1. Assessment Plan - Four Column

PIE - Technology & Health: Architecture, Industrial Design Engineering & Manufacturing Unit

Narrative Reporting Year

2018-19

Contact Person: Stephen James
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Program Planning Dialog: 1. Pursue collaborative program hybrid certifications that make use of existing courses. Example: Fabrication certificate between Welding and MFG; Mechatronics certification between IDE, MFG and Elec. This would add value to existing courses without increasing costs. It would also capture students who are already taking these course combinations on their own because they recognize the inter-related need for these skills.

2. Bring back the SolidWorks User Group Network (SWUGN) to improve visibility of programs to industry and prospective students and to provide a useful resource to students.

3. Develop lab projects and related content for ECT courses to improve student cognition by supporting and applying lecture material.

4. Continue to develop compound lab projects that closely represent industry practice

5. Focus on increasing enrollment; improving programs,re-evaluate participation in all events and activities and abandon those that are unproductive and time-consuming.
External Conditions, Trends, or Impacts: 1. Critical need for program marketing, especially to industry in all programs; The effort required is beyond the capacity the department faculty. Need support for adjunct faculty to assist with industry outreach.

2. All of the Architecture schools in California have substantial shop facilities and fabrication areas that are integrated into the curriculum and are being emphasized in the learning process. This places the MtSAC Architecture program at a disadvantage as we lack these facilities and areas.

3. Faculty of 3 departments (IDE/MFG/ ELEC / WELD) have recognized the need and benefit to the school of developing a certificate and related curriculum to address industry trends in fabrication and automation/ mechatronics. Many students from these programs already recognize the benefit that having a broad skill set gives them in a highly dynamic, competitive job market. They are already taking classes in these four programs simultaneously without being recognized by the school. These "hybrid certificates" could be done using existing classes so impact on the school would be negligible.

Internal Conditions, Trends, or Impacts : Shop and material storage space constraints continue to be an increasing physical, logistical and safety problem. Much effort put into addressing these in the new building, however solutions are needed in the interim.

Critical need for program marketing, especially to industry; The effort required is beyond the capacity of the department.

Need for a dedicated equipment technician to support the Arch program.

High level of student dysfunction (economic, transportation, psychological, family etc) is the single most important factor in student withdrawals and failure despite wide range of available support services.

Grant funding for the Mountie Makerspace recently ended. Many students from our department use this resource on a regular basis. We support

Our programs have many basic maintenance and technical needs that go unaddressed for months at a time. We have equipment that was purchased nearly six months ago that we cannot use because requests for a socket replacement have not been filled. Lights in multiple rooms in building 28a/B and 13 are out or flickering and have been that way for months despite school dude requests being placed.

Our painting and finishing area needs improvement.

Community volunteer and student assistant help for increasing use of high tech equipment such as laser cutters, 3D printers, various CNC machines, injection molder etc. We need reliable assistance that is not contingent on unstable grant funding.

Night students have difficulty submitting applications for certificates because they work during the day. The school tends to discount how difficult it is for working students to get special time off to do something as menial as submit a form. It is in the interest of the school and it's programs to improve this access. This is an unrecognized equity issue. The easier it is for students to submit their certificates, the more they will succeed at this.
Critical Decisions Made by Unit: 1. Need to develop cross-program collaborative lab projects and demonstration to promote cross-discipline collaboration between students
2. New Arch faculty hired to replace failed probationary hire in 2018
3. New MFG tech faculty resulted in a failed probationary faculty in Spring 2018. Plan to hire replacement during Spring 2019

Notable Achievements for Theme A: To Advance Academic Excellence and Student Achievement: 1. Architecture and Design club students won first place in the Design Village Competition at Cal Poly SLO

2. 19 students transfers in Arch to CalPoly Pomona, Cal Poly SLO, UC Berkeley, UCLA, Pratt Institute, and SCI Arc

1. 28 MFG 220 students passed the SolidWorks industry certification (CSWA) exam and 9 passed the higher level CSWP exam. A substantial increase from last year. This continues to be a popular class that draws students into other areas of the program. Students who pass this class are also eligible for the MtSAC CAD certificate.

2. 75% of graduating IDE students achieved level 3 certification.

3. 86% of third semester IDE students achieved their Level 2 certification

4. 94% of second semester IDE students achieved their Level 1 certification

5. IDE/EDT/MFG: 7 students hired by various local industries, 1 IDE Student transferred to 4 Year universities; Several more have applied or are applying to transfer upon completion on their G.E. requirements

6. Implementation of certificate submissions in WebCMS resulted in duplication and many instances of courses being scrambled for the Arch, IDE and MFG (and likely other)

programs. This results in much student confusion and substantial administrative time to correct. Web CMS submissions were entered correctly and approved but were entered incorrectly by WebCMS administrators or other personnel. Faculty need support from administration personnel to input and maintain internal systems accurately and effectively without constant faculty oversight. This is one of the most dysfunctional but most critical areas of the school's systems.

7. New dedicated CNC machining courses started Spring 2018 have been very successful and popular with students.

8. Increasing student interest in participating in the work experience course

9. Basement FABLAB is open and being used by ARCH 142 students

10. Added rotational casting machine (Strong Workforce Grant Funding)

11. Added sheet metal brake and shears to support new and on-going sheet metal curriculum in IDE/MFG and Arch

12. Added 6 more Haas CNC simulators for the MFG tech program.

Notable Achievements for Theme B: To Support Student Access and Success: Submission of certificate applications by students in night programs (who typically work during the day) continues to be an impediment to both student's and the school's success. The school needs to recognize and address this long-standing problem. The easier it is for students to submit applications, the more certificates will be awarded. Many students simply "walk away" because it is too difficult for them to leave work early to turn in the documents.

IDE and MFG websites completely redeveloped.

IDE Student selected to develop new product prototype for a client

Department shop facility in 28-102 has been significantly re-organized to improve access, usefulness and efficiency

Department completed pathways mapping

IDE developing articulation with The New School of Architecture

Notable Achievements for Theme C: Secure Human, Technological, & Financial Resources: 1. Completed the Cross-Town Partnership collaboration with GCC, PCC and Cerritos colleges (Strong Workforce Grant) This resulted in two popular and productive projects for MtSAC (headphones and air compressor projects). The 4 year collaboration was a nearly complete failure because.

2. Equipment Technician was hired spring 2019 ensuring more consistent operation and access to the shop resources.

3. Shop skills and higher levels of "Maker Critical Thinking" continue to be integrated into the IDE, ARCH Programs course content which helps to close the gap between design process and the construction of built elements. This is a process which requires continual development.

4. Planned donation of a Video Measuring machine from Precision Coil Spring (industry advisor) will greatly help develop a metrology lab to support design and fabrication activities in the IDE and MFG programs by helping students evaluate and compare parts they have machined to the original print, better representing industry practice.

5. Arch Field Lab lacks permanent indoor lighting which makes working there difficult and hurts the programs credibility with students.

6. Basement Fab Lab is now in use by Arch students but needs larger scale air cleaners and dust collectors.

7. Ongoing need for transportation to off campus events such as the Design Village competition and field trips

8. Faculty copier in (28B 3rd floor) fails constantly making it nearly useless. The fact that it is on the third floor compounds the problem by wasting faculty time going to the third floor only to find the machine out of order again

9. Community Volunteer status for several community members has greatly enhanced student success by increasing open lab time and providing supplemental mentor-ship

Notable Achievements for Theme D: To Foster an Atmosphere of Cooperation and Collaboration: Working with welding faculty to establish a new "Fabrication Certificate"

Dual monitors added to 301a have greatly aided student workflow. need to add monitor arms to other rooms to make use of legacy monitors.

Articulation agreement with Cal Poly San Luis Obispo's Architecture program: Arch history courses revised to meet Cal Poly SLO requirements. Sylabi are being updated. Faculty will meet with CPSLO chair regarding final articulation approval.

IDE/MFG plans to continue collaboration with PCC Electronics and MFG programs to develop inter-college collaboration
Contributors to the Report: Stephen James - IDE/ MFG
Hiro Kuroki- Arch/ ECT

Unit Goals	*Resources Needed*	*Where We Make an Impact: Closing the Loop on Goals and Plans*
Effective and Efficient Use of Facilites, Equipment and Infrastructure - Optimize the use of classrooms, labs, equipment and infrastructure to support, augment and reinforce the curriculum and improve the learning experience. **Status:** Active **Goal Year(s):** 2015-16, 2016-17, 2017-18, 2018-19, 2019-20, 2020-21 **Date Goal Entered (Optional):** 06/26/2017	**Request - Full Funding Requested -** Dual monitors and monitor arms 25 sets of dual monitor arms: $8k (No additional computers required--this will allow us to make use of a set of existing monitors that is not currently being used) **Describe Plans & Activities Supported (Justification of Need):** Currently IDE/MFG only has dual monitors in 2 of 4 rooms and these are approximately 10 year old and are a different resolution than the primary monitors. Evaluate and compare design criteria and engineering prints and use information to construct CAD models and solve design problems by comparing current state of CAD	**Reporting Year:** 2018-19 **% Completed:** 25 Workstations and monitor arms have not been funded. Some dual monitors have been added for IDE/ MFG in 301A using old, smaller monitors left-over from replaced computer workstations but this implementation is substandard and problematic. The large majority of the class regularly comments on how useful the second monitors are for CAD and related activities--especially the CSWA and CSWP certification exams. Outdated desks and furniture from the 1980's impacts program credibility and student self esteem because it appears the college does not take them seriously. New chairs in two rooms are a step in the right direction, but these were not really the problem. Students preferred

Unit Goals	Resources Needed	Where We Make an Impact: Closing the Loop on Goals and Plans
	model to design and engineering requirements and goals. **Lead:** Stephen James **What would success look like and how would you measure it?:** Noticeable student engagement, project accuracy and speed of completion. (We added dual monitors in one room already and students are very enthusiastic about how much this helps them.) **Type of Request:** INSTRUCTIONAL SUPPORT PROGRAM FUNDING (INSTRUCTIONAL EQUIPMENT): Equipment, library material, or technology for classroom instruction, student instruction or demonstration, or in preparation of learning materials in an instructional program, equal or over $500. **Planning Unit Priority:** Medium **Documentation Attached?:** Yes **One-Time Funding Requested (if applicable):** 8000 **Related Documents:** PIE 2016-2017 MONITOR ARMS 01.pdf PIE 2016-2017 TABLES 01.pdf	the original chairs because the were much more comfortable. (05/10/2019) **Reporting Year:** 2017-18 **% Completed:** 25 Experiment with using smaller tables and dual monitors in one room (301a) has been extremely successful and popular with students. Need to replicate in other rooms. Some existing monitors can be re-used to minimize cost. (06/27/2017) **Related Documents:** PIE 2016-2017 MONITOR ARMS 01.pdf PIE 2016-2017 TABLES 01.pdf	**:** Faculty notice large improvement in student performance, cognitive clarity, less frustration and faster, more direct application of lab assignments in large part due to the dual arm monitors. Students will stay after class and use school equipment because they only have single screens at home or on a laptop. Space constraints continue to be a problem. (06/27/2017)
	Request - No Funding Requested - Use of large class room or auditorium for SolidWorks User Group Network (SWUGN) meetings **Describe Plans & Activities Supported (Justification of Need):** See Marketing section for description Help with marketing and hosting the event **Lead:** Steve James, Jesus Galaz **What would success look like and**	**Reporting Year:** 2018-19 **% Completed:** 0 Proposed-not yet started (05/14/2019)	

Unit Goals	*Resources Needed*	*Where We Make an Impact: Closing the Loop on Goals and Plans*
	how would you measure it?: Increased engagement with programs, increased enrollment, higher student performance **Type of Request:** MARKETING: Requests for services in the areas of graphic design, news, and photography, posting information, communication and social media. **Planning Unit Priority:** High **Documentation Attached?:** No **One-Time Funding Requested (if applicable):** 0	
Experience and Application of Program Skills - Use Work Experience class to help students practice skills learned in IDE/MFG and develop work-related skills and habits. This is an increasingly popular and valuable means of helping students practice and develop skills while also building the "maker culture" and sense of community that is valuable to students and vital to department programs **Status:** Active **Goal Year(s):** 2017-18, 2018-19, 2019-20, 2020-21 **Date Goal Entered (Optional):** 06/27/2017	**Report directly on Goal**	**Reporting Year:** 2017-18 **% Completed:** 100 The work experience course has been very successful. An increase in student participation during the winter intercession of over 50% compared to the summer intercession. With the closing of the EDT program, the course has been split into two courses and renamed: MFG 89: Work Experience in Manufacturing, and IDE 89 Work Experience in Industrial Design Engineering (04/20/2018)
	Request - No Funding Requested - Work Experience (Internal, for programs) Students work as fabrication interns to use and develop their skills to improve the Arch, ECT, IDE and MFG programs by assisting with. **Describe Plans & Activities Supported (Justification of Need):** Support for the Work Experience Program. This has been a valuable resource that helps students practice and develop the skills learned in class. **Lead:** Stephen James **What would success look like and**	

Unit Goals	Resources Needed	Where We Make an Impact: Closing the Loop on Goals and Plans
	how would you measure it?: Projects competed on time, with minimal supervision and at a professional level. Increased student proficiency and skill level. **Type of Request:** STAFFING: Requests for permanent employee positions or temporary/hourly employees. **Planning Unit Priority:** High **Documentation Attached?:** No **One-Time Funding Requested (if applicable):** 0	
	Request - Full Funding Requested - Access to shop and labs; Support from equipment technician and student aides. Some miscellaneous materials. (plastic, wood, metal)	**Reporting Year:** 2018-19 **% Completed:** 100 Students in the work experience classes all perform at much higher level and gain significant benefits in a range of areas from participating. (05/15/2019)
	Describe Plans & Activities Supported (Justification of Need): Work Experience (Individual or External) Students take EDT89 Work Experience to practice and develop and master skills learned in the program by developing projects for industry partners, or themselves. **Lead:** Stephen James **What would success look like and how would you measure it?:** Professional level completed project **Type of Request:** INSTRUCTIONAL SUPPORT PROGRAM FUNDING (INSTRUCTIONAL EQUIPMENT): Equipment, library material, or technology for classroom instruction, student instruction or demonstration, or in preparation of learning materials in an instructional program, equal or over $500. **Planning Unit Priority:** Low	

Unit Goals	*Resources Needed*	*Where We Make an Impact: Closing the Loop on Goals and Plans*
	On-Going Funding Requested (if applicable): 500	
Facilities: Maintain and invest in industry-representative facilities and infrastructure - Continued need for updated facilities and infrastructure that are representative of industry practices in all programs in order to maintain industry level course content and expectations and to establish credibility with industry partners and potential students. Unpredictable, poorly functioning infrastructure impedes effective instruction and hurts program credibility. This includes lab facilities and equipment that are clean, organized, reliable and professional in operation and appearance. **Status:** Active **Goal Year(s):** 2015-16, 2016-17, 2017-18, 2018-19, 2019-20, 2020-21 **Date Goal Entered (Optional):** 06/20/2017	**Request - Full Funding Requested -** Work tables , storage lockers and work stools to populate and support new basement lab in Building 28A. This room was provided to support the ARCH program need to fabricate larger construction-oriented demonstration projects, but was provided empty. Until it is populated with basic work tables, lockers and seating, the room is impractical for class use and planning. The ARCH fabrication classes are forced to move between three rooms and work outside at night with insufficient lighting. the department has combined various tables and seating in an ad-hoc fashion, but this is not a sustainable long term solution. This situation continues to erode program credibility with students. **Describe Plans & Activities Supported (Justification of Need):** Facilitate and support the fabrication of durable functional structural models and construction-based demonstration projects. Infrastructure support for course lab projects **Lead:** S. James, I Sardinas **What would success look like and how would you measure it?:** Students have a usable, predictable space near the larger shop equipment	**Reporting Year:** 2017-18 **% Completed:** 0 No lockers or storage has been purchased. Several funding requests including the Perkins grant have not materialized. Limited storage space is an increasing problem for all programs in the department. The addition of the new architecture fabrication lab (basement of 28A) has increased the need for basic infrastructure items even more: seating (work stools), storage and work tables. (04/06/2018)

Unit Goals	Resources Needed	Where We Make an Impact: Closing the Loop on Goals and Plans
	in 28A that is protected from the elements. Reduced student frustration. More successful projects because students are not fighting basic infrastructure just to complete their projects **Type of Request:** INSTRUCTIONAL SUPPORT PROGRAM FUNDING (INSTRUCTIONAL EQUIPMENT): Equipment, library material, or technology for classroom instruction, student instruction or demonstration, or in preparation of learning materials in an instructional program, equal or over $500. **Planning Unit Priority:** Medium **Documentation Attached?:** Yes **One-Time Funding Requested (if applicable):** 30000 **Request - Full Funding Requested -** Full scale building and construction lab **Describe Plans & Activities Supported (Justification of Need):** Hand fabrication and construction of full scale demonstration structures is the heart of the ECT program but the program has no permanent, facility that supports program activities. Current ad-hoc "facility" is two storage containers with some insufficient outdoor lighting on an asphalt area. This need should eventually be addressed by the new building, but a more professional interim measure is needed until then **Lead:** I Sardinas **What would success look like and how would you measure it?:** Increased student access and success.	**Reporting Year:** 2017-18 **% Completed:** 0 This has not been funded. Classes are being held outside at night with ad hoc lighting and power. This is a credibility issue for students as well as adjunct faculty. (05/29/2018)

Unit Goals	Resources Needed	Where We Make an Impact: Closing the Loop on Goals and Plans
	Better use of class time and other resources. Reduced student frustration. **Type of Request:** FACILITIES: This section includes minor building improvement projects and alterations to specific rooms or operational areas. **Planning Unit Priority:** Low **One-Time Funding Requested (if applicable):** 50000	
	Request - Full Funding Requested - Material storage racks for basement lab. **Describe Plans & Activities Supported (Justification of Need):** Small space (approx 250 sqft); storage racks or equivalent **Lead:** Stephen James, Ignacio Sardinas **What would success look like and how would you measure it?:** Cleaner, more functional shop. Better use of limited space **Type of Request:** NON INSTRUCTIONAL EQUIPMENT: Tangible property with useful life of more than one year, other than land or buildings improvements, equal and over $500 per individual item. Used for administrative or non-instructional purposes. **Planning Unit Priority:** High **One-Time Funding Requested (if applicable):** 1200	**Reporting Year:** 2017-18 **% Completed:** 0 Unfunded, so we are proceeding ad hoc. This is a growing need impacted by the increased use of the shop area. This is critical to maximizing the use of limited shop floor space. We could reduce wasted floor space by maximizing unused vertical space using specialized material storage racks and related items (06/01/2018)
	Request - Full Funding Requested - Large scale dust collection system. (Cyclone dust collector(s), dust extraction ducting network and installation)	**Reporting Year:** 2018-19 **% Completed:** 0 Not funded or started presumably because of new building plans where this unit would be installed instead. We continue to operate on existing smaller units. (05/14/2019)

Unit Goals	Resources Needed	Where We Make an Impact: Closing the Loop on Goals and Plans
	Note: as of 2019 this may be on hold until we move to the new building where we expect a new system to be included in the plan **Describe Plans & Activities Supported (Justification of Need):** Many fabrication activities done by students in our department involve cutting, sanding and finishing of wood, plastic and metal materials. CNC machining is a core skill fir IDE, MFG and Arch and produces a large amount of dust. These and similar machines such as wood lathes are used in smaller, enclosed labs with dedicated dust collectors and room filtration, but a large, centralized unit would be more powerful and efficient. **Lead:** S. James **What would success look like and how would you measure it?:** Reduced dust. **Type of Request:** INSTRUCTIONAL SUPPORT PROGRAM FUNDING (INSTRUCTIONAL EQUIPMENT): Equipment, library material, or technology for classroom instruction, student instruction or demonstration, or in preparation of learning materials in an instructional program, equal or over $500. **Planning Unit Priority:** Low **One-Time Funding Requested (if applicable):** 25000	
	Request - Full Funding Requested - CNC Simulators for Haas CNC machining centers **Describe Plans & Activities Supported (Justification of Need):**	**Reporting Year:** 2018-19 **% Completed:** 75 6 more simulators were purchased through the Strong Workforce Grant. This is big step forward. These units still need stands which we plan to fabricate during summer

Unit Goals	Resources Needed	Where We Make an Impact: Closing the Loop on Goals and Plans
	Training, practice and validation for the operation of large CNC machining centers. CNC machining is at the core of the IDE and MFG programs because it is a common and central activity across many industries. Employers have a difficult time finding skilled, competent operators. Learning to operate these machines is complex and time consuming. One of the first steps is to learn the universal machine programing language "G-Code" which is entered directly into the machine's interface. CNC machine interface "simulators" are identical machine control panels that are separate from the actual machine to provide a means of learning and practicing the programming language without dedicating an actual machine for this purpose. More simulators mean more direct access and practice. Programming is the primary focus of MFG 250, and a part of several other courses. **Lead:** S. James **What would success look like and how would you measure it?:** Higher student access and improved skill set. Would not have to divide class into sections so that part of the class is programming while the other is engaged in another activity. Should be able to incorporate higher-level projects and skills if basic concepts can be attained by the entire class at the same time.	2019. Units will be used for classes starting Fall 2019 (05/14/2019)

Unit Goals	Resources Needed	Where We Make an Impact: Closing the Loop on Goals and Plans
	Type of Request: INSTRUCTIONAL SUPPORT PROGRAM FUNDING (INSTRUCTIONAL EQUIPMENT): Equipment, library material, or technology for classroom instruction, student instruction or demonstration, or in preparation of learning materials in an instructional program, equal or over $500. **Planning Unit Priority:** Medium **One-Time Funding Requested (if applicable):** 12000 **Request - Full Funding Requested -** Video Projectors for 28A-102k, 28B-301A ,28B-310 Current projectors are very old and very dim, even with a brand new bulb and the room lights turned down. Resolution is also very low so it is difficult to make out some text or tail from the middle to rear of the room. Our programs rely heavily on these projectors for lectures and CAD demonstrations. Having to turn down the lights creates ancillary problems with students becoming too relaxed or distracted. . Our current projectors are over 10 years old. **Describe Plans & Activities Supported (Justification of Need):** Daily CAD lab operation. Program lecture presentations, CAD/CAM demonstrations. CAD and design-related activities for IDE, MFG. GIS and other programs. **Lead:** S James **What would success look like and how would you measure it?:** Ability	

Unit Goals	Resources Needed	Where We Make an Impact: Closing the Loop on Goals and Plans
	to see the screen in medium light and see higher levels of detail typical in industrial prints and CAD projects. Reduction of student frustration and better comprehension & perception of concepts. **Type of Request:** INSTRUCTIONAL SUPPORT PROGRAM FUNDING (INSTRUCTIONAL EQUIPMENT): Equipment, library material, or technology for classroom instruction, student instruction or demonstration, or in preparation of learning materials in an instructional program, equal or over $500. **Planning Unit Priority:** High **Documentation Attached?:** No **One-Time Funding Requested (if applicable):** 3500 **Request - Full Funding Requested -** Dedicated outdoor lighting for construction field lab. **Describe Plans & Activities Supported (Justification of Need):** Casting of concrete footings and fundamental fabrication of framed example structures. These activities are critical to instill an understanding of the practical application of architectural construction concepts. This lab and the activities it provides support the "hands-on maker" philosophy of the department. **Lead:** S. James **What would success look like and how would you measure it?:** Students can see what they are working on--especially during fall semester when it is completely dark. Safe working environment. Course	**Reporting Year:** 2018-19 **% Completed:** 50 Partially started. Some lights were installed ad hoc, but these are not ideal. Mediocre infrastructure hurts our credibility with students. (05/14/2019)

Unit Goals	Resources Needed	Where We Make an Impact: Closing the Loop on Goals and Plans
	will not have to rely on borrowed, inadequate lighting for classes. **Type of Request:** INSTRUCTIONAL SUPPORT PROGRAM FUNDING (INSTRUCTIONAL EQUIPMENT): Equipment, library material, or technology for classroom instruction, student instruction or demonstration, or in preparation of learning materials in an instructional program, equal or over $500. **Planning Unit Priority:** Medium **One-Time Funding Requested (if applicable):** 5000 **Request - Partial Funding Requested -** Support for the development of a metrology lab. **Describe Plans & Activities Supported (Justification of Need):** Metrology Lab development. Measuring machined parts is essential to understanding how to make them correctly. Manufacturing and design fabrication requires high precision measurements in thousandths of an inch that are not visible to the naked eye. Industry partner Precision Coil Spring is donating their Video Measuring Machine (VMM) for this purpose. We would like additional support to purchase additional metrology equipment and instruments. **Lead:** S. James **What would success look like and how would you measure it?:** Students can verify that parts they have machined or fabricated meet the engineering print. This is a critical skill that is valuable to industry.	

Unit Goals	*Resources Needed*	*Where We Make an Impact: Closing the Loop on Goals and Plans*
	Type of Request: INSTRUCTIONAL SUPPORT PROGRAM FUNDING (INSTRUCTIONAL EQUIPMENT): Equipment, library material, or technology for classroom instruction, student instruction or demonstration, or in preparation of learning materials in an instructional program, equal or over $500. **Planning Unit Priority:** High **Documentation Attached?:** No **One-Time Funding Requested (if applicable):** 5000	
Inter-Program Collaboration - Continue current collaboration efforts between programs and foster new ones. **Status:** Active **Goal Year(s):** 2017-18, 2018-19, 2019-20, 2020-21 **Date Goal Entered (Optional):** 06/16/2017	**Report directly on Goal**	**Reporting Year:** 2017-18 **% Completed:** 25 Increased participation and collaboration between IDE and Arch programs. Increased use of main shop area and use of equipment by Arch faculty and students--especially laser cutters and CNC routers. IDE faculty has provided several training sessions for CNC router and 3D printers. 3D printing is planned to be adopted by arch during the upcoming year. (04/20/2018)
	Request - Full Funding Requested - CAD Software (AutoCAD & SolidWorks) Electronic components, 3D printing, laser cutting and general fabrication supplies. Lab facilities for electronic and physical models Fabrication equipment **Describe Plans & Activities Supported (Justification of Need):** Continue to develop collaboration with ELEC programs after very successful pilot project during semester Fall 2016. This has been a very successful endeavor and popular with students, who	

Unit Goals	Resources Needed	Where We Make an Impact: Closing the Loop on Goals and Plans
	recognize the reasoning and relevance of the project. Planing to pursue additional projects internally and with other schools beginning Fall 2018 **Lead:** Stephen James (IDE) & Joe Denny (ELEC) **What would success look like and how would you measure it?:** Students acquire wider understanding of other related industries and how they overlap with their own field of study. Students have direct, first-hand experience of the thought processes and technical goals of related industry partners. **Type of Request:** INSTRUCTIONAL SUPPORT PROGRAM FUNDING (INSTRUCTIONAL EQUIPMENT): Equipment, library material, or technology for classroom instruction, student instruction or demonstration, or in preparation of learning materials in an instructional program, equal or over $500. **Planning Unit Priority:** High **One-Time Funding Requested (if applicable):** 2000 **Request - No Funding Requested -** Administrative and development support for hybrid program certificates such as a "Fabrication Certification" (between Welding, ,IDE and MFG); Automation/ Mechatronics Certification (ELEC, IDE/MFG) **Describe Plans & Activities Supported (Justification of Need):** Many students from the IDE, MFG , ELEC and WELD programs take	

Unit Goals	Resources Needed	Where We Make an Impact: Closing the Loop on Goals and Plans
	courses in these other programs, because they recognize the usefulness to their skill set and marketability in the evolving and technically diverse job market. Our programs are not recognizing or capturing these achievements. These proposed certificates would make more efficient use of existing courses and would introduce students from one area to other related disciplines **Lead:** Steve James **What would success look like and how would you measure it?:** New certificates in these areas **Type of Request:** STAFFING: Requests for permanent employee positions or temporary/hourly employees. **Planning Unit Priority:** High **Documentation Attached?:** No **One-Time Funding Requested (if applicable):** 0	
MFG Faculty - Program desperately needs a full time faculty. A failed probationary hire in fall 2018 has put extra stress on the department and program. Planning to begin the hiring process in fall 2019 **Status:** Active **Goal Year(s):** 2016-17, 2018-19 **Date Goal Entered (Optional):** 09/01/2016	**Report directly on Goal** **Request - No Funding Requested -** Full time faculty needed for Manufacturing Tech program **Describe Plans & Activities Supported (Justification of Need):** A failed probationary hire in fall 2018 has put extra stress on the department and program. Students are not well-served by adjunct-only program. **Lead:** S. James **What would success look like and**	**Reporting Year:** 2016-17 **% Completed:** 100 Faculty hired (03/08/2018)

Unit Goals	*Resources Needed*	*Where We Make an Impact: Closing the Loop on Goals and Plans*
	how would you measure it?: Improved program operation and performance for both IDE and MFG programs. Higher academic and administrative productivity. Better student support and access. **Type of Request:** STAFFING: Requests for permanent employee positions or temporary/hourly employees. **Planning Unit Priority:** High **One-Time Funding Requested (if applicable):** 0	
Promote a "Hands-on "Maker" Philosophy - Promote goal-oriented iterative experimentation and the physical application of conceptual and virtual processes. **Status:** Active **Goal Year(s):** 2017-18, 2018-19, 2019-20, 2020-21 **Date Goal Entered (Optional):** 06/14/2017	**Report directly on Goal**	**Reporting Year:** 2018-19 **% Completed:** 75 Increased use of large shop in 28A-102 and full size equipment by architecture students has greatly increased the "hands-on" experience for them. In particular, the increased use of the CNC routers in collaboration with the IDE program has provided a way for students to connect the design of digital objects to the fabrication of the physical version. Availability of the Maker Space has encouraged students to continue working on their own projects after class and on Fridays and Saturdays. New, full-time equipment technician hired 2/25/19 Two people brought on as community volunteers to mentor students and monitor shop area/ support school policies of students not working alone in shop. Student assistants unavailable during class time so need to hire outside personnel as prof experts Still have time gaps with no coverage which require students to stop working in shop. This typically leads to them leaving when they would otherwise continue. In addition, the shop area is closed on Friday and weekends. To meet the goal of building and supporting our "maker

Unit Goals	Resources Needed	Where We Make an Impact: Closing the Loop on Goals and Plans
	Report directly on Goal	culture" it is critical to maintain access to the shop during hours of operation. (04/10/2019)
	Request - Full Funding Requested - Professional expert(s) that are not taking program courses and can continue assisting between semesters and regardless of the cohort timing. **Describe Plans & Activities Supported (Justification of Need):** Coverage for increased open lab time, assistance to professors who teach shop oriented courses when student workers are not available. **Lead:** Steve James, Hiro Kuroki **What would success look like and how would you measure it?:** Increased use of shop, better continuity in student work (students who would otherwise stay and work, leave when shop is shut down for a few hours between day and night programs. Increased experience and higher skill levels. Better shop "community" **Type of Request:** STAFFING: Requests for permanent employee positions or temporary/hourly employees. **Planning Unit Priority:** High **Documentation Attached?:** No **On-Going Funding Requested (if applicable):** 5000	
	Request - No Funding Requested - Support for Mountie MakerSpace **Describe Plans & Activities Supported (Justification of Need):** The Mountie Maker Space has developed over the last several years and has become critically important to students within and outside of our	

Unit Goals	Resources Needed	Where We Make an Impact: Closing the Loop on Goals and Plans
	department. It should be supported by the school and made permanent. We are unsure of resource requirements, but would like the Maker Space supported on behalf of our students **What would success look like and how would you measure it?:** Higher success rate of students who benefit from additional open lab time and from symbiotic contact with "maker-minded" students from other disciplines. Higher confidence and wider exposure to skills by sharing with and learning from fellow students. **Type of Request:** STAFFING: Requests for permanent employee positions or temporary/hourly employees. **Planning Unit Priority:** High **Documentation Attached?:** No **On-Going Funding Requested (if applicable):** 0	
Program Marketing - Increasing awareness of programs through a range of marketing and outreach activities is currently the single, most needed resource for IDE and MFG Tech. School resources and on-campus advertising are insufficient and too inflexible to reach our target demographic. **Status:** Active **Goal Year(s):** 2018-19, 2019-20, 2020-21 **Date Goal Entered (Optional):** 06/25/2018	**Report directly on Goal** **Request - Full Funding Requested -** Marketing activities including	**Reporting Year:** 2018-19 **% Completed:** 25 Department websites have been substantially improved, Instagram presence has been established but needs much more support . need much more substantial help than faculty can realistically provide (05/14/2019) **Reporting Year:** 2017-18 **% Completed:** 25 Basic marketing activities have begun (improved website, photo and video documentation or class activities, student success, social media etc) But more resources are needed to effectively support advertising in the local community, industry publications and similar avenues. (05/26/2018)

Unit Goals	Resources Needed	Where We Make an Impact: Closing the Loop on Goals and Plans
	campus vehicle signage and wraps, metro bus ads and radio ads. Printed materials and resources. Internal events (open house, user group meetings etc, HS outreach events) Support for student ambassadors and related outreach **Describe Plans & Activities Supported (Justification of Need):** Build awareness and support for programs through internal events (open house, user group meetings etc, HS outreach events) Support for student ambassadors and related outreach. Printed and digital content External assistance from industry-oriented and connected marketing groups. **Lead:** S. James **What would success look like and how would you measure it?:** Increased enrollment and community and industry awareness and engagement with the programs **Type of Request:** MARKETING: Requests for services in the areas of graphic design, news, and photography, posting information, communication and social media. **Planning Unit Priority:** High **One-Time Funding Requested (if applicable):** 500 **Request - Full Funding Requested -** Professional industry marketing consultant to raise image and awareness of school and programs with local industry. MtSAC marketing does not target industry	

Unit Goals	Resources Needed	Where We Make an Impact: Closing the Loop on Goals and Plans
	demographic **Describe Plans & Activities Supported (Justification of Need):** Need for industry specific, professional marketing effort that is capable of targeting and reaching potential students specific to IDE/ MFG. This is a critical need that is beyond the capabilities of the program faculty and the school at large. Initial research and strategy outline produced Specific channels media plan Content for social media written, placed according to plan Creation of a special web landing page PR release written and sent to radius publications Creation of a new printed branding/message Outreach to related trades Outreach to off-campus veterans groups **Lead:** S. James **What would success look like and how would you measure it?:** Improved industry and community awareness of programs and increased enrollment **Type of Request:** MARKETING: Requests for services in the areas of graphic design, news, and photography, posting information, communication and social media. **Planning Unit Priority:** High **One-Time Funding Requested (if applicable):** 12000 **Request - Partial Funding Requested**	

Unit Goals	Resources Needed	Where We Make an Impact: Closing the Loop on Goals and Plans
	- SolidWorks User Group Network (SWUGN) Event Free parking for attendees one night per month. Small budget for Pizza and soda or similar Room with projector and CAD stations (Suggest 28B-310) **Describe Plans & Activities Supported (Justification of Need):** SolidWorks User Group Network (SWUGN) is a country-wide monthly event that brings together SolidWorks users from the area to share skills and knowledge, "tips and tricks" and everything related to CAD culture. This event is important exposing industry users to the school and in creating network opportunities for industry professionals and students alike. This is a huge "free marketing" benefit to the school and both IDE and MFG Tech programs by 1) bringing in a wide range of people who have interests in program topics. 2) bringing in fresh prospects to fill adjunct professor roles as well as advisory board members. 3) reinforcing and strengthening the currency and connections to industry. http://www.swugn.org/swugn/docs/SWUGN_Starter_Kit_2016.pdf **Lead:** Stephen James, Jesus Galaz **What would success look like and how would you measure it?:** Successful, regular and well attended	

Unit Goals	Resources Needed	Where We Make an Impact: Closing the Loop on Goals and Plans
	events. Increased enrollment, increased industry connections, hiring opportunities for employers/ students. Increased skills for students who learn supplemental skills outside the scope of program curriculum **Type of Request:** SUPPLIES AND MATERIALS: Instructional supplies and materials are items to be used by students, faculty and other personnel in connection with an instructional program, less than $500. **Planning Unit Priority:** High **Documentation Attached?:** No **On-Going Funding Requested (if applicable):** 500	
Restructuring of Manuacturing Technology Program - Restructuring of MFG program and certificates. **Status:** Active **Goal Year(s):** 2017-18, 2018-19 **Date Goal Entered (Optional):** 09/01/2016	**Report directly on Goal**	**Reporting Year:** 2017-18 **% Completed:** 50 New courses in place. Some modifications still required as program develops. Reduced number of classes offered each semester but now classes will be offered during the winter and summer inter-sessions. Spring was the first offering of MFG 260 the first dedicated CNC operation course offered at Mt SAC and a critical need for industry partners. (04/11/2018)
	Request - Full Funding Requested - Assistance from adjunct faculty and professional experts to assist with development of new program. This would help compensate for the current lack of full-time faculty. **Describe Plans & Activities Supported (Justification of Need):** Support for faculty to develop and refine the revised MFG program **Lead:** S. James **What would success look like and how would you measure it?:**	

Unit Goals	Resources Needed	Where We Make an Impact: Closing the Loop on Goals and Plans
	Improved curriculum and lab projects. More coherent program flow. **Type of Request:** STAFFING: Requests for permanent employee positions or temporary/hourly employees. **Planning Unit Priority:** Medium **One-Time Funding Requested (if applicable):** 3000	
Software Currency and Timely Implementation. - Ensure most current versions of core program software packages are purchased, installed and debugged prior to program start each semester. Digital design, engineering and visualization software is at the core of three of the four department programs and is used for most of the curriculum. Software drives other industry-related digital fabrication technologies such as laser-cutting, 3D printing and CNC machining. Maintaining current and relevant software is extremely important in helping our students meet industry needs and compete in the job market as well as successfully transfer to four-year institutions. **Status:** Active **Goal Year(s):** 2017-18, 2018-19, 2019-20, 2020-21 **Date Goal Entered (Optional):** 06/19/2017	**Report directly on Goal**	**Reporting Year:** 2018-19 **% Completed:** 0 Software issue continue to impede student access and success in IDE and MFG programs. CAD installations are incomplete and require daily modifications to operate correctly which is time consuming and distracting and creates an additional, unnecessary source of error and frustration for students and faculty. (05/14/2019) **Reporting Year:** 2017-18 **% Completed:** 50 Software packages are at the core of our programs and vital to their success. Our software drives all other program activities from conceptual design to documentation and fabrication of projects. Funding for software is critical to student success each year. It is critical that new software updates are installed and tested well before the start of classes each semester or year in order to maintain program continuity and credibility with students. It is critical that software is installed with the appropriate default options. Current and previous installations have been incorrect requiring students to perform a basic software configuration for every class which greatly impacts class-time budget, student frustration and erodes "technology" program credibility. (04/06/2018)
	Request - Full Funding Requested - Rhino, Revit, SolidWorks, MasterCAM, AutoCAD, and similar miscellaneous software per associated contracts and program	**Reporting Year:** 2017-18 **% Completed:** 100 Software packages are at the core of our programs and vital to their success. Our software drives all other program activities from conceptual design to documentation and

Unit Goals	Resources Needed	Where We Make an Impact: Closing the Loop on Goals and Plans
	needs. (Cost of some contracts are divided over several years) Rhino ($3k-Arch) Revit ($5k-Arch) SolidWorks ($7k/ 3 year license--IDE/ MFG) Master Cam ($5k--MFG) AutoCAD ($5k--MFG) Misc: $3k (All Programs) **Describe Plans & Activities Supported (Justification of Need):** This software is the foundation of all 4 programs. It is used on a daily basis by students and faculty and is critical to the continued operation of the programs in the department Software renewals and maintenance. Use current software to design, evaluate, document and fabricate mechanical and product-oriented projects **Lead:** I. Sardinas, S James, H.Kuroki **What would success look like and how would you measure it?:** Successful acquisition and implementation **Type of Request:** INSTRUCTIONAL SUPPORT PROGRAM FUNDING (INSTRUCTIONAL EQUIPMENT): Equipment, library material, or technology for classroom instruction, student instruction or demonstration, or in preparation of learning materials in an instructional program, equal or over $500. **Planning Unit Priority:** High **On-Going Funding Requested (if applicable):** 21000	fabrication of projects. Funding for software was critical to student success for the year. This funding is program critical and will recur every year. (06/26/2017)

Unit Goals	*Resources Needed*	*Where We Make an Impact: Closing the Loop on Goals and Plans*
Software: Manitain current, industry-representative software. - Digital design, engineering and visualization software is at the core of three of the four department programs and is used for most of the curriculum. Software drives other industry-related digital fabrication technologies such as laser-cutting, 3D printing and CNC machining. Maintaining current and relevant software is extremely important in helping our students meet industry needs and compete in the job market as well as successfully transfer to four-year institutions. **Status:** Active **Goal Year(s):** 2017-18, 2018-19, 2019-20, 2020-21 **Date Goal Entered (Optional):** 09/01/2016	**Report directly on Goal** **Request - No Funding Requested -** Sufficient funding to help IT personnel effectively implement yearly software upgrades **Describe Plans & Activities Supported (Justification of Need):** Need more effective support from IT staff when installing software. This may require a slightly larger time investment. We have not had this support for several years and it has substantially degraded the operation of all CAD-based courses. **Lead:** S. James, H. Kuroki **What would success look like and how would you measure it?:** Software and related technology operates as intended. Reduced student frustration and confusion **Type of Request:** IT SUPPORT: Requests for projects related to the implementation, integration, application, delivery, and support of information and instructional technologies. **Planning Unit Priority:** High **One-Time Funding Requested (if applicable):** 0 **On-Going Funding Requested (if applicable):** 0	**Reporting Year:** 2017-18 **% Completed:** 25 Implementation of MFG 105 Intro to AutoCAD is on hold as we focus on the development of other courses. (04/06/2018)
Support Personnel - Maintain community volunteer and lab assistant personnel to support and	**Request - Full Funding Requested -** Reliable support for student assistants or	

Unit Goals	*Resources Needed*	*Where We Make an Impact: Closing the Loop on Goals and Plans*
assist students with use of high tech equipment without the instability of grant funding. **Status:** Active **Goal Year(s):** 2018-19, 2019-20, 2020-21	**Describe Plans & Activities Supported (Justification of Need):** Funding for student assistants for Arch, IDE and MFG to support increased use of high-tech equipment. reliance on grant funding means this support is unpredictable, chaotic and time-consuming. **Lead:** S. James, H. Kuroki **What would success look like and how would you measure it?:** Increased student access to high tech equipment that is part of their curriculum. Reduced damage to equipment and student frustration. Improved efficiency of program operation because staffing and personnel would be predictable and we would not have to train new assistants all over again every semester. **Type of Request:** STAFFING: Requests for permanent employee positions or temporary/hourly employees. **Planning Unit Priority:** High **Documentation Attached?:** No **On-Going Funding Requested (if applicable):** 5000	
Technical Currency of Support Staff - Help staff maintain currency with technical and support needs of department through training in related area. Current staff is adequately skilled **Status:** Inactive **Goal Year(s):** 2015-16, 2016-17, 2017-18, 2018-19, 2019-20, 2020-21 **Date Goal Entered (Optional):**	**Report directly on Goal**	**Reporting Year:** 2017-18 **% Completed:** 50 Supplemental Skills: Staff need to maintain computer and office software proficiency to assist programs in an efficient and effective manner. (Active) (04/20/2018)
	Request - No Funding Requested - Time resources **Describe Plans & Activities Supported (Justification of Need):**	

Unit Goals	*Resources Needed*	*Where We Make an Impact: Closing the Loop on Goals and Plans*
06/27/2017 **Date Goal Archived/Inactivated (Optional):** 04/19/2019	Critical staff training for program-specific software and technology. Support staff, especially I.T. staff need to meet with faculty at least once per semester to review and train on various set-up, installation, maintenance and repair details and strategies per evolving program needs and software/ technology updates. **Lead:** Stephen James **What would success look like and how would you measure it?:** Successful implementation of software and technology in a manner that is efficient, appropriate and timely according to program operation. **Type of Request:** PROFESSIONAL & ORGANIZATION DEVELOPMENT (POD): Requests that provide professional learning opportunities for Mt. SAC employees. **Planning Unit Priority:** Medium **One-Time Funding Requested (if applicable):** 0	