.0%	76.7%	62.5%	0.0%	89.7%	69.6%	0.0%	78.3%	
All Locations	84.6%	73.8%	88.5%	82.7%	72.4%	73.4%	85.9%	85.4%	76.2%	0.0%	79.9%	

5.6c Grade Point Average The average GPA in each Discipline (UnitsTotal / GradePoints).

Engineering	X2015	F2015	S2016	X2016	F2016	S2017	X2017	F2017	S2018	X2018	F2018	S2019
Santa Rosa Campus	3.08	3.00	3.30	3.27	2.92	2.71	3.31	3.07	2.88	0.00	2.87	
Petaluma Campus	0.00	3.53	3.37	0.00	2.73	3.36	0.00	3.88	3.50	0.00	3.25	
All Locations	3.08	3.03	3.30	3.27	2.90	2.74	3.31	3.14	2.91	0.00	2.90	

5.7 Student Access

The Engineering Transfer Program has seen a significant demographic shift over the past 5 years from 20% Hispanic to about 33% Hispanic. Enrollments by women in the program hovers at about 15% down significantly from the 25% of a decade ago. The program hopes to launch a SHPE chapter and relaunch the SWE chapter in September. Diversity of our faculty took a hit these past two years as two faculty withdrew to care for children and parents. Restoring diversity to our adjunct faculty ranks may be challenging with the limitations of our contract and a flat schedule size.

5.7a Students Served - by Ethnicity The number of students in each Discipline at first census broken down by ethnicity (duplicated headcount).

Engineering, All Locations	Ethnicity	2015-16	Percent	2016-17	Percent	2017-18	Percent	2018-19	Percent
	White	219	56.4%	164	47.7%	172	43.4%	168	44.3%
	Asian	33	8.5%	34	9.9%	37	9.3%	23	6.1%
	Black	12	3.1%	1	0.3%	13	3.3%	8	2.1%
	Hispanic	92	23.7%	103	29.9%	135	34.1%	124	32.7%
	Native American	1	0.3%	0	0.0%	1	0.3%	0	0.0%
	Pacific Islander	0	0.0%	1	0.3%	0	0.0%	0	0.0%
	Filipino	7	1.8%	5	1.5%	4	1.0%	7	1.8%
	Other Non-White	23	5.9%	25	7.3%	14	3.5%	22	5.8%
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5.7b Students Served - by Gender The number of students in each Discipline at first census broken down by gender (duplicated headcount).

Engineering, All Locations	Gender	2015-16	Percent	2016-17	Percent	2017-18	Percent	2018-19	Percent
	Male	320	82.5%	294	85.5%	328	82.8%	314	82.8%
	Female	61	15.7%	43	12.5%	61	15.4%	53	14.0%
	Unknown	7	1.8%	7	2.0%	7	1.8%	12	3.2%
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5.7c Students Served - by Age The number of students in each Discipline at first census broken down by age (duplicated headcount).

Engineering, All Locations	Age Range	2015-16	Percent	2016-17	Percent	2017-18	Percent	2018-19	Percent
	0 thru 18	61	15.7%	65	18.9%	76	19.2%	84	22.2%
	19 and 20	113	29.1%	133	38.7%	111	28.0%	108	28.5%
	21 thru 25	131	33.8%	101	29.4%	145	36.6%	124	32.7%
	26 thru 30	52	13.4%	26	7.6%	34	8.6%	36	9.5%
	31 thru 35	17	4.4%	7	2.0%	21	5.3%	20	5.3%
	36 thru 40	8	2.1%	7	2.0%	3	0.8%	3	0.8%
	41 thru 45	4	1.0%	3	0.9%	2	0.5%	1	0.3%
	46 thru 50	0	0.0%	0	0.0%	1	0.3%	1	0.3%
	51 thru 60	2	0.5%	2	0.6%	2	0.5%	2	0.5%
	61 plus	0	0.0%	0	0.0%	1	0.3%	0	0.0%
	ALL Ages	**388**	**100.0%**	**344**	**100.0%**	**396**	**100.0%**	**379**	**100.0%**

5.8 Curriculum Offered Within Reasonable Time Frame

The Engineering Transfer Program is offering the central core courses of our program in a reasonalbe time frame (all core courses offered Fall and Spring, a few of the 1 year classes in the Summer as well). Unfortunately, the engineering offerings related to project and GE have been shelved due to schedule reductions. These classes have always filled, but are not required for students to complete their transfer requirements.

5.9a Curriculum Responsiveness

The Engineering Transfer Program has membership on the Engineering Liaison Council, the consortium that meets twice yearly to coordinate engineering education for all of California. Through this participation, our curriculum is responsive to the changing expectations of the university programs. Equally important to our students' professional success are the enrichment activities that have been curtailed over the past decade. It will take some effort and some additional grant and district resources if we are to return to our college's former position as an innovative, leading engineering program in the state.

5.9b Alignment with High Schools (Tech-Prep ONLY)

Engineering is not a Tech-Prep program.

5.10 Alignment with Transfer Institutions (Transfer Majors ONLY)

The Engineering Transfer Program aligns well with transfer institutions. We have articulation agreements with Cal Poly SLO, UCD, UCB, UCLA, Chico, Sacramento, San Diego St.... We transfer over 60 students a year.

5.11a Labor Market Demand (Occupational Programs ONLY)

Engineering is not an occupational program.

5.11b Academic Standards

The Engineering Transfer Program maintains high academic standards.

5.6c Grade Point Average The average GPA in each Discipline (UnitsTotal / GradePoints).

Engineering	X2015	F2015	S2016	X2016	F2016	S2017	X2017	F2017	S2018	X2018	F2018	S2019
Santa Rosa Campus	3.08	3.00	3.30	3.27	2.92	2.71	3.31	3.07	2.88	0.00	2.87	
Petaluma Campus	0.00	3.53	3.37	0.00	2.73	3.36	0.00	3.88	3.50	0.00	3.25	
All Locations	3.08	3.03	3.30	3.27	2.90	2.74	3.31	3.14	2.91	0.00	2.90	

6.1 Progress and Accomplishments Since Last Program/Unit Review

Rank	Location	SP	M	Goal	Objective	Time Frame	Progress to Date
0001	Santa Rosa	02	01	Increase staff support to meet the student & program needs.	Engineering Lab Support	Fall 2018	9 hr per week Lab SLIA hired (also 9 hrs for physics)
0001	Santa Rosa	02	01	Increase staff support to meet the student & program needs.	Increased engineering coordinator time (from 2hr/wk to 4hr/wk)	Fall 2018	No increase, 2hr/wk level donated by E&AT chair per tradition
0002	Santa Rosa	02	01	Increase the number of full time faculty to meet student and program needs.	Improve our FT/PT ratio, (~50% for engineering)	Spring 2019	No new hire awarded.
0006	Santa Rosa	02	01	Implement facilities plans.	Faculty involvement in new building & swing space planning	2018-2019	Accomplished with volunteer faculty time.
0007	Santa Rosa	02	01	Utilize grant and foundation money.	Tap into Keysight, Foundation, and grant funding	2018-2019	Participated in S-STEM grant

0008	Santa Rosa	02	01	Continue adjunct hire processes.	Conduct Engr/ApTech adjunct hire process each semester.	Ongoing	Dec 2018 adjunct hire cycle for engineering, gave 1 assignment to new adjunct Ramone Hecker.
0009	Santa Rosa	02	01	Restart SLO assessments after a 2 year break.	2 each X 4 FT faculty over Summer, 8 in Fall, 8 in Spring	Ongoing	Only 10% progress.
0010	Santa Rosa	02	01	Program recruitment and outreach.	Website upgrade, program displays, program brochures.	2018-2019	Separate Engineering website established.
0011	Santa Rosa	02	01	Build auxiliary student programs.	Streamline scholarship programs, maintain MESA link, grow student clubs (TEC, Robotics, SWE, other).	Ongoing	Scholarships, MESA, TEC weakly maintained, Robotics & SWE not brought back.

6.2b PRPP Editor Feedback - Optional

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6.3a Annual Unit Plan

Rank	Location	SP	M	Goal	Objective	Time Frame	Resources Required
0001	Santa Rosa	02	01	Permatize & increase Engineering Coordinator Release Time	Fund the 5% Engr Coord directly from distric funds rather than by chari load donation. Increase from 5% to 10% release time.	2019-2010	District Funding
0002	Santa Rosa	02	01	Outfit temp materials lab with sufficient equipment	Need 2 more Pasco Tensile Testers ME 8236	Fall 2019	District IELM funding
0003	Santa Rosa	02	01	Increase full time faculty presence in the program	A shared faculty member or improved connection to Physics.	2019-2020	District Reorg
0004	Santa Rosa	02	01	Migrate to temporary facilities	Move to faculty offices, temp materials lab, new classrooms.	Fall 2019	Facutly and staff time
0005	Santa Rosa	02	01	Curriculum COR Updates, 4 classes	COR updates for 4 classes.	2019-2020	District funding or support for adjunct faculty efforts
0006	Santa Rosa	02	01	Student Learning Outcomes Assessment progress	Complete 2 more SLO Assessments this year.	2019-2020	District funding or support for adjunct faculty efforts
0007	Santa Rosa	02	01	Student Engineering Society Memberships	Recruit for and fund both SWE and SHPE student memberships	Fall 2019	Faculty and staff time, foundation resources
0008	Santa Rosa	02	01	Friday Makerspace Program expansion	Bring in more faculty, staff and students. Make Engr 770 a regular and productive activity.	2019-2020	Faculty and staff time, foundation resources
0009	Santa Rosa	02	01	Expand Engineering Enrichment Actvities	Participate in S-STEM Grant, MESA Activities, TEC club	2019-2020	Faculty and staff time, foundation resources