College of San Mateo

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CTE Program Review

Program Name: **Architecture**
Program Contact: **Lucchesi, John**
Academic Year: **2016-2017**
Status: **Submitted for review**
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1. Description of Program

Provide a brief description of the program and how it supports the college's College Mission and Diversity Statements, CSM Strategic Goals 2013/14 to 2015/16, and other Institutional Program Planning as appropriate. What is the program's vision for sustaining and improving student learning and success over the next three years?

College of San Mateo's architecture program prepares students to transfer to B.A. and Bachelor of Architecture programs and related environmental design majors such as landscape architecture, planning interior design and construction management through five major-specific courses (Arch 100-Survey of Contemporary Architecture, Arch 210-Design 1, Arch 220-Design 2, Arch 120-Graphic Communication 1, Arch 140-Graphic Communication 2, & Arch 666-Intro to Arch & Career Planning). In addition, the program supports both architecture majors and the campus as a whole through ARCH 100, a general education course that satisfies CSU-GE Area C1 and IGETC Area 3A. Students can earn an A.S. degree in architecture, which may assist them in finding employment. However, the entry-level professional degree is the B.Arch (or for students earning a B.A. degree, the M.Arch). B.Arch programs at public universities in California are highly impacted at the freshman level, restricting access for students who cannot afford a private college education.

As the only architecture transfer program in the district, CSM's architecture program serves as a gateway to architecture and related professions and supports the college mission of providing educational opportunity to residents of San Mateo County and the Greater Bay Area. The program promotes student engagement (an objective under Institutional Priority 2: Promote Academic Excellence) by developing students' interest in art and design into professional skills/abilities that impact the community through the built environment. Students experience this impact through classroom and club projects that reach into the community, such as the architecture student's participation in the Design Village event at Cal Poly San Luis Obispo, for which student teams design, construct, and occupy that meet specified constraints. Design Village draws architecture students from college and universities throughout the state. The program is delighted to report that one of the two CSM teams participating in spring 2016 was awarded "Habitable" for their innovative design and well crafted shelter.

Major courses are offered in the Architecture Studio Lab on the upper floor of building 19, with occasional use of the CIS Computer Center and DGME computer classrooms for software applications. An adjoining faculty office is shared by all faculty; an adjoining former darkroom serves as storage space for student work and supplies.

The City of San Mateo has recently invited the Arch Dept to design & construct 1-3 "Parklets" in the City's commercial downtown in the spring of 2017 as they did similarly in 2014. It is anticipated that this effort will be incorporated into the Spring 2017 experimental course Arch 680MB as a design-build project.

Also offered in the Spring 2017 will be another experimental course Arch 680MC offering an introduction to advanced digital graphic modeling software now used commonly at university design schools and in the profession.

With the planned replacement of buildings 12 and 19 with a new Center for Innovation and Emerging Technologies, the architecture program looks forward to the opportunity to provide students with a more modern studio workspace including access to shared "maker" & shop resources to support design studio & design-build activities.

The program is fully staffed by adjunct faculty who are practicing professional architects.

Architects—licensed professionals trained in the art and science of building design—transform society's need for places to live, work, learn, and play into images and plans of buildings that can be constructed by others. The architect is usually the "conductor" of an "orchestra" of related environmental design professionals that includes structural, civil, mechanical, electrical, acoustic, and geotechnical engineers, landscape architects, waterproofing, specialized equipment and facilities consultants as well as interior and lighting designers. The architect synthesizes the needs of the client, the constraints of the site, budget, codes, and building technology with the focused and often disparate expertise of the project design team to create a new three dimensional and material "symphony" of form. This is the essence of the architect's design process -- creative problem solving that begins with the first client meeting or site visit and continues through construction to the location of the last piece of furniture.

The architecture program's vision is to help students with an interest in art, design, and the built environment to develop the creative problem solving skills and discipline knowledge needed for successful transfer and eventual professional employment in architecture, landscape architecture, interior design, and urban planning. Carrying out this vision requires outreach to students, ongoing review and improvement of the curriculum, enhanced communication with transfer schools, and facilities that provide a productive work environment.

2. Student Learning and Program Data

A. Discuss Student Learning Outcomes Assessment

1. Reflect on recent SLO assessment results for courses and degrees and certificates offered by the program.
Specify how SLO assessment informs curriculum development and changes to curriculum.

Only one section of each architecture course is offered each academic year.
Currently, all SLOs are assessed with each offering of each course for the academic year. Results from 2015-2016 show that the 80% threshold for success continues to be met in all courses for all SLOs. The majority (60%+) students who successfully complete Arch 100, 120, and 140 achieve an advanced (rather than rudimentary) level of proficiency in all SLOs. In the design studio courses (Arch 210 and 220), 15-30% of students achieve an advanced level of proficiency.

2. Comment on the success rates in the program SLOs that are aligned with specific course SLOs. What do the program SLO and course data reveal about students completing the program? Identify trends and discuss areas in need of improvement. Is the alignment between course and program SLOs appropriate and informative? Describe any additional methods used to assess program SLOs and reflect on the results of those assessments. See course-to-program SLO alignment mapping.

Because all architecture SLO success rates are high, success rates in course SLOs that are aligned with program SLOs are also high. A review of the course and program SLO alignment mapping and the exit survey results yields interesting information regarding the program SLO dealing with collaborative work on a design team (listed as program SLO 4 in the alignment mapping and as program SLO 2 in the exit
survey of degree applicants). Although no course SLOs are aligned with this program SLO, all seven students completing the exit survey of degree applicants either strongly agreed (6 out of 7) or agreed (1 of 7) that they meet the SLO; that is, that they are able to successfully carry out both individual and collaborative work as part of a design team. Many students who complete the associate degree also participate in the Design Village activity, but this experience is not currently captured through course-level SLOs. The architecture program is proposing a new course that would include a design-build project (with Design Village as one possible option; see Plan 3 under Program Plans and Actions to Improve Student Success); an SLO addressing collaborative work on a design team would be appropriate for this course.

Results for seven students are reported in the SLO survey of architecture AS degree applicants. All respondents either strongly

agreed (6 of 7) or agreed (1 of 7) that they meet three of the program SLOs. The fourth program SLO deals with the use of graphics, including freehand drawing and computer applications. One respondent disagreed strongly that this SLO had been met. Without additional information, we cannot be sure why. However, anecdotal feedback from students who have recently transferred indicates that they are not as experienced with computer applications as their peers (see Plan 2 under Program Plans and Actions to Improve Student Success).

Although faculty receive anecdotal feedback from former students, program-level SLOs are formally assessed only through the associate degree applicant survey and through linkage to course-level SLOs.

3. For any courses in the program that satisfy a GE requirement, which GE SLOs are supported or reinforced by the course SLOs? What do assessment results for the course SLOs (and for the GE SLOs, if available) reveal about student attainment of the GE SLOs? See GE SLO Alignment Summary Report 🗎 or All Courses GE SLO Alignment Data 🗎 .

Architecture 100 Survey of Modern Architecture satisfies the AA/AS degree humanities requirement (Area E5c) and the AA/AS-T arts requirement (CSU-GE C1, IGETC 3A). Effective Communication and Critical Thinking are supported by a student's ability to "discuss visual and social elements embodied in 20th century movements in contemporary architecture" as assessed through a term paper and by a

student's ability to "identify and describe the significant design work, concepts and principles of influential architects and environmental designers from the end of the 19th century to the 21st century" as assessed through final exam questions. Critical Thinking and Social Awareness are supported by a student's ability to "discuss and identify critical relationships between architecture or environmental design and human experience and functional needs" as assessed through a term paper. Assessment results for course-level SLOs are well above the program's target of 80%, indicating that students are able to demonstrate these GE SLOs in the context of Architecture 100.

B. Student Success Indicators

1. Review Student Success and Core Program Indicators and discuss any differences in student success indicators across demographic variables. Also refer to the College Index and other relevant sections of the Educational Master Plan: Update, 2012, e.g., Student Outcomes and Student Outcomes: Transfer. Basic Skills programs should also refer to ARCC data.

In 2014-15 & 2015 -16, success and retention of students in the architecture program (success: 85.1% & 83.9%; retention: 91.8 & 89.9%) rose from 2013-14 levels (success: 79.7%; retention: 87.2%) exceeding the 2011-12 highs (success: 81.5%; retention: 91%). Students who classify themselves Hispanic and as Other continue to have high success rates above 75% in 2014-15 & 2015-16 (90.2%, 76.2 & 80.0%, 94.7 respectively). The success rate for female students in 2014-15 & 2015-16 achieved 90.3% & 85.9%. The success rate for male students was 82.6% & 81.8 for 2014-15 & 2015-16.

Like other community college programs, the architecture program at CSM serves as a gateway for traditionally underrepresented students. Women and non-white architecture students make up a high percentage of CSM's architecture students (2014-15 & 2015-16 at 30% & 36% & 68% & 69% respectively) exceeding those levels of practicing professionals (15% and 28% respectively, 2016 AIA Survey Report on Firm Characteristics).

2. Discuss any differences in student success indicators across modes of delivery (on-campus versus distance education). Refer to Delivery Mode Course Comparison.

All Architecture courses are offered on campus.

C. Program Efficiency Indicators. Do we deliver programs efficiently given our resources?

Summarize trends in program efficiency as indicated in the Student Success and Core Program Indicators
(LOAD, Full-time and Part-time FTEF, etc.)

LOAD for the architecture program in 2014-15 was 669.1 and 472.1 during 2015-16. Total FTEF for 2014-15 & 2015-16 was 1.2 & 1.6. The program has made two changes to address declining FTES. To improve retention of students considering architecture as a major, course schedules have been adjusted to allow students to enter the major more gradually. First-year students now begin the Architectural Design Drawing sequence (Arch 120, Arch 140) a semester before the Design Studio sequence (Arch 210, Arch 220). The typical student entering the program now takes three units of major classes in the first semester (Arch 666, Arch 120) and moves on to six units of major classes in the second semester (Arch 140, Arch 210).

The second change that has been made is to offer Architecture 100, which satisfies a general education requirement for the AA/AS degree and for the CSU-GE and IGETC patterns, in both the fall and spring semesters.

Since its return from hiatus in Fall 2007, the architecture program has been staffed by dedicated adjunct instructors who are also practicing architects. This enriches students' classroom experiences, as they are exposed to the viewpoints and expertise of multiple professionals. However there remains a dire need to support designated part time faculty in an effort to coordinate the program, lead high school and community outreach, develop the curriculum to promote articulation, and lead efforts such as SLO assessment and program review. Although accommodating, this departmental dependency upon fully adjunct staffing may not have long term sustainability. In the short term, an ongoing need remains for program support outside the classroom.

3. Additional Factors

Discuss additional factors as applicable that impact the program, including changes in student populations, state-wide initiatives, transfer requirements, advisory committee recommendations, legal mandates, workforce development and employment opportunities, community needs. See Institutional Research as needed.

Demand: Employment of architects is projected to grow 7 percent nationally from 2014 to 2024, about as fast as the average for all occupations. Competition for jobs will be very strong because the number of applicants continues to outnumber available positions, (US Bureau of Labor Statistics, http://www.bls.gov/ooh/architecture-and-engineering/architects.htm) Regionally, the occupational forecast is higher, anticipating a 15.2% positive increase between 2014-2021, according to the CSM Architecture Occupation Overview, Emsi Q22016 Data Set, July 2016.

Curriculum:The architecture major at CSM helps students to determine well before transfer whether architecture is a good fit for their interests and abilities. This means that some attrition in the program is to be expected. However, low enrollment in the more advanced major courses (Arch 140, Arch 220) has been of concern. Beginning in fall 2014, courses have been scheduled to allow a more gradual introduction to the demands of the field. In addition, increased use of software tools has been incorporated into Arch 120 and 140, a trend that will continue. Taken together, these changes should provide an easier transition for students entering the program and allow students who complete the program to be better prepared for transfer.

Facilities: Exposure to the studio environment and to design-build projects continues to be of critical value in preparing students for transfer. Improvements were made to the Architecture Studio Lab in summer 2013, but students are still hampered by older stools, desks, and parallel bars. The construction of a new Center for Innovation and Emerging Technologies provides an opportunity to modern modernize the studio lab for the architecture program as well as create shared workspaces that support studio & design-build projects in multiple programs.

Support: The program continues to receive strong support from the local design community represented generously by the American Institute of Architects San Mateo County Chapter (AIASMC). Spring design-build project presentations and critiques have become regularly anticipated events fostering mentorship between AIASMC & CSM Architecture. The architecture profession, both locally and nationally, continues to view community college transfer programs as a critically important means of developing diversity within the profession.

Architecture faculty members, all adjunct faculty, invest many hours in support of the program beyond their formal teaching responsibilities, a level of support that may not be sustainable without supplemental resources or other staffing concepts. In particular, outreach and curriculum development continue to be hampered by the lack of either a full time faculty member or additional support for adjunct faculty.

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4. Planning

A. Results of Program Plans and Actions

Describe results, including measurable outcomes, from plans and actions in recent program reviews.

2015 Plan 1: Course schedule revision to promote persistence (continued from 2014 plan 1)

To provide students with a more gradual introduction to architecture and the demands of studio work, the major classes have been rescheduled so that students can spread their major coursework over two years while still developing a portfolio that supports transfer. In addition, Arch 100 is now offered twice a year. After fall 2016 classes are complete, enrollments will be reviewed to provide an initial assessment of the impact of these changes. This plan does not require additional resources.

Actions:
Review enrollments from 2016-17 and compare with previous years to provide an initial assessment of the impact of scheduling changes. Enrollments in Arch 666 & 100 have exhibited increased numbers & persistence from 120 to 140 has consistent.
Date: Fall 2016 / Spring 2017
Measurable Outcomes:
Review persistence from Arch 120 into Arch 140; Review enrollment in Arch 210; Review persistence from 210 into Arch 220; sufficient enrollment to offer Arch 680

2015 Plan 4: Evaluate recent CSM architecture student experience (postponed from 2014 plan 4)

To guide program development, work with PRIE to survey recent CSM architecture students to find out how they learned about the program, what worked and didn't work for them while they were taking architecture classes, and what their educational and employment outcomes have been after leaving the program. For students who left without completing the architecture major sequence, learn why they did not complete the sequence. This plan requires assistance from PRIE and from the full time faculty member in engineering.

Actions, Dates, Measurable Outcomes:
Full time faculty member in engineering works with PRIE to develop survey questions and student list
Spring 2015 Survey is ready to administer
PRIE administers survey Summer 2015
Survey results are available in Fall 2015
Review results of survey Fall 2015
Review of survey results helps guide
program planning for 2016-2017

This Plan has been postponed

2015 Plan 5: Architecture Curriculum Review (postponed from 2014 plan 5)

To promote student learning and to maintain and increase articulation with B.A. and B.Arch programs, the architecture faculty must discuss current transfer requirements and any anticipated changes with their counterparts at transfer institutions. Because the architecture program is staffed by adjunct faculty, additional funding is needed to support the faculty time required for this major review of the curriculum. Funding was requested in the spring 2013 and 2014 program reviews, but was not granted. An Innovation Grant proposal submitted in fall 2014 was funded and is supporting adjunct faculty supervision of Design Village in spring 2015 and a more modest curriculum revision effort through fall 2015.

Actions, Dates, Measurable Outcomes:
Consultation with transfer schools regarding articulation
Spring 2015 Gaps in articulation are identified.

Curriculum revision: Course outlines are revised or developed as needed to support articulation and incorporate knowledge gained from student surveys (see plan 4). Course sequencing is revised to promote learning and retention and support timely development of student portfolios.
Summer and Fall 2015 New and modified course outlines are submitted to COI by the 2016-17 catalog deadline.
Update transfer guidance: The architecture web page and transfer guide are updated to reflect curricular changes and the suggested sequence of courses. This information is shared with counselors. Updated and new articulation agreements are requested through Articulation Officer.
On an ongoing basis, review changes in articulation and transfer requirements.
Spring 2016 Students have access to current transfer information through the architecture website. Counselors are aware of changes. Articulation agreements are in place with transfer schools as appropriate.

2015 Plan 6: Architecture Outreach and Coordination (postponed from 2014 Plan 6)

After the curriculum review (Plan 5) is complete and resulting changes have been made, develop well-designed web and print program information. Work with the Outreach Coordinator to increase the program's visibility among high school students in the county. On an ongoing basis, coordinate additional outreach to high school art, design, and graphics classes. Adjunct faculty hours at special rate are included under instructional materials and under classified staff in Section 5 Resource Requests.

Faculty (possibly with assistance from students through a class or club project) develop a well-designed program flyer or brochure. The brochure is made available in print form and on the web.
Spring 2016 Print copies of brochure are available for outreach and to counselors. Web version of brochure is in place.
Faculty work with Outreach Coordinator to make sure that architecture is appropriately represented in college outreach efforts.
Spring 2016 Outreach Coordinator and others involved in outreach have current program information.
Faculty contact local high schools to set up and carry out additional outreach to art, design, and graphics.
Spring 2016 and ongoing Outreach activities (e.g. faculty visits to high school; high school student visits to CSM) take place.
Students in Fall 2015 classes are surveyed to see if they participated in outreach efforts.

B. Future Program Plans and Actions

Prioritize the plans to be carried out to sustain and improve student success. Briefly describe each plan and how it supports the CSM Strategic Goals 2013/14 to 2015/16. For each plan, list actions and measurable outcomes. Plans may extend beyond a single year. Describe the professional activities and institutional collaborations that would be most effective in carrying out the program's vision to improve student learning and success.

2016 Plan 1: Increased use of software tools for drawing and visualization
(modified from 2015 plan 2)

Increased exposure to more advanced digital graphic methodologies has become much more critical to our students' transfer success. Programs such as Maya & Rhino have become current standards at the university level for 3-d modeling and graphic communication. These tools could be incorporated into Arch 140 through guest lectures or covered in a separate course offered during the second half of the fall semester (following Arch 666). Free student or trial versions of both programs are available.

Actions: Arch 680MC Spring 2017 will provide short course introduction to Rhino 3d for all students.

Date: Spring / Fall 2017

Measurable Outcomes: Review enrollment for Arch 680MC. Students able to use Rhino to enhance their work in Arch 220.

2016 Plan 2: Institutionalization of support for "Design-Build" project(s)
(modified from 2015 plan 3)
The architecture students' & architecture club participation in the annual Design Village event at Cal Poly San Luis Obispo has developed into an important part of the students' professional development. Students spend much of the spring semester developing designs for a habitable structure that meets specified constraints, then make a formal presentation of their work for critique by a panel of practicing architects. The students then spend a weekend in San Luis Obispo. They and teams from colleges and universities throughout the state construct and live in the structures. The project requires many hours of student time under the supervision of the club advisor. Support for the adjunct faculty member who serves as club advisor continues to be an issue. Spring 2014 program review requests were not funded, but an Innovation Grant is supporting adjunct faculty supervision of Design Village in spring 2015. An Innovation Grant for Spring 2016 was not approved, however 2 teams of students formed independently from college sources, advised by a faculty volunteer and building their shelters off campus did participate in Design Village Spring 2016. One team was awarded "most habitable".

Design-Build topics continue to be an increased focus & interest with students and programs in architecture. In many schools these topics are also integrated with "public-interest" community based design interventions. The topic provides a vehicle for increased awareness of building / making architecture, which is of value to student transfer, as well as the social relevancy & responsibility of

design.

Actions: Arch 680MB, Material & Methods of Construction & Design-Build will be offered Spring 2017.
The City of San Mateo has formally requested services of arch students to design & build 1-3 "parklets" in the downtown of San Mateo, with materials funded by the City. Currently this is anticipated to be the "design-build" project of the course in lieu of prior design village participation. Pedagogically[there is a sense that this community-based project may provide an optimal learning experience gently synthesizing design, construction & relevant "place-making".

Date: Spring 2017

Measurable Outcomes: Review enrollment for Arch 680MB and future potential of course offering.

5. Program Maintenance

A. Course Outline Updates

Review the course outline update record. List the courses that will be updated in the next academic year. For each course that will be updated, provide a faculty contact and the planned submission month. See the Committee on Instruction website for course submission instructions. Contact your division's COI representatives if you have questions about submission deadlines. **Career and Technical Education courses must be updated every two years.**

Courses to be updated	Faculty contact	Submission month
None	John Lucchesi	

B. Website Review

Review the program's website(s) annually and update as needed.

Faculty contact(s)	Date of next review/update
John Lucchesi	Spring/ Fall 2017

C. SLO Assessment Contacts

Faculty contact(s)	Date of next review/update
John Lucchesi	Spring / Fall 2017

6. Dominant Themes Summary for IPC

Briefly summarize the dominant, most important themes or trends contained in this program review, for division deans to collect and forward to the Institutional Planning Committee. What are the key program issues that matter most? (Brief paragraph or bullet points acceptable).

*Program & student enrollment, success, demographic participation and efficiency remain positive and responsive.

*Program community & professional recognition remains positive.

*Program planning goals and objectives remain constructive and active. Preparation & education of students remains primary goal.

*Program dependency upon adjunct professional faculty may incur developmental limitations that may not be overcome by compensatory provisions for needed program stewardship and development, especially when impacted by demands of active practice & economic cylces.

*Enrollment and persistence of design studio sequence requires regular attention due to core value;