

Program Evaluation

Architectural Design & Drafting



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Portland Community College
Sylvania Campus

April 24, 2009

Program Evaluation

Architectural Design & Drafting

Table of Contents

Degree Outcomes

Program Evaluation:

1. Program Goals
2. Curriculum
3. College Core Outcomes
4. Faculty
5. Facilities & Support
6. College Core Outcomes
7. Recommendations for Improvement

Reference Materials:

Appendix “A” – Teaching Load

Appendix “B” Faculty-Architectural Design & Drafting

Master Plan

OLMIS – Occupational Information Center

Program Discipline Collegewide Data on Enrollment

Student Project Examples

Student Survey

Program Evaluation



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Student Project

Degree Outcomes for A.A.S., Architectural Design & Drafting:

- Use graphic and visual media to explore design options and communicate design solutions.
- Design buildings responsive to site conditions, user requirements, codes and construction standards, and aesthetics considerations.
- Select and specify building systems, structural systems, construction materials, and structural components responsive to a building's design, code requirements, industry standards, and environmental considerations.
- Demonstrate skills in architectural drawing, using both manual and computer-aided drafting.
- Produce a set of construction documents that describe the construction requirements for a building, using industry standards as set forth by the Council for Certified Professional Building Designers.
- Demonstrate skills required to verbally communicate design and technical solutions.

1. Program Goals:

- A. *What are the educational goal/objectives of this program/discipline? Have they changed since the last review, or are they expected to change in the next five years?*

Educational Goals

Our primary goal is to continue to teach and develop curriculum that supports learning for students. Being part of a rapidly changing profession that interfaces with the construction industry, ever-changing CAD software, building codes, and emerging sustainable design practices, the main goals of faculty are:

- Teaching curriculum to meet degree outcomes of the program.
- Participating in continuing education, as related to industry changes.

Our secondary goal is to support the Sustainable Building Certificate (SBC), by creating connections with sustainable practitioners. This allows faculty to stay current with industry “best practices”, and provides resources for instruction and curriculum. Through consistent work with campus workforce representatives, the SBC was approved by the State of Oregon in June, 2008.

A third goal has been the support of the Interior Design program, along with the Kitchen & Bath Design Certificate, in the absence of a program chair (2006-08). During this time, our faculty created an alliance between Interior Design and Rock Creek’s Building Construction program, for the purpose of jointly pursuing approval of our Certificates by the National Kitchen & Bath Association (NKBA). The two programs jointly sponsored a site visit and program review by the NKBA in 2007, and the NKBA certified both programs later that year.

Changes in goals since the last review (2003):

Our overall goals have not changed since our last review, but the complexity of the design profession has. In response to this, our faculty training professional development has expanded and grown in new directions.

New CAD software programs have emerged in industry, and our program has responded by adding three additional software programs over the last few years (ACA, Sketch-Up, and Revit), along with related coursework. Faculty also attend annual workshops to acquaint themselves with new releases of these CAD programs.

Building Codes changes have occurred more frequently than in past years, necessitating faculty attendance at seminars and updating of curriculum.

Sustainable design and construction practices are emerging at a very fast pace. The involvement of Architecture and Interiors faculty in the NSF grant-sponsored internships has provided a strong base for training in this area. Faculty have also attended industry-sponsored conferences related to energy efficient construction practices, lighting design, and green remodeling. The grant will support the Summer Sustainability Institute (SSI) in 2009 and 2010; a joint effort between PCC, Earth Advantage, and Energy Trust. This will provide an excellent opportunity for our adjunct faculty to update their knowledge related to sustainable design and construction practices.

Projected goals for the next five years (2009-2014):

Our goals for the next five years will include faculty and curriculum updating reflective of industry changes, building capacity for growth within our program, and developing collaborative activities with related PCC programs.

Our first goal is to continue to keep current with industry changes and updates, including CAD, building codes, and sustainable practices.

The second goal is to support the surge of interest in the Sustainable Building Certificate. A student survey, conducted in January, 2009, showed 63% of ADD students are currently seeking the SBC.

The third goal is to collaborate with the Building Construction, Interior Design, and the Building Inspection programs, to align curriculum related to sustainable design, construction, and codes. Collaboration between ADD and ID is especially important, as the student survey showed 37% of ADD, and 40% of the ID students are also pursuing the Kitchen + Bath Certificate.

B. Place the Program within the context of the institution.

Describe how the college's Mission, Values and Goals are addressed.

The ADD program offers opportunities for:

Academic and professional growth, by providing instructors with high level qualifications to teach professional level skill sets.

Students of all ages, races, and cultures, by providing high quality student advising through our Student Resource Specialist, and referrals to the many resources at PCC.

Students of all economic levels, by providing advising through our Student Resource Specialist, and connection to scholarships for our students funded by the Portland Home Builder's Scholarship Fund.

Students of previous academic experience, by providing academic assessment and advising through our Student Resource Specialist, waiver of course prerequisites in light of prior learning, and through transfer agreements with Oregon State University, Marylhurst University, and the Art Institute of Portland.

Lifelong learning and continuing education, by providing current and up-to-date coursework in topics of interest to practicing professionals, including AutoCAD, Revit, Sketch-up, and Sustainability. The program also provides rolling year-round admissions, and offers classes both day and evening times.

Fostering civic responsibility and engagement, through service-learning options available in various classes.

Training and learning opportunities for the workforce, through partnerships with business (architects, designers, manufacturers, engineers, builders), non-profits (Earth Advantage, Energy Star), and our Cooperative Work Education Program.

Continuous professional and personal growth of faculty, as our instructors make use of professional development opportunities to update skills and knowledge in CAD, building codes, and sustainable design and construction.

2. Curriculum:

Reflect on the learning outcomes and assessment, teaching methodologies and content in order to improve quality of teaching, learning, student success.

A. Learning outcomes, assessment, and course content are established using professional program guidelines established for our programs.

Architectural Design & Drafting Curriculum:

The National Council of Building Designer Certification (NCBDC) is an organization that provides standards and testing for Building Designers to become Certified Professional Building Designers (CPBD). Their Construction Document Standards provide the basis for course curriculum for construction documents, including ARCH 111, 112, 201, 202, and 203. Other courses in structures, building systems, and architectural history are tailored to the content of the CPBD test.

Kitchen & Bath Design Curriculum:

The National Kitchen & Bath Association promotes professionalism within the industry. It develops course content materials for kitchen and bath design coursework, and certifies programs that meet NKBA learning standards. Our Kitchen & Bath Design Certificate (KBDC) was designed to provide students with a broad base of coursework from the Interior Design, Architectural Design, and Building Construction programs at PCC. Coursework from the Architectural Design program required for the KBDC (ARCH 100, 110, 111, 121, 124, and 132) is designed to meet the NKBA standards for coursework.

Sustainable Building Certificate Curriculum:

There are currently no adapted standards and testing for education in the area of sustainable residential design; however our curriculum for the Sustainable Building Certificate (SBC) has been developed and updated by our faculty's continuing education:

Elizabeth Metcalf (SAC/Program Chair) is a Sustainable Building Advisor (SBA) Graduate (2004), and attended the National ACI Conference (2009).

Denise Roy (Program Co-Chair) has been participating in an internship at Earth Advantage, sponsored by a National Science Foundation Grant (Sept. 2008 through June 2009), and also a Certified Sustainable Homes Advisor (March 2009).

Dorothy Payton, (Program One-Year Temp Faculty) instructs several key courses in sustainable design, and is a LEED Accredited Professional.

B. Identify and explain changes that have been made to course content and/or course outcomes since the last review. Are assessments that address the outcomes described in the CCOG's? Given evidence that students are meeting these outcomes.

Changes to course content have been made since the last review, and are the result of a number of factors, including:

- The desire for stronger skill set development in CAD classes for ARCH students.
Content changes include new course projects with specific architectural content in ARCH 126 and 136, as well as offering separate sections of ARCH 126 and 136 for ARCH and ID students only (2008).
- The Introduction of new CAD energy modeling tools to analyze energy efficiency in homes.
Content changes include introduction to energy modeling tools in ARCH 124, 224, and 127 (2009 projected).
- The need to adjust curriculum to meet NKBA learning requirements.
Changes include the addition of new content to ARCH 124; and blending ID 125 students with ARCH 126 students to produce architectural CAD projects (2007).
- The need to target skill sets, and further develop course content for classes taken by both ARCH and BIT students.
Content changes and course project changes were implemented in ARCH 121 and 122 (2008).
- Instructor assessment of student skill sets in their second-year studios (ARCH 201, 202, and 203) identified the need to adjust course projects in some first year pre-requisite courses.
*Content changes were made in ARCH 101 and 102 including updating the class projects students bring into the second-year studios (2009).
Content changes in ARCH 111, implementing AutoCAD examples into course project (2008).*
- The need to implement new CAD tools from industry into various course projects.
Content changes include use of Sketch-Up as a design tool for ARCH 101 and 102, and as an energy modeling tool for ARCH 224 (2009 projected).
- Professional development of the faculty has resulted in curriculum updates, in response to emerging industry practices in sustainability.
*Content changes are in process for ARCH 101, 102, 113, 124, 204, and 224 (concepts and systems), and well as ARCH 111, and 112 (detailing).
(pending, 2009)*

- Professional development of the faculty led to updated curriculum in response to recent building code changes.
Content changes were made in ARCH 201, 202, and 203, related to updates in seismic design requirements for new building codes (annually, 2005-09).
- Faculty and student desire for Distance Learning Modality.
Content changes in ARCH 161 and 162, were made as required for D modality (2007); similar changes are in process for ARCH 132 and 133.

Changes to CCOG's are currently underway spring 2009. They are the result of several factors, including:

- Curriculum review this year which generated minor curriculum alignment.
- The need to create more general learning outcomes for courses.

New courses have been developed since the last review, and are the result of a number of factors, including:

- Industry demand
- NKBA learning outcomes
- Evaluation of student outputs
- Review of CCOG's for ARCH, ID, and BIT programs
- Student feedback
- New software products

Refer to next page for list of new courses that have been added to the curriculum in response to these issues.

New Courses Developed: 2004-09

<i>Course No.</i>	<i>Course Name</i>	<i>Required</i>	<i>Approv. Elective</i>	<i>Notes</i>
ARCH 100	Graphic Communication	Yes -- ARCH +ID		Students need to be able to sketch design ideas.
ARCH 110	Intro to Architectural Drawing	Yes -- ARCH +ID		Development of drafting skill sets moved from ARCH 101 + 102 to new class
ARCH 121	Structures 1	Yes -- ARCH +ID+ BIT		Students need a basic overview of structures before going onto classes w/calculations
ARCH 127	Google Sketch-up	Yes -- ARCH +ID		Class for new Sketch-up software and energy modeling tools
ARCH 132	Residential Building Codes	Yes -- ARCH +ID		Changed from 3 credits of residential and commercial content to 2 credits residential only content
ARCH 133	Commercial Building Codes	Yes -- ARCH		Commercial building code content; for ARCH students
ART 215	History of American Residential Architecture	Yes -- ARCH +ID		Class content previously lacking in both ARCH and ID curriculum; desired by both SACs and required by NKBA.
ARCH 247	Intermediate Revit <i>(in review)</i>	No --	Yes	Developed in response to student and industry need
ARCH 246	Advanced AutoCAD <i>(in review)</i>	Yes -- ARCH	Yes	Developed in response to student and industry need

Evidence that students are meeting outcomes:

Evidence that students are meeting course outcomes is determined primarily by:

- Industry Standards (NCBCD, NKBA)
- Use of faculty expertise
- Feedback from Cooperative Work Education sites
- Feedback from employment sites

Architectural Design & Drafting Course Outcomes:

Instructors evaluate student projects using NCBCD Standards, along with their professional knowledge of industry standards. Evaluations from Cooperative Work Education sites provide additional feedback on our students skill sets, along with information on current industry practices.

Over the last 5+ years, our job placement was very high. We often had more requests from industry to fill jobs than we had graduates. There were many businesses that came to us multiple times, being quite satisfied with the work skills of our graduates. Over the last 5 years, the types of jobs students placed into expanded from mostly small design businesses to a variety of architectural and engineering firms. (Job openings have decreased since the start of the current economic downturn.)

Kitchen & Bath Design Outcomes:

Instructors also evaluate student work using NKBA Standards for ARCH coursework required for the Kitchen & Bath Certificate. Evaluations from Cooperative Work Education in the kitchen design industry provide feedback on our students' skill sets, while informing faculty on the industry trends.

Since this Certificate is newly approved by the State of Oregon (Feb. 2009), we have few job placements to use as an evaluation tool.

Sustainable Building Certificate Curriculum:

Review of outcomes for sustainability courses is based on our faculty knowledge of this industry. As the sustainable industry within the residential sector continues to evolve, we are evaluating and updating the learning outcomes of this coursework. We are in the process of developing partners within the industry (such as Earth Advantage and Energy Trust) to develop additional evaluation tools for our coursework.

As this Certificate is relatively new (approved June 2008), we have few Cooperative Work Education and employment sites to use as an evaluation tool.

C. Describe how courses in the program address the College Core Outcomes. What strategies are used to determine how well students are meeting the College Core outcomes? Give evidence that students are meeting the Core outcomes.

Addressing the College Core Outcomes

Communication skills developed in our program are typically in graphic format, including sketching, drawing, and drafting, using both hand and CAD tools. Students learn to use graphics appropriate for their audience. Students also develop verbal skills as they present projects to faculty and peers. (Courses extensively engaged in graphic communication are: ARCH 100, 101, 102, 110, 111, 112, 126, 127, 136, 201, 202, 203, 204, 246, and 247).

Community and environmental responsibility are themes in many courses, as students learn about the impact of the building development on the natural environment. Selection of energy-efficient building materials, systems, on-site handling of storm water, and the impact of indoor air quality are examples of class discussion and projects concerned with environmental issues and architectural design. (Courses extensively engaged in community and environmental responsibility: 124, 131, 204, and 224).

Critical thinking and problem solving skills evolve through the program as students develop and use tools to evaluate design and technical problems presented in their classes. (Courses extensively engaged in critical thinking and problem solving: ARCH 101, 102, 121, 122, 123, 124, 131, 132, 133, 201, 202, 203, 204, and 224)

Cultural Awareness is developed in several classes as students study the built environment of Africa, Asia, and Europe. (Courses engaged in cultural awareness: ARCH 124, 200, and 224)

Professional competence is developed throughout the sequence of courses, culminating in a second year capstone set of studios, where students produce professional quality architectural design projects. (Courses extensively engaged in professional competence: ARCH 201, 202, and 203).

Self-reflection begins in first year courses, where students self-evaluate solutions to class projects as part of developing and applying skillsets learned in courses. During the end of their program, Cooperative Work Education provides an opportunity for self-reflection within the setting of a professional work experience.

(Courses extensively engaged in self-reflection: ARCH 100,101, 102, 201, 202, 203, and 204).

Meeting the Core Outcomes

Based on professional experience, and input from our Advisory Board, the ADD faculty has set benchmarks for the development of skills from the College Core outcomes relative to the architectural field. This provides a reference point for developing course content and outcomes, and evaluating student work, insuring that students are meeting Core Outcomes.

D. To what degree are courses offered in a Distance modality? Have any significant revelations, concerns or questions arisen in the area of DL delivery?

Since our last program review, ARCH 161 and 162 have been developed into a Distance Learning modality. Distance Learning has proven to work very well for these courses. Now that the development of the DL format is established, these courses run smoothly through the year.

In response to this success, we are now developing ARCH 132 and 133 into a Distance Learning modality. These are courses are well suited for DL , and we will continue to evaluate other coursework for possible integration into a DL modality.

E. Has the SAC made any curricular changes as a result of exploring/adopting innovative educational practices (e.g. Service Learning, Internationalization of the Curriculum, Inquiry-Based Learning)? If so, describe.

*“Tell me and I forget,
show me and I remember,
involve me and I understand”.*

Inquiry-Based Learning has most definitely been added to our curriculum over the last few years, with many positive results. Our faculty has found that Inquiry-Based Learning results in deeper understanding of course materials while

students actively construct new knowledge. Implementation of Inquiry-Based Learning has been most actively developed in “lecture” type courses (ARCH 121, 124, 131, 132, 133, 200, and 224). Inquiry-Based Learning is very useful in courses requiring review of large amounts of technical information, as well as for development of problem-solving tools. It is also used for lecture-type courses meeting in block schedules (3-4 hours, once weekly), as it keeps student engagement in the subject material at a high level.

Last but not least, faculty recognize the value in Inquiry-Based learning’s ability to encourage development of problem-solving skills over memorization of facts, in a fast-changing disciplines such our ours.

Service Learning has been successfully used in several classes, where students have designed housing prototypes for Habitat for Humanity and conducted energy analyses for area schools.

Our program is in the process of *Internationalizing the curriculum* this year. In summer, 2009, one ADD faculty will be attending Studienforum Berlin F.V., and another faculty teaching ARCH classes has been scheduled for future attendance in the “Silk Road” CTTE. These experiences will bring new perspectives related to culture, building methods, and sustainability into our program.

3. Needs of Students & Community – are they changing?

A. *What is the effect of student demographics on instruction, and have there been any notable changes since the last review?*

A brief summary of our demographics:*

- Our students span a very wide age range, and are typically older than the typical PCC student, with over 80% of students falling between 21-50 years old. The largest population is within the 31-40 age group.
- Approximately 80% of the students are of European origin, and 20% are Asian (mostly international), Hispanic, and African American.
- We have slightly more male students than female (52.4 : 47.6%).
- A high percentage of our students already have a college degree: (26% of survey respondents have previous bachelor or master degrees)
- Most of our students have already attended college before beginning our program: 83% have previous college coursework.
- Most of our students attend PCC part time (11 credits or less), and work and/or parent outside of school.

***Information from internal, online survey Feb., 2009, and “PCC Office of Institutional Effectiveness”.*

This particular set of demographics creates a wide range of learning styles, interests, and output abilities. Specifically, the variety of previous college background, work experience, and socio-economic/cultural mix has affected instruction in our courses. In non-studio format classes, instruction has been augmented with inquiry-based learning where students can learn directly from each other in small groups. Often, students who have industry work experience are uncertain in the classroom until they realize how much they can add to the group discussion. In addition, informal student learning communities evolve as students work together outside of class on projects and share interests. Service learning is another tool that is used in some classes with great success as a means to engage our diverse student body in a variety of opportunities outside the class.

The noteworthy change in our demographics since the last review is the increase in the number of students with past college coursework and past college degrees. This is a great strength, and perhaps needs to be developed further by our faculty and/or Student Resource Specialist. Ideas include the development of student mentoring, additional service learning projects, and the creation of a student club.

B. Has feedback from students, community groups, transfer institutions, business and industry or government been used to make curriculum or instructional changes? If so, describe.

Curriculum changes, including changes to course content, and degree requirements (pending), have evolved from the following sources:

- A new articulation (2008) with Oregon State University’s Housing Studies program has brought about minor updates to our curriculum, and created a second degree path (pending).
- New energy modeling tools to analyze energy efficiency in homes have been implemented into several courses
- The NKBA learning requirements, from the kitchen design industry, have created new (minor) content to several courses
- New CAD tools currently being used in industry have generated two new CAD courses
- Faculty training in industry internships and workshops has resulted in updated curriculum in the areas of building codes, “best practices” of building construction, and energy-efficient design.

C. Describe current and projected demand and enrollment pattern. Include discussion of any impact this will have on the program discipline.

Summary of ADD enrollment patterns for three years**:

Students enrolled in Courses, Architectural Design & Drafting (unduplicated headcount)			
2005-06	2006-07	2007-08	2008-09
672	718	809	Not available

Full-Time Equivalent (FTE) Enrollment of students, Architectural Design & Drafting			
2005-06	2006-07	2007-08	2008-09
150.3	173.2	194.2	Not available

*****Information from internal, online survey Feb., 2009, and “PCC Office of Institutional Effectiveness”.***

Projected Enrollment:

The number of students ADD majors taking ARCH classes has increased steadily over the last three years. From the 05/06 to the 07/08 academic year, a two-year period, the number of ADD students has increased 20.4%. Our estimate would be for this trend to continue, based on student enrollment trends, and interest as demonstrated by attendance at “New Student Info Sessions for ARCH Program” (offered by our Student Resource Specialist).

Summary of ADD students seeking additional Certificates in 2009:

The number of ADD students also seeking one of our certificates has increased, and the State of Oregon approved the Sustainable Building Certificate (June 2008), and the Kitchen & Bath Design Certificate (February 2009). Current student interest in the certificates (per online survey, Feb. 2009) shows very strong interest.

D. What strategies are used within the program to facilitate access and diversity?

Our Student Resource Specialist has developed several strategies to reach out to students who typically do not attend college, and inform them of our program:

- Presentations to high school students in TriO; at-risk students unlikely to go to college
- Presentations to Portland Youth Builder students; at-risk students in an alternative high school program
- Building Construction Technology Day; high school students from our region interested in building-related careers.

E. Identify operational challenges faced by the SAC that impact student learning (e.g. facilities, faculty, other resources).

Overall, the facilities at PCC strongly support learning for the ADD program. Challenges are to be found in three areas:

- **Computer lab facilities** are needed for most of the classes we offer. The rooms we currently use with computer resources (five total), are heavily scheduled, especially for evening classes. An additional computer classroom (with appropriate software) would allow our program (along with BIT and ID) to offer additional course sections in the evening. It would also provide additional open lab time for day and evening times.
- Qualified **Adjunct Faculty** have been difficult to find over the past years, especially in the area of engineering.
- The need for another **Full-Time Faculty** is strong, given the number of adjunct verses full-time faculty, and number of courses taught every year, the articulation agreements, and the number of other programs we coordinate with for curriculum, certificates, and instruction. This is all in addition to the need for faculty to stay updated in a fast-changing industry. Please refer to the table on next page, for summary of the teaching and the administrative load of our faculty.

Teaching Distribution for ARCH Courses

	Full-Time ARCH Faculty	Part-Time ARCH + Non-ARCH Faculty Teaching ARCH
Number of faculty:	2	18 ¹
Class sections taught 2007-08	13	71 ²
Course sections taught 2008-09	8 ³	97
Course sections projected 2009-10	14	100
Release Required to Chair Program	0.50	(n/a)

Faculty Loads: Program & Certificate Oversight

	Degrees & Certificates	Number of Students Enrolled
Degrees Offered <i>A.A.S, Residential Design (pending)</i> <i>A.A.S, Architectural Design & Drafting</i>	2	809+ <i>(07-08)</i>
Certificates Programs Offers <i>Sustainable Building Certificate</i>	1	24+ <i>(from survey)</i>
Program Coordinates with: <i>Kitchen & Bath Design Certificate</i>	1	21+ <i>(from survey)</i>
<i>Programs to Coordinate Curriculum with:</i> <i>Interior Design, Art, Building Inspection, Building Construction, Drafting</i>	5	

Footnotes:

- ¹ Reflects ARCH Adjunct instructors, plus Full-Time Faculty from outside ARCH (Interior Design, Drafting, Bldg. Inspection)
- ² Reflects classes taught by ARCH Adjuncts and Full-Time Faculty from outside ARCH (Interior Design, Drafting, Bldg. Inspection)
- ³ Reflects .50 release for work on NSF Grant by one Full-time Faculty

4. Faculty: reflect on composition, qualifications and development of faculty

A. Rationale for size, distribution and composition of the faculty in the subject area.

The ADD Program has two full time faculty members, each serving as Co-Chair with a .25 release and an instructional load of .75. We also currently have 18 adjunct faculty teaching ARCH classes. The ADD curriculum encompasses a range of highly technical skills, including CAD, building codes, and engineering. For instruction of these classes, we access the expertise of the faculty from the Building Inspection and Drafting programs. This provides the required teaching expertise, and adds consistent curriculum to our program.

Our adjunct faculty are highly qualified, as defined by holding professional degrees, and advanced terminal master's degrees (see Appendix "B"). All have begun teaching at PCC within the last 2-5 years (with one exception) and all have other professional employment, creating scheduling conflicts with teaching our courses from time to time. In general, the adjunct faculty express satisfaction with their teaching loads (which vary from 1-3 courses per quarter), and they intend to continue teaching.

See previous page "Teaching Loads" for Faculty Load distribution table, and Appendix A for details.

The quantity of adjunct instructors is necessary to both cover our teaching assignments and allow for varying teaching loads requested. The quality of teaching is generally quite high. One of our full-time faculty conducts both a classroom observation and a student evaluation of every new instructor during their first term teaching. Written and verbal feedback is later provided to the instructor. Previous coursework, syllabi and project samples are reviewed with new instructors to provide clarity in the course content and consistence in its delivery. In the somewhat rare case that a new instructor exhibits weak teaching skills, we had another faculty member help them, in a mentor role.

B. Extent of faculty turnover and changes anticipated for the future

We anticipate no change or turnover in full-time faculty during the next 3 years. The adjunct faculty pool has been stable for the last several years, with the exception of finding adjunct instructors with engineering background. The adjunct pool is expected to remain stable, especially during the current economic downturn. All of these instructors have professional work outside of PCC, providing a good balance to their teaching jobs.

C. Extent of the reliance upon adjunct faculty and how they compare with full-time faculty in terms of educational and experiential backgrounds.

Referring to Appendix “A”, it is evident that we rely heavily on adjunct faculty to provide instruction. Generally the adjunct instructors have similar educational background and professional training as the full-time faculty. Most faculty have professional architecture degrees (B.ARCH or M.ARCH); several have two-year residential design degrees plus extensive professional experience. Of the adjunct instructors hired over the last few years, only one had previous teaching experience. The lack of previous teaching experience has proved to be the only noteworthy difference between the full-time and adjunct faculty.

D. How the faculty composition reflects the diversity and cultural competency goals of the institution.

Our faculty is gender-balanced; approximately 50/50 male to female. We have three faculty raised and educated in Europe and Mexico, bringing some cultural diversity to our program.

E. Report changes the SAC has made to instructor qualification and the reason for the changes.

We have updated some instructor qualification over the last few years for several classes. We require 3-5 years profession experience for instructors of some of the CAD classes (Revit and Architectural CAC Autodesk). The courses with commercial design content (ARCH 102 and 112) now require that instructors have a professional architecture degree and experience related to commercial projects.

F. How have professional development activities of the faculty contributed to the strength of improvements? If such activities have resulted in instructional or curricular changes; please describe.

Professional development activities of our faculty have occurred in three areas: building codes, CAD, and sustainable design. Faculty participation in conferences, workshops, and internships has yielded a variety of instructional and curricular changes.

- Faculty attend annual training in CAD updates and new software releases. *Content changes include annual updates to ARCH 126, 136, 137; and addition of a new course in Sketch-Up (ARCH 127).*

- Faculty attendance at industry seminars and workshops have resulted in implementation of new energy modeling tools to analyze energy efficiency in homes.
Content changes include introduction to energy modeling tools in ARCH 124, 224, and 127 (2009 projected).
- Faculty training and participation in industry internships has resulted in updated curriculum in response to emerging industry practices.
Content changes in ARCH 101, 102, 113, 124, 204, and 224; related to sustainable practices.
Content addition in ARCH 111 and 112, related to “best practices” and energy efficient detailing in buildings; carry over into ARCH 201, 202, and 203.
- Faculty attend annual training in response to building code updates and changes.
Content changes in ARCH 201, 202, and 203, as related to updates in seismic design requirements in new building codes.

5. Facilities & Support

A. If classroom space, computers/tech and library/media, laboratory space and equipment impact success, please describe.

Computer lab facilities are needed for most of the classes we offer. The rooms we currently use with computer resources (five total), are heavily scheduled, especially for evening classes. An additional computer classroom (with appropriate software) would allow our program (along with BIT, DRF, and ID) to offer additional course sections in the evening. It would also provide additional open lab time for day and evening times.

B. Describe how students are using the library and other outside the classroom information resources.

Generally, student use of the library is rather low, as much of the information needed for coursework is found on websites and in course reference materials. We integrate library resources and tours into our Intro to Architecture class to make sure that our students have some exposure to library resources.

C. Provide information on clerical, technical, administrative and/or tutoring support.

The Architecture program, along with the Interior Design, Drafting, and Building Inspection programs, are supported by a .60 FTE clerical assistant, a 1.0 lab technician, and an occasional part-time weekend lab assistant.

This provides most of the support for our students and faculty; however, a staff position to provide regular tutoring (especially in CAD) and weekend lab hours would greatly help our students.

D. Provide information on how Advising, Office for Students with Disabilities and other student services impact students.

The Office for Students with Disabilities (OSD) is very helpful for our program. We typically have several students in each group of the 1st and 2nd year ARCH classes with documented disabilities. Instructors honor the accommodations requested, and we often meet with the Disabilities counselors for further insight on working with students. Our Student Resources Specialist provides excellent academic advising, career guidance, and referrals for our students.

6. CTE Programs: to ensure curriculum keeps pace with changing employer needs and continues to successfully prepare students to enter a career field.

A. Evaluate the impact of the Advisory Committee on curriculum and instructional content, methods, and/or outcomes.

Developing and maintaining consistent membership in our Advisory Committee has not been very successful. There are many architects, designers, manufacturer's representatives, and past adjuncts who express interest in the Committee; however, they mostly fail to attend meetings. We have offered meetings at varying times of day, but this has not made it easier for busy professionals to get away from work and get to our campus.

Those who do attend meetings have had an impact on our curriculum and instructional content. Professionals from industry have provided valuable input regarding their use of CAD software, allowing our program to follow suit. We have a new board member from the sustainable building industry to provide input on that aspect of our curriculum, and plan to update curriculum as applicable.

B. Identify and explain any changes that have been made to degree and certificate learning outcomes since the last program review. What strategies are in place to assess degree and certificate outcomes? Give evidence that students are meeting these outcomes.

Architectural Design & Drafting A.A.S. Degree

We have changed the outcomes somewhat for the ADD degree since the last review. The previous outcomes were numerous and too detailed. The new outcomes are broader in scope, and there are fewer of them.

Evidence that students are meeting the outcomes primarily occurs in the advanced studio classes: ARCH 201, 202, and 203, where information and theory gets applied to actual design projects and construction documents. The instructor sets the expectation for professional quality projects by the end of each course, and she evaluates student work as such.

Sustainable Building Certificate

The outcomes for the Sustainable Building Certificate have not changed since the last program review. However, our goal is to conduct a review of the outcomes for the capstone project (ARCH 204) during spring 2009. In fall 2009, faculty will review certificate learning outcomes and determine if updating is needed.

Evidence that students are meeting the outcomes primarily occurs in two of the more advanced classes: ARCH 224 and 204, where information and theory gets applied to actual residential design projects. The instructor

evaluates student projects with a high level of technical information, similar to industry requirements for high performance buildings.

C. Review job placement data for students over the last five years, including salary information where available.

Over the last 5+ years, we have had more job requests from prospective employers than we had students to fill jobs. Many students fulfilled their CWE requirement simply by getting a job, and many satisfied employers came back to our program to fill additional spots. Our job requests have slowed due to the current economy, but we have had three of our graduates employed over the last few months. Wages for architects range from \$21.19-\$34.45 (middle range, per hour), per OLMIS. In reviewing our past co-op records from 2007-2009 our graduates typically earn a starting wage of \$17.00-\$21.00 hourly.

D. Forecast future employment opportunities for students.

According to the Oregon Labor Market Information System, the outlook for graduates in the architectural design field is very positive (see attached OLMIS report in Appendix). The outlook call for employment growth between 2006 and 2016 of 40% in Multnomah/Washington Counties, and 41% statewide.

In the past 5-7 years, there were more jobs than we had graduates. As in most occupations, job opportunities have reduced since the recent economic changes. Until residential building and remodeling picks up, job opportunities for our graduates may likely be in using CAD in related applications.

E. Analyze any barriers to degree or certificate completion that your students face, and consider the reason that students may leave before completion.

In previous years, some students left before completing their degree because they were able to find jobs in the architectural field without the degree. Students who began coursework in the Sustainable Building and/or Kitchen/Bath Certificates lost interest waiting for State approvals (which came in 6/08 and 2/09, respectively). We expect a resurgence in interest in these Certificates in the future.

Our Student Resource Specialist is now tracking student progress and their graduation. She contacts them when they approach the end of their program to see if they need any help with get their CWE set up, or finishing any courses.

7. Recommendations for Improvement

A. Assess the strengths in your program

There are many strengths within the program, which include:

1. A stable, experienced faculty, pursuing updated knowledge and skills in response to industry change.
2. Computer labs with up-to-date software
3. A full-time student resource specialist
4. A full-time lab technician
5. Funds (limited) for CAD and Structures tutors

B. Identify the areas in need of improvement.

Improvement is needed in:

1. Developing an active, consistent advisory board
2. Getting some faculty updated in CAD skills and implementation of CAD tools within the classroom
3. Curriculum alignment between the many instructors (adjunct and From other programs) teaching core classes (in process)
4. Updating CWE experiences in a slower economy

C. Given the above analysis and other findings of the SAC, prepare a set of recommendations relevant to areas such as curriculum and professional development, access and success for students, obtaining needed resources, and being responsive to community needs.

Our recommendations include:

1. Add one full-time faculty.
2. Obtain use of at least one additional classroom with computers, so we can offer more sections of classes in the evening and offer more open lab time for students.
3. Add one staff member for tutoring CAD.
4. Continue professional development for adjunct faculty, especially in the area of CAD integration into curriculum (see “Master plan”).
5. Continue professional development for adjunct faculty in the area of energy efficient design and indoor air quality, and integrate into curriculum (see “Master Plan”). *(Note: Curriculum integration will take place as part of the NSF STTE Grant, which will also provide training for adjunct faculty).*
6. Identify a wider scope of cooperative work experience and employment options for our graduates during the current economic downturn.
7. Develop a more consistent and active Advisory Committee members.
8. Develop a mentoring program for our students, making best use of the diverse nature of their work and life experiences.

Appendix "A" Teaching Loads:

Faculty	2007-08 (fall-summer)	2008-09 (fall-summer)
Full Time Faculty		
Elizabeth Metcalf	ARCH 201 X 1 ARCH 203 X 1 ARCH 111 X 1 ARCH 136 X 2 ARCH 137 X 2 .25 release for Co-Chair	ARCH 201 ARCH 202 ARCH 203 ARCH 137 X 2 .25 release for Co-Chair <i>Projected 09-10 = similar</i>
Denise Roy	ARCH 224 X 2 ARCH 100 X 1 ARCH 200 X 1 ARCH 124 X 1 ARCH 112 X 1 .25 release for ID Chair + .25 release for ARCH Co-Chair	ARCH 224 X 2 ARCH 101 .25 release for ARCH Co-Chair .50 release for NSF Grant (Note: 2008-09= .75 teaching + .25 Co-Chair <i>Projected 09-10 = 9 classes</i>
Total classes taught	13	8 (<i>Projected 2009-10 = 14</i>)
Adjunct + FT Summer Faculty		
Debra Anderson (BIT Faculty)	ARCH 121 X 1 ARCH 132 X 4 ARCH 133 X 2 ARCH 161 X 4 ARCH 162 X 2	ARCH 132 X 4 ARCH 133 X 2 ARCH 121 X 4 ARCH 161 X 4 ARCH 162 X 4
Bill Capps	ARCH 101 X 1 ARCH 110 X 2 ARCH 111 X 1	ARCH 101 X 2 ARCH 110 X 2 ARCH 111 X 2
Bruch Conkle		ARCH 100 X 1
Rebeca Cotera	ARCH 110 X 2	ARCH 126 X 4 ARCH 136 X 3 ARCH 200 X 2
Amanda Ferroggiario	ARCH 100 X 2	
Bob Gilmore		ARCH 123 X 1 ARCH 122 X 1
Mark Hagen (DRF Faculty)	ARCH 126 X 3 ARCH 136 X 3	ARCH 126 X 4 ARCH 136 X 2

Susan Hooper	ARCH 126 X 2 ARCH 136 X 1	ARCH 126 X 4 ARCH 136 X 1
Cory Killcullen		ARCH 122 X 1
Bob Liberty	ARCH 111 X 2 ARCH 113 X 2 ARCH 121 X 3 ARCH 124 X 3	ARCH 110 X 1 ARCH 111 X 2 ARCH 113 X 2 ARCH 121 X 1 ARCH 124 X 5 ARCH 132 X 1
Jill Liberty	ARCH 140 X 1	ARCH 140 X 1
Michelle Mueller		ARCH 112 X 2
Dorothy Payton <i>(One-Year Temp. NSF Grant)</i>	ARCH 101 X 1 ARCH 131 X 1 ARCH 200 X 3	ARCH 100 X 2 ARCH 101 X 2 ARCH 110 X 3 ARCH 111 X 1 ARCH 124 X 1 ARCH 131 X 1 ARCH 200 X 3 ARCH 204 X 1
Denise Roy <i>(ARCH Faculty)</i>	ARCH 111 <i>(summer)</i> X 1 ARCH 200 <i>(summer)</i> X 1	ARCH 111 <i>(summer)</i> X 1 ARCH 200 <i>(summer)</i> X 1
Eric Schmidt	ARCH 122 X 1 ARCH 123 X 1	
Michael Sestric	ARCH 110 X 2 ARCH 127 <i>(was ARCH 199)</i> X 1	ARCH 110 X 2 ARCH 124 X 1 ARCH 127 X 2
Jim Sikkell	ARCH 100 X 2 ARCH 102 X 2 ARCH 112 X 1 ARCH 202 (3 cr) X 1	ARCH 100 X 4 ARCH 102 X 2
Glen Truman <i>(DRF Faculty)</i>	ARCH 122 X 3 ARCH 126 X 3 ARCH 136 X 1	ARCH 122 X 1 ARCH 126 X 1
Jon Verding	ARCH 136 X 1	
Severin Villager	ARCH 126 X 1 ARCH 202 (3 cr) X 1	ARCH 136 x 2 ARCH 237 x 1
Celeste Warren	ARCH 237 X 2	ARCH 237 X 2
<i>Total class sections taught</i>	<i>71 total class sections</i>	<i>97 total class sections</i>

**Appendix “B”
Faculty-Architectural Design & Drafting**

	Name	Professional Architecture Degree	Other Degree
<i>Full Time ARCH Faculty</i>			
	Elizabeth Metcalf	M.Arch. in Architecture	
	Denise Roy	M.Arch. in Architecture	
<i>Adjunct ARCH Faculty</i>	William Capps		
	Rebeca Cotera	M.Arch. in Architecture	
	Bob Liberty		
	Jill Liberty		A.A.S. Architectural Design & Drafting
	Michelle Mueller	B.Arch. in Architecture	
	Dorothy Payton	B.Arch. in Architecture	
	Eric Schmidt		B.S. Engineering
	Michael Sestric	B.Arch. in Architecture	
	Jim Sikkell	B.Arch. in Architecture	
	Severin Villager		B.F.A. in Interior Design
	Celeste Warren	B.Arch. in Architecture	