

1. Assessment Plan - Four Column



PIE - Natural Sciences: Physics & Engineering Unit

Narrative Reporting Year

2017-18

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Program Planning Dialog: PENG is successfully offering more than 50 distinct lecture and laboratory courses. There is more demand for credit courses in physics and engineering than there are rooms, staff, equipment, and qualified faculty. Long waitlists in introductory courses show the strong demand for courses in the department. The department has a strong legacy of successful transfer as the top engineering transfer program in California and the department is always looking to improve retention and success. The continued success of the robotics and rocketry teams and their impact on student research and student transfer is a point of pride for the department. The continued integration engineering program courses with makerspace is having a positive effect on engineering program outcomes. There is strong demand for certificated engineering technicians across several engineering disciplines and the department is poised to support students in their workforce aspirations. The department has been fortunate to receive significant one time money to support laboratories and course equipment. However, there are insufficient resources to sustain the current levels of course offerings and student activity. The PENG department lacks resources to complete any additional work on workforce preparation unless the college elects to support those efforts particularly with staff, and ongoing budgets for supplies and equipment.

External Conditions, Trends, or Impacts: Increased demand for engineering technicians. Growth of automation in local economy requires more technology workers. CPP is transitioning from a quarter to semester system with significant curricular changes. Increased numbers of students interested in engineering careers. Engineering majors are more impacted at 4 year institutions. ASSIST is not being updated leaving a gap in transfer information. Special admission requirements for impacted engineering majors. Increased desire from 4 yr schools to develop partnership transfer programs. Governors proposal that community college funding being tied to program completion. Multiple measures mandates has potential effects on the preparation of students in our program.

Internal Conditions, Trends, or Impacts : The engineering program has experienced explosive growth. Our students continue to be successful on transfer. Mt. SAC continues to be the largest engineering transfer institution to the CSU system. SWF proposal for engineering technology was not funded as a result development activity in engineering is stalled. Continued dependence on one time funding means that meaningful planning can't take place. Certificates are stalled.

Critical Decisions Made by Unit: Pursue a makerspace grant to support campus wide making. Offer all engineering courses year round to support student completion. The department has campaigned to obtain a new full time faculty. Active recruitment of adjunct faculty. The department has supported an increased role in campus governance. Lack of college support for workforce preparation in engineering means that the engineering program is pulling back from developing additional industry ties, and creating opportunities for students to move directly into the technology workforce.

Notable Achievements for Theme A: To Advance Academic Excellence and Student Achievement: 1. Met with California State University and University of California faculty to discuss transfer associates degree in engineering. Engineering faculty met with department representatives from CSULA mechanical, civil and electrical engineering and developed new articulation agreements. Met with ELC FDRG to discuss statewide KGB optimization.

2. Met with new engineering dean of CPP to determine future collaboration with CPP and transition from semester to quarter.

3. Met with UCR dean of engineering to determine transfer path for Mt. SAC engineering students to UCR with guaranteed tuition.

4. Implemented engineering 6, programming applications for engineers as project based course.

5. Implemented Engineering 1 Lab, Introduction to Engineering Design as project based course.

7. Implemented a engineering faculty workgroup to focus on the development of Engineering 1 lab consisting of full and part time faculty.
8. Faculty are serving as advisors for Society of Physics Students, Society of Women Engineers, Society of Hispanic Engineers and Circle K Club.
9. Attended CPP outreach meeting to determine concerns about CPP articulation and transfer to semester system.
10. Continued the implementation of the flipped model in engineering physics.
11. Developed flipped model for College physics.
12. Surveying certificate was approved.

Notable Achievements for Theme B: To Support Student Access and Success: 1. Secure Resources Sufficient courses were provided in Spring to meet student demand at 104% overall capacity and 125% capacity in physics 2AG at the end of the spring semester.

2. Met with Biology staff to enhance enrollment in physics 6A and physics 6B, physics for life sciences with calculus.
3. Robotics team competed in one national and one international event. Won silver medal for autonomous robotics and took 8th and 16 in the world.
4. One student received academic achievement award
5. FAR rocket sponsorship for Rocketry Team.
6. Students won 2nd highest award at the So Cal regional Lower division research conference for work on rocket telemetry and avionics
7. Student won highest award for poster at Conference of Undergraduate Women in Physics conference for presentation on simulation and test characterization for solid fuel rockets.
8. Two students won a JPL award
9. Student organization SHPE and SWE grew and attended national meetings.
10. Wrote and implemented grant to support Makerspace on campus.
11. Two students participated in the SIRI program.
12. Met with chemistry faculty to co-develop chemistry for engineers course.
13. Rocketry team won a sustainability award for observing emissions in the upper atmosphere.

Notable Achievements for Theme C: Secure Human, Technological, & Financial Resources: 1. Staffed all courses with a 29% level of full time faculty in lower division courses.

2. Secure Resources Obtained 11 new additional laptops for 11-2101 classroom.
3. Secure Resources New Laboratory technician created organization structures that allowed for streamlined laboratory setup and tear down and more efficient use of student workers under the supervision of the Laboratory Technician.
4. Laboratory technician received a promotion to Tech II.

Notable Achievements for Theme D: To Foster an Atmosphere of Cooperation and Collaboration: 1. Held new faculty workshop on curriculum in the Moutie Makerspace

2. Delivered spring flex activity on curriculum in the Moutie Makerspace.
3. Attended department meetings for Architecture, Manufacturing, Fine Arts, Animation, Photography, and many others to build bridges between departments and makerspace.
4. Flex day presentation on Flipped classroom.
5. Met with chemistry faculty to co-develop chemistry for engineers course.
6. Department faculty are holding regular capoeira classes through the wellness center to support fitness and community.
7. Faculty continue to serve in the following capacity:
 - + Academic senate exec board
 - + Faculty liaison for dual enrollment
 - + Chair the faculty association scholarship committee
 - + Serve on Ed design committee
 - + Circle K Club advisor
 - + Basic skills committee
 - + Engineering 1 curriculum co development committee
 - + Co teaching engineering courses

- + Participation in Engineering Liason council, CSULA transfer advisory board, CPP transfer advisory board, CCCP transfer advisory board.
- +STEM center advisory committee.
- +SWE Advisor
- +SHPE Advisor
- +SPS Advisor
- +Campus sustainability committee.
- +Faculty lead for campus Makerspace.
- +Academic Senate
- +Faculty association.
- +Academic advising for STEM programs.
- +President of SCPTA

8. Hosting statewide meeting for Physics Technicians.

Contributors to the Report: Martin Mason

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<i>Unit Goals</i>	<i>Resources Needed</i>	<i>Where We Make an Impact: Closing the Loop on Goals and Plans</i>
<p>Lab Technician - Obtain a second full time, qualified, professional, permanent Lab Technician to support the Physics, Engineering, Surveying and Physical Science programs.</p> <p>Status: Active</p> <p>Goal Year(s): 2016-17</p> <p>Date Goal Entered (Optional): 09/01/2016</p>	<p>In Progress - Second Full Time Permanent Lab Technician</p> <p>Describe Plans & Activities Supported: additional staff and ongoing budget: office space</p> <p>Lead: Martin Mason</p> <p>One-Time Funding Requested (if applicable): 60000</p> <p>Type of Request: Furniture, Workstation , Human Resources, Supplies (less than \$200 per item), Technology Equipment - new, Technology Software Systems - new</p> <p>Planning Unit Priority: High</p> <p>What would success look like and how would you measure it?: New staff is hired.</p> <p>Documentation Attached?: No</p>	<p>Reporting Year: 2017-18</p> <p>% Completed: 0</p> <p>Our current lab technician is going above and beyond to keep students safe, but the work far exceeds what can be done by one person and is not consistent with other laboratory programs within the division. We still do not have a second Full Time Permanent Lab Technician. We explored obtaining a position through Strong Workforce funding but that hasn't happened. Unsafe environment persists. Lack of night supervision persists. (04/05/2018)</p> <hr/> <p>Reporting Year: 2016-17</p> <p>% Completed: 0</p> <p>Did not obtain lab technician. Present staffing level is drastically below accepted level within the division. Inadequate support persists for safe effective labs. No supervision for student employees at night. (06/16/2017)</p>

<i>Unit Goals</i>	<i>Resources Needed</i>	<i>Where We Make an Impact: Closing the Loop on Goals and Plans</i>
<p>Course Approval - Obtain approval and implement new Engineering, Physical Science, Physics and Surveying courses. B Status: Active Goal Year(s): 2016-17 Date Goal Entered (Optional): 09/01/2016</p>	<p>In Progress - Increase Dept. Chair reassign time to 6 LHE/ semester Describe Plans & Activities Supported: funding for 3 more LHE per semester to the dept. chair. Lead: Phil Wolf One-Time Funding Requested (if applicable): 8400 Type of Request: Human Resources Planning Unit Priority: Medium What would success look like and how would you measure it?: Additional reassign time is allotted. Documentation Attached?: No</p>	<p>Reporting Year: 2017-18 % Completed: 0 No progress on chair reassigned time. Engineering 8 lab was approved. Physics 4D was approved. Engineering 1C was locally approved. (05/10/2018)</p> <hr/> <p>Reporting Year: 2016-17 % Completed: 25 Engineering 1 lab approved Engineering 6 implemented Updated Engineering 24, 40, 41, 42, and 44 for CID compliance. Submitted Physics 4D Submitted Engineering 8 lab (06/16/2017)</p>
<p>Transfer Degree - Complete the Transfer Associates Degree in Engineering, Robotics Certificate program in collaboration with the Electronics Department, and surveying certificate. Status: Active Goal Year(s): 2016-17 Date Goal Entered (Optional): 09/01/2016</p>	<p>Report directly on Goal</p> <hr/> <p>In Progress - Develop and submit engineering and engineering technology degrees and certificates. Describe Plans & Activities Supported: 2LHE per semester reassign time Lead: Eugene Mahmoud One-Time Funding Requested (if applicable): 5600 Type of Request: Human Resources Planning Unit Priority: Medium What would success look like and how would you measure it?: Degrees and certificates are approved. Documentation Attached?: No</p>	<p>Reporting Year: 2017-18 % Completed: 25 Applied for SWF funding to support engineering technology. Goal on hold until support exists. (05/10/2018)</p> <hr/> <p>Reporting Year: 2017-18 % Completed: 25 Filed LAOCRC request. Completed letter of intent process. Ladder degree programs submitted. Surveying certificate approved. (05/10/2018)</p> <hr/> <p>Reporting Year: 2016-17 % Completed: 25 developed program outline. received approval from electronics. (06/16/2017)</p>
<p>Surveying Certificate - Create a level II surveying certificate program that leads to students obtaining their land surveyor license. Include a GIS</p>	<p>Report directly on Goal</p>	<p>Reporting Year: 2017-18 % Completed: 50 Initial surveying certificate approved through curriculum. SWF proposal was submitted but not supported. Awaiting</p>

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<p>component in the surveying program. Add a third course in surveying as part of level II of the surveying certificate program</p> <p>Status: Active</p> <p>Goal Year(s): 2016-17, 2017-18</p> <p>Date Goal Entered (Optional): 09/01/2016</p>	<p>Report directly on Goal</p> <hr/> <p>In Progress - skills certificate has been submitted to EDC. There will be continued work on the level two certificate.</p> <p>Describe Plans & Activities</p> <p>Supported: 2 LHE per semester of faculty reassign time.</p> <p>Lead: Zahir Kahn</p> <p>One-Time Funding Requested (if applicable): 5600</p> <p>Type of Request: Human Resources</p> <p>Planning Unit Priority: Medium</p> <p>What would success look like and how would you measure it?: certificate is approved</p> <p>Documentation Attached?: Yes</p>	<p>campus support for engineering workforce programs. (05/10/2018)</p> <hr/> <p>Full Funding Requested - Modern equipment to support surveying courses including total stations and GPS units</p> <p>Describe Plans & Activities</p> <p>Supported: Students in the surveying laboratory can complete laboratories with field grade equipment that is previous generation to what they would encounter in the workplace.</p> <p>Lead: Khan</p> <p>One-Time Funding Requested (if applicable): 10000</p> <p>On-Going Funding Requested (if applicable): 0</p> <p>Type of Request: Instructional Equipment</p> <p>Planning Unit Priority: High</p> <p>What would success look like and how would you measure it?: Students have access to modern</p>

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surveying equipment for the lab.
Partial Funding Requested - Ongoing budget to support calibration and repair of surveying equipment
Describe Plans & Activities
Supported: Surveying equipment has to be calibrated regularly in order to stay in compliance and be useful. Much of the equipment in the department is donated from industry and is out of calibration when it is received.
Lead: Khan
On-Going Funding Requested (if applicable): 1800
Type of Request: Instructional Supplies
Planning Unit Priority: High
What would success look like and how would you measure it?: There is a budget to support regular calibration and repair of surveying equipment.

<p>Staffing - Obtain sufficient teaching and support staff to both support the significant growth in the department and to allow for additional growth in new high demand programs. Status: Active Goal Year(s): 2016-17 Date Goal Entered (Optional): 09/01/2016</p>	<p>In Progress - Continue to mentor adjunct instructors Describe Plans & Activities Supported: 1 LHE per 5 / adjunct or 4 LHE per semester of faculty time. Lead: Malcolm Rickard One-Time Funding Requested (if applicable): 11200 Type of Request: Human Resources Planning Unit Priority: Medium What would success look like and how would you measure it?: Criteria for Success: Adjunct faculty are retained and student, faculty, and self evaluations are positive.</p>	<p>Reporting Year: 2017-18 % Completed: 50 Development of Engineering 1 FDRG consisting of full and part time faculty. However, there are more adjunct faculty, and one fewer full time faculty due to death. Overall evaluations for adjunct continue to worsen. We may have the opportunity to hire a full time faculty member if the instruction office approves. (05/10/2018)</p>
	<p>In Progress - Acquire permanent</p>	<p>Reporting Year: 2016-17 % Completed: 0 due to increase and turnover of adjuncts instructors. Insufficient full time faculty to mentor. (06/16/2017)</p> <p>Reporting Year: 2017-18</p>

<i>Unit Goals</i>	<i>Resources Needed</i>	<i>Where We Make an Impact: Closing the Loop on Goals and Plans</i>
	<p>funding for student laboratory support</p> <p>Describe Plans & Activities</p> <p>Supported: 50 hours / week of student support for 50 weeks.</p> <p>Lead: Martin Mason</p> <p>One-Time Funding Requested (if applicable): 30000</p> <p>On-Going Funding Requested (if applicable): 30000</p> <p>Planning Unit Priority: High</p> <p>What would success look like and how would you measure it?: Criteria for success: Funding for student workers is institutionalized.</p>	<p>% Completed: 0</p> <p>Again, no progress. The division continues to experience frustration because they recognize the necessity of these students to support safe and functioning laboratory programs and there is no ongoing budget to support this. (05/10/2018)</p> <hr/> <p>Reporting Year: 2016-17</p> <p>% Completed: 0</p> <p>no progress, no budget line item for student lab support. (06/16/2017)</p>
	<p>In Progress - Reinstate part time Laboratory Assistant</p> <p>Describe Plans & Activities</p> <p>Supported: part time laboratory staff.</p> <p>Lead: Malcolm Rickard</p>	<p>Reporting Year: 2017-18</p> <p>% Completed: 0</p> <p>The position promised when the department had labs split between building 60 and building 11 has still not materialized. (05/10/2018)</p>
	<p>One-Time Funding Requested (if applicable): 30000</p> <p>Type of Request: Facilities, Furniture, Workstation , Human Resources, Technology Equipment - new, Technology Software Systems - new</p> <p>Planning Unit Priority: High</p> <p>What would success look like and how would you measure it?: New staff is hired.</p>	<p>Reporting Year: 2016-17</p> <p>% Completed: 0</p> <p>no additional support. (06/16/2017)</p>
	<p>In Progress - Clerical assistance</p> <p>Describe Plans & Activities</p> <p>Supported: 19 hour week clerical support for division office to support programs. and departments</p> <p>Lead: Matthew Judd</p> <p>One-Time Funding Requested (if applicable): 30000</p> <p>Type of Request: Human Resources</p>	<p>Reporting Year: 2017-18</p> <p>% Completed: 75</p> <p>The division has hired clerical support for the division. (05/11/2018)</p>

<i>Unit Goals</i>	<i>Resources Needed</i>	<i>Where We Make an Impact: Closing the Loop on Goals and Plans</i>
	<p>Planning Unit Priority: High What would success look like and how would you measure it?: Division hires a shared clerical assistant.</p>	
<p>Laboratory Support - Enhance department laboratory support to include detailed inventory, planning, utilization balancing, maintenance, and logistics. Include support of department open lab hours. Status: Active Goal Year(s): 2016-17 Date Goal Entered (Optional): 09/01/2016</p>	<p>Report directly on Goal</p>	<p>Reporting Year: 2017-18 % Completed: 50 Physics laboratory technician and student assistants have started a reorganization and inventory of some of the department laboratories. One time funding has been spent to crease classroom sets of equipment. (05/11/2018)</p> <hr/> <p>Reporting Year: 2017-18 % Completed: 0 Lab open hours have been cut or eliminated due to lack of budget. As credit course program has expanded the lab technician's minimum duties have expanded to push out the ability plan and inventory. (05/10/2018)</p>
	<p>In Progress - Develop videos and screencasts to support Engineering/physics curriculum. Lead: Phil Wolf</p>	<p>Reporting Year: 2016-17 % Completed: 50 Inventory is done annually, maintenance is done annually. Open lab hours are in flux because we've added some software to division computer labs. But lab hours is limited to 7:30-4:00 M-Th, 9:30-2:00 Friday. (06/16/2017)</p>
	<p>In Progress - Hire additional laboratory support staff. Continue to inventory and organize the laboratories and laboratory equipment. Describe Plans & Activities Supported: Staff for open lab hours. Four hours / week for inventory management. Lead: Maria Vaughn One-Time Funding Requested (if applicable): 6000 Type of Request: Human Resources, Technology Equipment - new, Technology Software Systems - new Planning Unit Priority: Medium What would success look like and</p>	<p>Reporting Year: 2017-18 % Completed: 0 No staff hired. Not only the promised person associated with building expansion not being hired, but the program has expanded offerings by over 70% since that time. (05/10/2018)</p>

<i>Unit Goals</i>	<i>Resources Needed</i>	<i>Where We Make an Impact: Closing the Loop on Goals and Plans</i>
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how would you measure it?: Staff is hired and inventory is completed and maintained.

Full Time Faculty - Secure another full time physics faculty member and full time engineering faculty member to support new courses.
Status: Active
Goal Year(s): 2016-17
Date Goal Entered (Optional): 09/01/2016

In Progress - Hire new Full Time Engineering Faculty. Hire new Full Time Physics Faculty.
Describe Plans & Activities
Supported: Two new full time faculty positions.
Lead: Martin Mason
One-Time Funding Requested (if applicable): 144000
Type of Request: Equipment - new, Facilities, Furniture, Human Resources, Professional Development, Supplies (less than \$200 per item), Technology Equipment - new, Technology Software Systems - new
Planning Unit Priority: High
What would success look like and how would you measure it?: Two new faculty is hired.

Reporting Year: 2017-18
% Completed: 50
 We have been approved to hire a new tenure-track Physics faculty member for Fall 2018.
 We will be gaining a full-time Engineering professor who will be transferring over from LERN. As she will be on retraining leave for the 2018-2019 Academic Year, she will not come fully on board until Fall 2019. We have had a faculty member pass away in the last month which means that this does not reflect a net growth in physics faculty. (04/05/2018)

Reporting Year: 2016-17
% Completed: 0
 No new faculty hired. All sections of physics 1 taught by adjunct instructors. Engineering 1, 8, 18, 40, and 42 are currently taught entirely by adjunct. All surveying courses are currently taught entirely by adjunct. (06/16/2017)

Reporting Year: 2016-17
% Completed: 0
 There is no full time instructor able to devote attention to physics one, in particular the student learning outcomes and the lab manuals. (05/12/2017)

Full Funding Requested - Furniture and computer for new full time faculty member
Describe Plans & Activities
Supported: Faculty member will have a place to sit in their office and a chairs for students. Faculty will have a computer to develop course materials.
Lead: Wolf
One-Time Funding Requested (if applicable): 5000
Type of Request: Facilities , IT

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Support
Planning Unit Priority: High
What would success look like and how would you measure it?: New faculty has office furniture and a computer
Documentation Attached?: No
Full Funding Requested - Equipment to update the Physics 1 laboratory course.
Describe Plans & Activities
Supported: We have a new hire who will revamp the physics 1 laboratory course which was last updated by Tom Smith in 1999. The new hire will develop and implement new laboratories to update the curriculum to modern standards and change the course to a new model.
Lead: Wolf
One-Time Funding Requested (if applicable): 5000
Type of Request: Instructional Equipment
Planning Unit Priority: High
What would success look like and how would you measure it?: New laboratory model implemented in physics 1.
Documentation Attached?: No

Replacement Full Time Faculty - Secure full time physics faculty member and full time engineering faculty member to replace anticipated retiring faculty. Status: Archive Goal Year(s): 2017-18, 2018-19 Date Goal Entered (Optional): 06/29/2017	Report directly on Goal	Reporting Year: 2017-18 % Completed: 0 We have one faculty member who has died, another who has missed 2 of the last 4 semesters due to illness and is missing the end of spring semester and a third who has indicated that they intend to retire within 2 years. (05/10/2018)	
	In Progress - Hire Full Time Engineering Faculty. Hire Full Time	Reporting Year: 2016-17 % Completed: 0	: Presently nearly 50 LHE are taught by two faculty members

<i>Unit Goals</i>	<i>Resources Needed</i>	<i>Where We Make an Impact: Closing the Loop on Goals and Plans</i>	
	Physics Faculty. Describe Plans & Activities Supported: Two full time faculty positions. Lead: Malcolm Rickard, Martin Mason Type of Request: Human Resources Planning Unit Priority: Medium	This is a new goal. (06/29/2017)	who are approaching retirement. As was observed in Spring of 2017, the loss of just one of these veteran instructors creates a huge negative impact on students. (06/29/2017)
Supply and Repair Budget - Enhance the Engineering Supply budget to be consistent with other laboratory programs in the division. Given that engineering offers 10 distinct laboratory courses the current budget of \$965 per year is highly inadequate. Make permanent a larger physics supply and repair budget to allow the program to implement modern labs. Make permanent the temporary enhancements to the supply budget. Need additional course sets of laboratory materials to support increased course offerings. Status: Active Goal Year(s): 2016-17 Date Goal Entered (Optional): 09/01/2016	Report directly on Goal In Progress - Acquire engineering laboratory supply budget in line with per class expenditures of the division average for laboratory courses. Describe Plans & Activities Supported: Site licenses for engineering software including NI Labview, MATLab, Inventor. Laboratory equipment and supplies to support engineering laboratories. This includes servo motors, 3D printer supplies, stepper motors. Motor control modules, rocket airframes and ammonium perchlorate motors, 32 bit microcontrollers development boards, test equipment including spectrum analyzers, frequency	Reporting Year: 2017-18 % Completed: 0 Number of sections of engineering laboratory is growing to 27, which at \$800 per section which is consistent with the division average would be a yearly budget of \$21,600. (05/11/2018)	Reporting Year: 2017-18 % Completed: 0 No additional budget. Additional sections were added to support student transfer and workforce goals which has made the amount of support per laboratory decrease even further. The department has received one time funds to support courses. (05/10/2018)

Unit Goals

Resources Needed

Where We Make an Impact: Closing the Loop on Goals and Plans

generators, digital waveform generators and other supplies. Budget for repair of equipment. Ongoing supply budget of \$16,000 / year. This is equivalent to \$800 / laboratory section. Update 2017 to \$650 / laboratory section

Lead: Martin Mason

One-Time Funding Requested (if applicable): 19500

Planning Unit Priority: High

What would success look like and how would you measure it?: Budget is increased to \$16,000. Update to 2017 we are now offering 30 laboratory sections and consequently are asking for \$19500 / year.

Partial Funding Requested - Ongoing support for MATLAB and LabView software.

Describe Plans & Activities

Supported: This is software that forms the basis for our ENGR7 course. It must be updated on a semi-regular basis.

We try to use existing licenses for three or four years. But sometimes they software must absolutely be updated.

This works out to \$5000 every four years

Lead: Maria Vaughn/Martin Mason

One-Time Funding Requested (if applicable): 0

On-Going Funding Requested (if applicable): 0

Type of Request: Instructional Equipment, IT Support

Planning Unit Priority: Medium

<i>Unit Goals</i>	<i>Resources Needed</i>	<i>Where We Make an Impact: Closing the Loop on Goals and Plans</i>
	<p>What would success look like and how would you measure it?: We would have funding available to update software in the classroom when necessary.</p> <p>Documentation Attached?: No</p>	
<p>Supplemental Instructors - Secure long term financial support for providing Supplemental Instructors and tutors in the STEM center in the Physics and Engineering department.</p> <p>Status: Active</p> <p>Goal Year(s): 2016-17, 2017-18</p> <p>Date Goal Entered (Optional): 09/01/2016</p>	<p>Report directly on Goal</p> <hr/> <p>In Progress - Acquire funding for supplemental instructors that is external to the LAC.</p> <p>Describe Plans & Activities</p> <p>Supported: Budget to support Supplemental Instructors in the department. 10 hours / week * 8 SIs * 40 weeks / year * \$13 = \$41600</p> <p>Lead: Malcolm Rickard</p> <p>One-Time Funding Requested (if applicable): 41600</p> <p>On-Going Funding Requested (if applicable): 41600</p> <p>Type of Request: Staffing</p> <p>Planning Unit Priority: Medium</p> <p>What would success look like and how would you measure it?:</p> <p>Presently we have only two SI's for the entire department. We have over 25 sections of Physics courses that could benefit from having an SI and multiple Engineering sections that would likewise benefit. Our data, going back over a decade and</p>	<p>Reporting Year: 2017-18</p> <p>% Completed: 0</p> <p>The STEM center has been transitioning its role to be in line with its equity funded mission so this goal is no longer appropriate as written. The STEM Centers approach to coaching is in transition and the department hopes that there will be strong resources to support physics students. The continues to be a lack of resources for engineering students. (05/10/2018)</p> <hr/> <p>Reporting Year: 2017-18</p> <p>% Completed: 50</p> <p>Engineering students are told to be study group leaders instead of SIs which don't work when the program requires access to equipment. (05/11/2018)</p>

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continuing to the present, show that courses with SI's have average grades up to a full letter grade higher, and that success and retention is typically 20-25% higher than in courses without SI's.

The standard arrangement of requesting SI's through the LAC has not resulted in the LAC hiring SI's for our department. In addition, the needs of Physics and Engineering students differs from the standard SI model used by the LAC.

Success would look like us having an ongoing budget for hiring SI's; the department holding at least 8 SI sessions per week; and student retention and success in SI-assisted courses being at least 20% higher than what is standard in the department now.

Documentation Attached?: No

<p>Student Research - Increase the number of students participating in internal and external research. Status: Active Goal Year(s): 2016-17 Date Goal Entered (Optional): 09/01/2016</p>	<p>Report directly on Goal</p>	<p>Reporting Year: 2017-18 % Completed: 0 PENG has a history of successful student research both on and off campus. Students continue to be successful in on and off campus research projects but the resources are stretched thin. One of the primary faculty who sponsored student research on and off campus has died. Continued campus support for student research projects in the form of use of campus vehicles and access to campus spaces is critical. (05/10/2018)</p>
	<p>In Progress - Hire full time engineering and physics faculty to supervise student research in addition to their full time teaching load. Describe Plans & Activities Supported: Full time Faculty</p>	

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Lead: Daniel Anderson
Type of Request: Facilities, Supplies (less than \$200 per item)
Planning Unit Priority: Medium
What would success look like and how would you measure it?:
 Additional full time faculty hired and more students in research courses.
Full Funding Requested - Launch fees, student safety fees, registration fees for rocket competitions. Materials and supplies to build rockets and rocket motors. Use of college vehicles to travel to competitions and launches.
Describe Plans & Activities
Supported: Engineering 99 courses associated with rocket projects can build and launch the student built vehicles.
Lead: Mason
On-Going Funding Requested (if applicable): 1000
Type of Request: Instructional Equipment
Planning Unit Priority: Medium
What would success look like and how would you measure it?: Student launch fees and paid.
Documentation Attached?: No

Transfer Goals - Monitor and develop a precise picture of student transfer patterns and adjust our program to meet their needs.
Status: Active
Goal Year(s): 2016-17
Date Goal Entered (Optional): 09/01/2016

In Progress - Continue to monitor the CSU and UC transfer admission websites in engineering to track student transfer in engineering, physics and physical sciences. Meet with statewide Engineering committees on engineering transfer.
Describe Plans & Activities
Supported: 1 LHE / semester. Travel

Reporting Year: 2017-18
% Completed: 50
 Engineering faculty continue efforts on statewide committees and to develop opportunities for students. Dean of natural science has worked to facilitate collaboration with CPP and UCR with Mt. SAC engineering. The campus has not provided any reassigned time or travel funds to support these activities. (05/10/2018)

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and conference money to support meeting participation.
Lead: Zahir Khan
One-Time Funding Requested (if applicable): 4800
Type of Request: Human Resources, Professional Development
Planning Unit Priority: Medium
What would success look like and how would you measure it?:
 Students successfully transfer in engineering and the physical sciences.

<p>Computer Resources - Secure adequate computing resources for all classrooms. Status: Active Goal Year(s): 2016-17 Date Goal Entered (Optional): 09/01/2016</p>	<p>Report directly on Goal</p>	<p>Reporting Year: 2017-18 % Completed: 50 11 New computers have been authorized for 11-2101. 14 additional computers are required. 60-1620 has been exchanged with 60-1503 where those computers are now 5 years old and due for replacement. All other department computers are one year older and so draw closer to their replacement date. Annual Software renewal licenses for Matlab and labview need to be supported on an ongoing basis. Computers in 11-2107 need upgraded SD harddrives and ram to support modern software as recommended by the division tech. (05/10/2018)</p>
	<p>Completed - 2 new printers Lead: Malcolm Rickard One-Time Funding Requested (if applicable): 4000</p>	<p>Reporting Year: 2016-17 % Completed: 75 60-1628, 60-1506, 60-1503 and 11-2304 and 11-2107 all have adequate computing resources. 60-1620 and 11-2101 need new computers. (06/16/2017)</p>
	<p>In Progress - Obtain updated laptops computers for 11-2101 and 60-1503 Describe Plans & Activities Supported: 11 Apple laptops (60-1503) 11 PC laptops (11-2101)</p>	<p>Reporting Year: 2016-17 % Completed: 100 Completed printers acquired. (06/13/2017)</p> <p>: this something for printing V vs I graph in 2BG (06/13/2017)</p>

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Lead: Maria Vaughn
One-Time Funding Requested (if applicable): 22000
Planning Unit Priority: Low
What would success look like and how would you measure it?:
Computers can run current laboratory software
Full Funding Requested - Upgrade to 25 computers in 11-2107 used for ENGR 18, 24, 6, 7, and Surveying courses
Describe Plans & Activities
Supported: Upgrade memory and hard-drives for these 25 computers per recommendation of NSD IT tech Karen Long. The computers as presently configured struggle to keep up with the computing demands of these courses.
Lead: Maria Vaughn
One-Time Funding Requested (if applicable): 8000
Type of Request: Instructional Equipment, IT Support
Planning Unit Priority: High
What would success look like and how would you measure it?: Hard drives and memory would be replaced. IT will have installed the existing software on the upgraded hard drives.
Computers could keep up with the computing demands of the courses we teach.
Documentation Attached?: No

Transition to Project-Based Model - Transition the Engineering program to a more project-based model in line	Completed - Obtain two more 3-D printers Lead: Martin Mason	Reporting Year: 2016-17 % Completed: 100 obtained four new 3-D printers (06/16/2017)
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<i>Unit Goals</i>	<i>Resources Needed</i>	<i>Where We Make an Impact: Closing the Loop on Goals and Plans</i>
<p>with current ABET educational objectives. This would build on the current extra-curricular emphasis of the robotics team and student driven, faculty mentored design and development projects.</p> <p>Status: Active</p> <p>Goal Year(s): 2016-17</p> <p>Date Goal Entered (Optional): 09/01/2016</p>	<p>One-Time Funding Requested (if applicable): 3000</p> <p>In Progress - Modify Engineering 1C room</p> <p>Describe Plans & Activities Supported: 6 lab tables and adequate lab chairs.</p> <p>Lead: Martin Mason</p> <p>One-Time Funding Requested (if applicable): 15000</p> <p>Type of Request: Equipment - new, Furniture, Workstation</p> <p>Planning Unit Priority: Medium</p> <p>What would success look like and how would you measure it?: Room is modified with safe and approved commercial furniture.</p>	<p>Reporting Year: 2017-18</p> <p>% Completed: 50</p> <p>Faculty built tables were replaced with used tables from the warehouse scrap area and installed by faculty, student workers and staff. Faculty and student workers scraped gum off bottom of tables and cleaned. Chairs in rooms are still the same which were rescued from discard section of warehouse in 2016. Renovation for this room was requested as part of denied engineering technology SWP and from instruction funds. 2 chairs broke due to student use. Faculty have been asked to report future chair failure and student injuries to risk management. Requesting new and safe chairs. (05/10/2018)</p>
	<p>In Progress - Purchase equipment for new Engineering courses.</p> <p>Lead: Martin Mason</p> <p>One-Time Funding Requested (if applicable): 25000</p> <p>Type of Request: Equipment - new, Furniture, Supplies (less than \$200 per item), Technology Equipment - new, Technology Software Systems - new</p> <p>Planning Unit Priority: Medium</p> <p>What would success look like and how would you measure it?: Courses are supplied. Room is equipped.</p>	<p>Reporting Year: 2016-17</p> <p>% Completed: 25</p> <p>The campus and division did not provide any supplies or support. A faculty member paid for and built new tables for 11-2101. (06/16/2017)</p>
	<p>In Progress - Ongoing budget for robotics team course</p> <p>Lead: Daniel Anderson</p> <p>One-Time Funding Requested (if applicable): 5000</p>	<p>Reporting Year: 2017-18</p> <p>% Completed: 25</p> <p>Dean of natural science advocated for ongoing budget for robotics team. The coach had developed an ongoing budget in collaboration with the team but died. A new</p>

<i>Unit Goals</i>	<i>Resources Needed</i>	<i>Where We Make an Impact: Closing the Loop on Goals and Plans</i>
	<p>What would success look like and how would you measure it?: Ongoing funds are allocated.</p> <p>In Progress - Designation of an outside space to support engineering laboratory activities and robotics team.</p> <p>Describe Plans & Activities Supported: Maker space and \$130000 in maker space matching funds. Lead: Martin Mason One-Time Funding Requested (if applicable): 130000 Type of Request: Equipment - new, Facilities Planning Unit Priority: Medium What would success look like and how would you measure it?: Space is allocated.</p>	<p>proposal has been prepared by the new coach and team and will be submitted on May 11th. The team has requested \$1500/ academic term to complement the funds raised by the team and support from the associated students. (05/10/2018)</p> <hr/> <p>Reporting Year: 2016-17 % Completed: 50 Obtained one time funds \$10000, no ongoing budget to support team. (06/16/2017)</p> <p>Reporting Year: 2016-17 % Completed: 100 Space and container on the farm outside of F7. (06/16/2017)</p>
	<p>In Progress - Implement Engineering 1C course</p> <p>Lead: Martin Mason One-Time Funding Requested (if applicable): 2100 Planning Unit Priority: Medium What would success look like and how would you measure it?: Materials for course implementation are supported.</p>	<p>Reporting Year: 2017-18 % Completed: 50 Course re-approved locally and sent to state approval by CSU and UC campuses. The course was turned down for approval, then re-written to address concerns and re-submitted to EDC and is awaiting curriculum process. There are concerns that there is no space or budget within the engineering program to support the course. (05/11/2018)</p>
	<p>In Progress - Continuing support of Engineering 50A course</p> <p>Describe Plans & Activities</p>	

<i>Unit Goals</i>	<i>Resources Needed</i>	<i>Where We Make an Impact: Closing the Loop on Goals and Plans</i>
	<p>Supported: equipment and supplies to run a laboratory course \$800 per section consistent with laboratory courses in division.</p> <p>Lead: Martin Mason</p> <p>One-Time Funding Requested (if applicable): 1600</p> <p>Type of Request: Equipment - replacement/upgrade, Supplies (less than \$200 per item)</p> <p>Planning Unit Priority: Medium</p> <p>What would success look like and how would you measure it?: Materials for course implementation are supported.</p>	<p>Reporting Year: 2017-18</p> <p>% Completed: 0</p> <p>Additional equipment has been dumped in the storage space so it is less organized then it was at the end of last year. The space will need additional hours of student worker and staff support to make it functional. The department does not have sufficient funded staff and student workers to accomplish its core mission. Much of the dumped equipment was associated with a faculty member who died. (05/10/2018)</p>
	<p>In Progress - Complete organization of natural science storage and ensure access to natural sciences equipment</p> <p>Describe Plans & Activities</p> <p>Supported: four hours per week of technician time to organize and maintain storage.</p> <p>Lead: Martin Mason</p> <p>One-Time Funding Requested (if applicable): 6000</p> <p>Type of Request: Human Resources, Supplies (less than \$200 per item)</p> <p>Planning Unit Priority: Medium</p> <p>What would success look like and how would you measure it?: Natural science storage space is organized so that all areas in the division can share in the resource in an efficeint and organized fashion.</p>	<p>Reporting Year: 2016-17</p> <p>% Completed: 0</p> <p>Last summer 15 student worker hours were spent organizing the space. However, due to utilization the space is in disarray. (06/16/2017)</p>
	<p>In Progress - Designation of a large room in the vicinity of department to support robotics classes and team (1200 - 2000 square feet). Engineering laboratory is 75 square</p>	<p>Reporting Year: 2017-18</p> <p>% Completed: 75</p> <p>Robotics team moved from small room adjacent to STEM center to larger 400 square foot room in building 11. This room has had a transformative effect on the robotics team</p>

Unit Goals	Resources Needed	Where We Make an Impact: Closing the Loop on Goals and Plans
	<p>foot per student, 24 students require 1800 square feet.</p> <p>Describe Plans & Activities</p> <p>Supported: 1200-2000 square foot space</p> <p>Lead: Daniel Anderson</p> <p>One-Time Funding Requested (if applicable): 40000</p> <p>Type of Request: Facilities, Furniture</p> <p>What would success look like and how would you measure it?: A large room is designated.</p>	<p>and the persistence of this population of at risk students. The team utilizes the room M-Saturday from 8-22:00. (05/10/2018)</p> <hr/> <p>Reporting Year: 2016-17</p> <p>% Completed: 25</p> <p>there is discussion of the 400 square foot space, the Bio adjunct office in bldg 11, becoming available. (06/16/2017)</p>
<p>Other Goals - 1) Institutionalize projects into the core program curriculum. There are an increasing number of units of Physics 99 / Engineering 99 being mentored by faculty, and the Departments sees this number increasing with the proposed increased emphasis on projects. We are at a point where this is having a substantial impact on faculty load, and as such it is a union issue to get load equivalent for project courses.</p> <p>2) Discussions with Math Department about how math service courses can better meet the needs of engineering students.</p> <ul style="list-style-type: none"> o Unit count o Content o Outcomes <p>3) Implement a robotics certificate program in collaboration electronics and manufacturing CTE programs.</p> <p>4) Develop a one-semester Chemistry for Engineers course.</p> <p>Status: Active</p>	<p>Report directly on Goal</p> <hr/> <p>In Progress - Faculty compensation for teaching research courses.</p> <p>Describe Plans & Activities</p> <p>Supported: 2 LHE per semester</p> <p>Lead: Daniel Anderson</p> <p>One-Time Funding Requested (if</p>	<p>Reporting Year: 2017-18</p> <p>% Completed: 0</p> <p>Math department has/is eliminating combined Differential equations and Linear algebra class in favor of two separate classes, but the units have gone from 5 to 7 and a potentially 5 course sequence. Changes at CSU system schools mean that current math sequence is not suiting engineering student needs. Engineering students are recommended to complete Math 180, 181 and 280 prior to transfer. Ongoing concerns about high unit count of the math sequence which has an impact on engineering students financial aid eligibility. (05/10/2018)</p> <hr/> <p>Reporting Year: 2017-18</p> <p>% Completed: 50</p> <p>Chemistry department faculty have collaborated with physics and engineering faculty to develop the Chem for Engineers course. There were some challenges at the campus curriculum level that put the course on hold. The course is developed to the initial satisfaction of chemistry, and engineering faculty. (05/10/2018)</p> <hr/> <p>Reporting Year: 2017-18</p> <p>% Completed: 0</p> <p>No progress. Discussed with areas that have incremental compensation supervision for work experience students. (05/10/2018)</p>

<i>Unit Goals</i>	<i>Resources Needed</i>	<i>Where We Make an Impact: Closing the Loop on Goals and Plans</i>
<p>Goal Year(s): 2016-17, 2017-18 Date Goal Entered (Optional): 09/01/2016</p>	<p>applicable): 6000 Type of Request: Human Resources Planning Unit Priority: Medium What would success look like and how would you measure it?: Compensation is Enacted In Progress - Funding for physics 99 and engineering 99 projects Lead: Daniel Anderson One-Time Funding Requested (if applicable): 2000 Type of Request: Equipment - new, Supplies (less than \$200 per item) Planning Unit Priority: Medium What would success look like and how would you measure it?: A budget for projects is created.</p>	
	<p>In Progress - Space to support growing student research including maker space facilities Lead: Daniel Anderson</p>	<p>Reporting Year: 2017-18 % Completed: 75 Makerspace opened. Over 700 members including support for numerous research and student projects. (05/10/2018)</p>
	<p>One-Time Funding Requested (if applicable): 40000 Type of Request: Facilities, Furniture Planning Unit Priority: Medium What would success look like and how would you measure it?: Space is allocated.</p>	<p>Reporting Year: 2016-17 % Completed: 75 applied for maker space grant to support facilities. President Scroggins has pledged F7 building for maker space. (06/16/2017)</p>
	<p>In Progress - Establish complete classroom sets of lab equipment One-Time Funding Requested (if applicable): 50000</p>	<p>Reporting Year: 2016-17 % Completed: 75 much progress was made. (06/16/2017)</p>
	<p>In Progress - Implement new set of SLOs for some physics and engineering courses Lead: All Faculty</p>	<p>Reporting Year: 2016-17 % Completed: 25 uniform SLO exam questions were developed for physics 2A only. (06/16/2017)</p>
<p>Separate calculus based physics tracks - Research the separation of</p>	<p>In Progress - Work with local CSU and UC transfer programs and align</p>	<p>Reporting Year: 2017-18 % Completed: 25</p>

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<p>calculus based physics tracks for CSU and UC bound engineering, science majors.</p> <p>Status: Active</p> <p>Goal Year(s): 2017-18</p> <p>Date Goal Entered (Optional): 06/16/2017</p>	<p>courses to meet expectations</p> <p>Describe Plans & Activities Supported: 1 LHE per semester of faculty time.</p> <p>Lead: Malcolm Rickard</p> <p>One-Time Funding Requested (if applicable): 2800</p> <p>Type of Request: Human Resources</p> <p>Planning Unit Priority: Medium</p> <p>What would success look like and how would you measure it?: students transfer and are successful at the transfer institutions.</p>	<p>Met with CPP and UCR to develop transfer programs. At the earliest stages of discussion. (05/10/2018)</p>
<p>AS degree in robotics - develop a two year CTE degree in robotics that leads students to job placement in the automation field.</p> <p>Status: Active</p> <p>Goal Year(s): 2017-18</p> <p>Date Goal Entered (Optional): 06/16/2017</p>	<p>Report directly on Goal</p> <hr/> <p>In Progress - Meet and form industry advisory committee. Work with advisory committee to develop curriculum. Work with industry advisors to obtain support for graduates transitioning into the work force through internship and co-ops. Implement new courses. Recruit and manage robotics cohort. Advertise and market the program. Collect workforce data and shepherd the program through the chancellors office.</p> <p>Describe Plans & Activities Supported: 3.75 LHE / semester full time faculty commitment. According to the curriculum process document for new certificate programs, each certificate needs 0.25 FTF devoted to support it.</p> <p>Lead: Martin Mason</p>	<p>Reporting Year: 2017-18</p> <p>% Completed: 50</p> <p>Applied for SWF to support engineering technology. On hold until campus supports workforce programs in engineering technology. (05/10/2018)</p>

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One-Time Funding Requested (if applicable): 5250
Type of Request: Human Resources
Planning Unit Priority: Medium
What would success look like and how would you measure it?:
 Certificates will be developed and offered
Full Funding Requested - Ongoing budget to support the robotics team
Describe Plans & Activities
Supported: The robotics team competes in a state wide league and a number of regional competitions. This team is a under a course in the engineering program. The course requires new field elements every year with a cost of \$500,, a yearly \$250 registration fee plus event competition fees on the order of \$400
Lead: Mason
On-Going Funding Requested (if applicable): 1950
Type of Request: Instructional Equipment
Planning Unit Priority: High
What would success look like and how would you measure it?: There is funding to support ongoing robotics team activities consist with division average funding for laboratory courses.
Documentation Attached?: No

<p>Create Ongoing surveying equipment and supply budgets - Create Ongoing surveying equipment and supply budgets Status: Active</p>	<p>Report directly on Goal</p>	<p>Reporting Year: 2017-18 % Completed: 0 Received one time funds to support purchase of new surveying equipment. Still no budget to support ongoing calibration and repair of equipment. (05/10/2018)</p>
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<p>Goal Year(s): 2017-18 Date Goal Entered (Optional): 06/16/2017</p>	<p>In Progress - Create a budget to support the surveying lecture and laboratory courses. Surveying calibration alone currently accounts for more than the entire available engineering budget. Surveying needs to expand into GIS to support the certificate but there is no funding to support ongoing equipment and supply needs. Describe Plans & Activities Supported: \$3200 Surveying labs need to be supported at \$800 / section consistent with the division standard. Lead: Zahir Khan One-Time Funding Requested (if applicable): 3200 Type of Request: Equipment - replacement/upgrade, Equipment - new, Supplies (less than \$200 per item), Technology Equipment - new, Technology Equipment - replacement/upgrade, Technology Software Systems - new, Technology Software Systems - upgrade Planning Unit Priority: Medium What would success look like and how would you measure it?: Budget is implemented.</p>	
<p>Develop Department Webpage - Develop Department Webpage that represents the department and department program to serve students and the public. Status: Active Goal Year(s): 2017-18 Date Goal Entered (Optional): 06/16/2017</p>	<p>Report directly on Goal</p> <hr/> <p>In Progress - Develop department</p>	<p>Reporting Year: 2017-18 % Completed: 0 Attended training for websites. Contacted Eric turner. Old website content was not migrated as IT keeps changing the Mt. SAC website. Now lots of broken links and missing images. This task requires significant time on the part of faculty and tech to update. Currently entering "engineering" into the search bar takes students to CTE. (05/10/2018)</p>

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web page that contains: Faculty Bios, Course descriptions. Course plans, Certificate maps, Pathways to transfer, contact information, Demonstration examples and links to resources, robotics, rocket and other department team webpages. Pages for Department affiliated clubs including SPS, SWE, SHPE, CORE and SOS.

Describe Plans & Activities
Supported: 3 LHE / Semester faculty time.
Lead: Malcolm Rickard
One-Time Funding Requested (if applicable): 8400
Type of Request: Human Resources
Planning Unit Priority: Medium
What would success look like and how would you measure it?: A web page is created that contains the elements suggested above.

<p>Create ongoing equipment and supply budgets for physical science - Create ongoing equipment and supply budgets for physical science Status: Active Goal Year(s): 2017-18 Date Goal Entered (Optional): 06/16/2017</p>	<p>Report directly on Goal</p> <p>In Progress - Create ongoing budgets for supplies and equipment to support physical science laboratories. \$800 / section or \$3200 is consistent with division laboratory budgets.</p> <p>Describe Plans & Activities Supported: \$800 / section or \$3200 is consistent with division laboratory budgets. Lead: Phil Wolf One-Time Funding Requested (if applicable): 3200 Type of Request: Equipment -</p>	<p>Reporting Year: 2017-18 % Completed: 0 No progress. No budget. (05/10/2018)</p>
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	<p>replacement/upgrade, Equipment - new, Supplies (less than \$200 per item), Technology Equipment - new, Technology Equipment - replacement/upgrade</p> <p>Planning Unit Priority: Medium</p> <p>What would success look like and how would you measure it?: Budgets are created.</p>	
<p>Update PIE - Department complete a thoughtful ongoing planning process</p> <p>Status: Active</p> <p>Goal Year(s): 2017-18</p> <p>Date Goal Entered (Optional): 06/16/2017</p>	<p>Report directly on Goal</p> <p>In Progress - Training, discussion, and continuous thoughtful and ongoing updating of department planning documents.</p> <p>Describe Plans & Activities</p> <p>Supported: 1.5 LHE / semester of faculty time for training, discussion, and documentation.</p> <p>Lead: Karen Schnurbusch</p> <p>One-Time Funding Requested (if applicable): 4200</p> <p>Type of Request: Human Resources, Professional Development, Research</p> <p>Planning Unit Priority: Medium</p> <p>What would success look like and how would you measure it?: Thoughtful planning occurs</p>	<p>Reporting Year: 2017-18</p> <p>% Completed: 0</p> <p>Insufficient time between release of PIE forms and due date. This year, the year long ongoing process takes place over 10 days. (05/10/2018)</p>
<p>Integrate Mountie Makerspace into project based curriculum - Integrate making into the engineering curriculum in line with overall goal of moving to a project based curriculum.</p> <p>Status: Active</p> <p>Goal Year(s): 2017-18</p>	<p>Report directly on Goal</p>	<p>Reporting Year: 2017-18</p> <p>% Completed: 25</p> <p>Mountie makerspace created and grant funded. 3 engineering courses have developed projects that require the makerspace. (05/10/2018)</p>

Unit Goals

Resources Needed

Where We Make an Impact: Closing the Loop on Goals and Plans

Date Goal Entered (Optional):

05/10/2018

Enhance Physics department supply budget to match section growth. -

The department continues to grow and as a result the existing supply and equipment budgets are stretched among more sections. The department continues to add sections and their sustained by one-time money which doesn't address the ongoing costs of running sections. \$650 / section has been the historic level of physics section funding. Each new section should have an additional \$650 to support supplies and equipment.

Status: Active

Goal Year(s): 2017-18

Date Goal Entered (Optional):

05/11/2018

Improved room audio video systems

- Some rooms have no sound. Some rooms have constant static coming from speakers. There is an inability to connect faculty speech amplification device to room equipment. Projectors are mounted crooked. Digital projectors are not pointed appropriately at the screen.

Status: Active

Goal Year(s): 2017-18

Date Goal Entered (Optional):

05/11/2018

Full Funding Requested - Working amplification systems in classrooms. Projectors that are mounted correctly and pointed at screens.

Describe Plans & Activities

Supported: The amplification systems in classrooms either don't work or hiss. Faculty who have amplification accommodations and are using rooms that have specific laboratory equipment are unable to use the classroom amplification systems. In addition the department paid for upgraded screen to meet student visibility needs and the projectors were mounted in such way that the

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screens cannot be used. The projectors need to be moved back and centered on the screens.
Lead: Khan
One-Time Funding Requested (if applicable): 5000
Type of Request: Facilities
Planning Unit Priority: Medium
What would success look like and how would you measure it?:
 amplification systems work. Projectors point at and fill screens.
Documentation Attached?: No

<p>One time funding for Physics 4C lab equipment - Obtain 2 e/m apparatus. 2 helmholtz coil. 2x photoelectric effect apparatus. 2 franc hertz apparatus. 2 vernier computer based spectrometers. \$28000 Status: Active Goal Year(s): 2017-18 Date Goal Entered (Optional): 05/11/2018</p>	<p>Full Funding Requested - \$28000 One-time Instructional Equipment monies Describe Plans & Activities Supported: Physics 4C includes Modern Physics. Experiments in Modern Physics require specialized equipment more sophisticated than masses and springs! With this equipment we would be able to do several lab experiments that presently we can only tell students about. Lead: Maria Vaughn One-Time Funding Requested (if applicable): 28000 Type of Request: Instructional Equipment Planning Unit Priority: Medium What would success look like and how would you measure it?: Students will carry out experiments in Modern Physics. Documentation Attached?: No</p>	
<p>Complete AAT in physics - complete</p>	<p>No Funding Requested - Time.</p>	

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<p>the associates degree of transfer in physics Status: Active Goal Year(s): 2017-18 Date Goal Entered (Optional): 05/11/2018</p>	<p>Support on how to get this done. Describe Plans & Activities Supported: Finish writing the AAT-Physics degree. Shepherd it through the curriculum process Lead: Phil Wolf/Martin Mason Type of Request: Professional Development, Research Support Planning Unit Priority: Medium What would success look like and how would you measure it?: AAT degree is complete, through curriculum and approved. Students transfer with an AAT-Physics degree. Documentation Attached?: No</p>	
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<p>Develop flipped classroom and update labs for Physics 2AG - Create video resources to support physics 2AG students that can be used optionally by physics faculty. Update physics 2AG labs to reflect changes in procedure and equipment. Status: Active Goal Year(s): 2017-18 Date Goal Entered (Optional): 05/11/2018</p>	<p>Full Funding Requested - Access to Windows Surface Pro tablet or laptop Describe Plans & Activities Supported: The department has had some success with the flipped format in Physics 4A. One section of PHYS 2AG has used some modified 4A flipped material with some promise. Present flipped materials have been developed on a professor's personal iPad, but many folks on campus who have created some materials for their own flipped classroom has been very satisfied with the simplicity of developing these on a Windows Surface Machine. The ability to experiment with such a machine might facilitate a much faster production of flipped videos. PHYS 2AG labs need to be updated to take advantage of newer</p>	
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equipment that was not available when the original lab manuals were written.

Lead: Phil Wolf

One-Time Funding Requested (if applicable): 2500

Type of Request: Instructional Equipment

Planning Unit Priority: Medium

What would success look like and how would you measure it?: All PHYS 2AG instructors would have access to flipped content to use in their courses.

PHYS 2AG lab manuals would explicitly take advantage of newer physics lab apparatus.

Documentation Attached?: No

Full Funding Requested - Additional class set of rotary motion sensors and two class sets of accessory kits to make them fully useful.

Describe Plans & Activities

Supported: Our present labs do not make use of these digital rotational motion sensors. Prof Wolf has put together demonstrations that take advantage of them. Updating the labs and then integrating these sensors into two spatially distinct classroom labs will allow us to run a whole series of rotation labs in all of our PHYS 2AG sections.

Lead: Phil Wolf/Maria Vaughn

One-Time Funding Requested (if applicable): 4500

Type of Request: Instructional Supplies

Planning Unit Priority: Medium

What would success look like and

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how would you measure it?:
 Equipment would be purchased and distributed among the two PHYS 2AG classrooms. Student would be running rotational motion labs using digital equipment tied to computer-based measurement systems.
Documentation Attached?: No

Provide thoughtful and effective mentorship for new full time faculty.
 - The department is adding new faculty who will need acculturation.
Status: Active
Goal Year(s): 2017-18
Date Goal Entered (Optional):
 05/11/2018

Update and modify the curriculum for Introductory Physics 1 courses -
 This course is in need of investment in lab and lecture curricular transformation. The course curriculum is based on projects that are two decades old and is no longer optimally meeting students needs.
Status: Active
Goal Year(s): 2018-19
Date Goal Entered (Optional):
 05/11/2018

Expand the coverage of course material in SLOs - Continue to develop new SLOs that cover a broader range of course content.
Status: Active
Goal Year(s): 2017-18
Date Goal Entered (Optional):
 05/11/2018

Promote life science course to

<i>Unit Goals</i>	<i>Resources Needed</i>	<i>Where We Make an Impact: Closing the Loop on Goals and Plans</i>
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appropriate audience - Increase enrollment in physics 6A and 6B and ensure that the course is serving the needs of its client population.
Status: Active
Goal Year(s): 2017-18
Date Goal Entered (Optional): 05/11/2018

Paid laboratory activity training for adjunct faculty - Create a paid laboratory activity training for adjunct faculty to allow them to develop laboratory skills and familiarity specific to the particular equipment used in Mt. SAC laboratories.
Status: Active
Goal Year(s): 2017-18
Date Goal Entered (Optional): 05/11/2018

Full Funding Requested - Hourly compensation at the non-teaching rate or a stipend for training adjunct instructors how to carry out some of the various labs we teach across the department
Describe Plans & Activities Supported: Our department teaches in workshop-style, integrated lecture-lab format that has the potential to strongly leverage the connection between lab activities and the material presented in lecture. While part of a full-time instructors' compensation is for testing and preparing for labs, adjunct instructors are paid only for time in the classroom and not for the time required to master the lab apparatus or to develop a familiarity with equipment that would give them the ability to anticipate and troubleshoot questions that come up in lab. As a result, the students in some adjuncts' courses do not have the same quality of lab experience that occurs in full-time instructors' courses.
 Funding would provide a stipend for a full-time professor to plan workshops for our adjunct

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instructors and to do the work to get these workshops approved through POD for staff-development credit; and to compensate adjunct instructors for attending workshops.
Lead: Phil Wolf/Malcolm Rickard
One-Time Funding Requested (if applicable): 5000
On-Going Funding Requested (if applicable): 1500
Type of Request: Professional Development, Research Support
Planning Unit Priority: Medium
What would success look like and how would you measure it?: Adjunct faculty will attend workshops and be better prepared for labs. Lab equipment would not get burned out or broken as often as presently. Students in adjuncts' course sections will finish with a richer lab experience.
Documentation Attached?: No

Coaching status for Engineering 50A instructor - Engineering 50A is a team course which requires substantial travel, Saturday and late night commitment beyond the standard scheduled course hours. This work is consistent with other teams that receive coaching support.
Status: Active
Goal Year(s): 2017-18
Date Goal Entered (Optional): 05/11/2018

Parity for all engineering labs - Engineering labs require substantial teaching in the laboratory and
No Funding Requested - Time. Describe Plans & Activities Supported: Submitting a course for

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substantial evaluation of laboratory work consistent with the parity criteria.
Status: Active
Goal Year(s): 2017-18
Date Goal Entered (Optional): 05/11/2018

Lab Parity requires time.
Lead: Martin Mason/Eugene Mahmoud/new Physics instructor
Planning Unit Priority: High
What would success look like and how would you measure it?: All Engineering Lab Courses would receive parity.
Documentation Attached?: No