

ARCHITECTURAL DESIGN AND DRAFTING

Sylvania Campus
 Science Technology Building (ST), Room 208
 971-722-4163

www.pcc.edu/programs/architectural-design/

CAREER AND PROGRAM DESCRIPTION

This two-year associate of applied science degree program helps students develop the design and technical skills needed in the residential and commercial building design industry.

Career possibilities exist for both self-employment and working for hire. Graduates may pursue various design and drafting jobs with residential designers, construction firms, interior designers, engineers, architects, architectural product manufacturers, city, county, state and federal drafting departments and corporate drafting departments.

The Architectural Design and Drafting Department should be contacted for program advising, program costs and employment opportunity information. Consult a program advisor for information on PCC's policy on acceptance of courses taken at other colleges or high schools or the transferability of PCC courses to other colleges. Students should attend a group advising prior to enrollment. See department web page for a list of current scheduled dates.

Students may transfer from Portland Community College to other colleges or universities to complete a bachelor's degree in Architecture or related field. Students interested in transferring should see an Architectural Design program advisor.

Students must receive a C or better in all required classes in order to receive a degree in Architectural Design and Drafting. Pass/No pass grades are not accepted.

The Sustainable Building Certificate provides course work from architecture, interior design, building construction, social sciences and science as it relates to sustainable, or "green" building issues. This program will focus on creating buildings that are sited, designed, constructed, operated, and maintained for the health and well being of the occupants, while minimizing impact on the environment. See an advisor for current list of required courses.

The Kitchen and Bath Certificate includes course work from Architecture and Interior Design and prepares the student to take the National Kitchen and Bath Association exams to become an Associated Certified Kitchen and/or Bath Designer. Sustainable Building Certificate: It is recommended that students without prior drafting experience take ARCH 110 Introduction to Architectural Drawing and ARCH 126 Introduction to AutoCAD prior to starting the certificate.

DEGREES AND CERTIFICATES OFFERED

Associate of Applied Science Degree

- Architectural Design and Drafting
- Architectural Design and Drafting-Residential Option

One-Year Certificate

- Kitchen and Bath

Less than One-Year Certificate

- Sustainable Building

PREREQUISITES AND REQUIREMENTS

Students new to the program must take the college's placement exams for math and English prior to program advising and registration. Students must place in MTH 60 or higher and WR 115 or higher before registering for beginning architectural design and drafting classes or have department approval.

ARCHITECTURAL DESIGN AND DRAFTING AAS DEGREE

Minimum 99 credits. Students must also meet Associate Degree Comprehensive Requirements and Associate of Applied Science Requirements. Students must complete a total of sixteen credits of General Education. Students should consult with program advisors for course planning.

Architectural Design and Drafting Degree Credit Summary

ARCH	71
General Education	16
ARCH Degree Electives	6
ARCH CAD Electives	3
ART	3
Credit Total 99	

COURSE OF STUDY

The coursework listed below is required. The following is an example of a term-by-term breakdown.

First Term

ARCH 110	Introduction to Architectural Drawing	2
ARCH 121	Structural Systems I	2
ARCH 124	Introduction to Building Systems	3
ARCH 126	Introduction to AutoCAD	3
ARCH 127	Introduction to Google Sketch-up	3

Second Term

ARCH 101	Architectural Graphics I	3
ARCH 132	Residential Building Codes	2
ARCH 122	Structural Systems II	4
ARCH 136	Intermediate AutoCAD	3
CAD Electives		3

Third Term

ARCH 111	Working Drawings I	3
ARCH 113	Site Planning	2
ARCH 123	Structural Systems III	4
ARCH 224	Active & Passive Building Systems	4
ARCH 256	Detail Drawing with AutoCAD	3

Fourth Term

ARCH 112	Working Drawings II	3
ART 215	History of American Residential Architecture	3
General Education		8

Fifth Term

ARCH 102	Architectural Graphics II	3
ARCH 133	Commercial Building Codes	2
ARCH 201	Residential Studio	6
ARCH Degree Electives		3

Sixth Term

ARCH 202	Commercial Studio	6
ARCH Degree Electives		3
General Education		4

Seventh Term

ARCH 203	Residential Renovation Studio	6
ARCH 280	CE: Architectural Design & Drafting	4
General Education		4

Architectural Degree Electives

ARCH 100	Graphic Communication for Designers	3
ARCH 131	Sustainable Building Strategies	4
ARCH 200	Principles of Architectural Design	4
ARCH 204	Green Residential Studio	4
BCT 108	Intro to Building Science	3
BCT 116	Alternative Building Design	3
BCT 206	Sustainable Construction Practices	3
ID 121	Sustainable Materials for Residential Interiors	3
ID 131	Introduction to Interiors	3
ID 133	Space Planning	3
ID 135	Professional Practice for Designers	3
ID 138	Introduction to Kitchen & Bath Planning	3
ID 236	Lighting Design	3
ID 238	Advanced Kitchen and Bath Planning	3

Architectural CAD Electives

ARCH 137	AutoCAD Architecture	3
ARCH 237	Introduction to Revit Architecture	3
ARCH 247	Intermediate Revit Architecture	3

ARCHITECTURAL DESIGN AND DRAFTING-RESIDENTIAL AAS DEGREE

Minimum 97 credit. Students must also meet Associate Degree Comprehensive Requirements and Associate of Applied Science Requirements. Students must complete a total of sixteen credits of General Education. Students should consult with program advisors for course planning.

Architectural Design & Drafting - Residential Degree Credit Summary

ARCH	57
ID	18
General Education	16
ART	3
Residential CAD Electives	3
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Credit Total	97

COURSE OF STUDY

The coursework listed below is required. The following is an example of a term-by-term breakdown.

First Term

ARCH 100	Graphic Communication for Designers	3
ARCH 110	Introduction to Architectural Drawing	2
ARCH 121	Structural Systems I	2
ARCH 124	Introduction to Building Systems	3
ARCH 126	Introduction to AutoCAD	3

Second Term

ARCH 101	Architectural Graphics I	3
ARCH 122	Structural Systems II	4
ARCH 132	Residential Building Codes	2
ARCH 136	Intermediate AutoCAD	3
ID 131	Introduction to Interiors	3

Third Term

ARCH 113	Site Planning	2
ID 133	Space Planning	3
ID 138	Intro to Kitchen and Bath Planning	3
ID 236	Lighting Design	3
Residential CAD Electives		3

Fourth Term

ARCH 111	Working Drawings I	3
ART 215	History of American Residential Architecture	3
General Education		8

Fifth Term

ARCH 102	Architectural Graphics II	3
ARCH 201	Residential Studio	6
ARCH 224	Active & Passive Building Systems	4

Sixth Term

ARCH 200	Principles of Architectural Design	4
ID 238	Advanced Kitchen and Bath Planning	3
General Education		8

Seventh Term

ARCH 203	Residential Renovation Studio	6
ARCH 280	CE: ARCH Design and Drafting	4
ID 121	Sustainable Materials for Residential Interiors	3

Residential CAD Electives

ARCH 127	Introduction to Google SketchUP	3
ARCH 137	AutoCAD Architecture	3
ARCH 237	Introduction to Revit Architecture	3
ARCH 247	Intermediate Revit Architecture	3

KITCHEN AND BATH ONE-YEAR CERTIFICATE

Minimum 51 credits. Students must also meet certificate requirements. The Kitchen and Bath Certificate is a related certificate. All courses are contained in the Interior Design AAS Degree.

Kitchen and Bath Certificate Credit Summary

ID	34
ARCH	12
BCT	2
BA	3
ART	3
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Credit Total	51

COURSE OF STUDY

The coursework listed below is required. The following is an example of a term-by-term breakdown.

First Term

ARCH 100	Graphic Communication for Designers	3
ARCH 110	Introduction to Architectural Drawing	2
ARCH 124	Introduction to Building Systems	3
ID 125	Computer Drafting for Interior Designers	3
ID 131	Introduction to Interiors	3

Second Term

ID 121	Sustainable Materials for Residential Interiors	3
ID 132	Planning Interiors	3
ID 133	Space Planning	3
ID 138	Introduction to Kitchen and Bath Planning	3

Third Term

BCT	244	Kitchen and Bath Cabinet Installation	2
ID	135	Professional Practice for Designers	3
ID	225	CAD for Kitchen and Bath Design	1
ID	236	Lighting Design	3
ID	238	Advanced Kitchen and Bath Planning	3

Fourth Term

ARCH	121	Structural Systems I	2
ARCH	132	Residential Building Code	2
ART	215	History of American Residential Architecture	3
ID	280A	CE: Kitchen and Bath	6

SUSTAINABLE BUILDING LESS THAN ONE-YEAR CERTIFICATE

Minimum 42 credit hours. Students must meet certificate requirements.

Sustainable Building Certificate Credit Summary

ARCH	24
ESR	4
PHL	4
SOC	4
BCT	3
ID	3
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Credit Total	42

COURSE OF STUDY

The coursework listed below is required. The following is an example of a term-by-term breakdown.

First Term

ARCH	101	Architectural Graphics I	3
ARCH	124	Introduction to Building Systems	3
ID	121	Sustainable Materials for Residential Interiors	3
PHL	206	Introduction to Environmental Ethics	4

Second Term

ARCH	131	Sustainable Building Strategies	4
ARCH	224	Active & Passive Bldg Systems	4
BCT	206	Sustainable Construction Practices	3
SOC	228	Environmental Sociology	4

Third Term

ARCH	113	Site Planning	2
ARCH	204	Green Residential Studio	4
ARCH	280	CE: Arch Design & Drafting	4
ESR	171	Environmental Science: Biological Perspectives	4
	or		
ESR	172	Environmental Science: Chemical Perspectives	(4)

COURSE DESCRIPTIONS

ARCH 100 Graphic Communication for Designers 3.00 Addresses the fundamentals of perspective drawings as a communicative device. Develops perspective, freehand sketching and diagramming skills, by building a graphic vocabulary and establishing a language of architectural communication. Audit available.

ARCH 101 Architectural Graphics 1 3.00 Introduction to design process and drawing for residential design focusing on design of a new single family residence. Prerequisite: ARCH 110. Audit available.

ARCH 102 Architectural Graphics 2 3.00 Introduction to the design process and drawing for commercial design focusing on design of new light frame commercial building. Prerequisite: ARCH 110. Audit available.

ARCH 110 Introduction to Architectural Drawing 2.00 Covers basic Architectural drawing skills including lettering, line quality, plans, elevations, sections and axonometric drawings. Audit available.

ARCH 111 Working Drawings 1 3.00 Covers standards of architectural drafting and preparation of construction documents for typical residential construction. Construction process and terminology will also be examined. Prerequisite: ARCH 110 and (ARCH 126 or ID 125) Recommend: ARCH 121, 124. Audit available.

ARCH 112 Working Drawings 2 3.00 Covers standards of architectural drafting and preparation of construction documents for typical commercial construction. Construction process will also be examined. Prerequisites: ARCH 110, (ARCH 126 or ID 125) Recommend: ARCH 121, 124. Audit available.

ARCH 113 Site Planning 2.00 Covers site development, including surveying existing grades, locating existing and future buildings, driveways erosion control, storm water management and drawing site plans. Prerequisite: ARCH 110, (ARCH 126 or ID 125) Recommend: ARCH 121, 124. Audit available.

ARCH 121 Structural Systems 1 2.00 An overview of residential structural systems, including identification of structural members, loads and load paths and reading structural framing plans. Prerequisite/concurrent: ARCH 124. Audit available.

ARCH 122 Structural Systems 2 4.00 Covers sizing of wood structural members (rafters, joists, beams, etc.). Prerequisite: ARCH 121, MTH 60 or equivalent placement test scores. Audit available.

ARCH 123 Structural Systems 3 4.00 Covers retaining walls, concrete foundations, structural steel framing, and sizing for wind and seismic loads. Prerequisite: ARCH 122, MTH 65 or equivalent placement test scores. Audit available.

ARCH 124 Introduction to Building Systems 3.00 An overview of residential building systems, including building construction, and heating, cooling, plumbing, electrical, and passive solar systems. Audit available.

ARCH 126 Introduction to AutoCAD 3.00 Introduces AutoCAD software as a design and drafting tool for architecture and interior design. Only one of ARCH 126, ID 125, or DRF 126 can be taken for credit. Audit available.

ARCH 127 Introduction to Google SketchUp 3.00 Introduces basic 3-D modeling terminology, concepts and tools used to create simple building models and useful everyday shapes using SketchUp 3-D modeling software. Audit available.

ARCH 131 Sustainable Building Strategies 4.00 Focuses on creating buildings that are sited, designed, constructed, operated and maintained for the health and well being of the occupants, while minimizing impact on the environment. Prerequisite: ID 121 Prerequisite/concurrent: ARCH 224. Audit available.

ARCH 132 Residential Building Codes 2.00 Introduction to land use zoning and international residential building codes. Selected portions of the code will be discussed, with application to sample building plans. Prerequisite/concurrent: ARCH 124 or BCT 103. Audit available.

ARCH 133 Commercial Building Codes 2.00 Introduction to land use zoning and Oregon Building Codes for commercial buildings, using International Building Code. Selected portions of the code will be discussed, with application to sample buildings. Prerequisite/concurrent: ARCH 124 or BCT 103. Audit available.

ARCH 136 Intermediate AutoCAD 3.00 In-depth study of computer-aided-drafting using AutoCAD software and its applications to architecture. Prerequisite: ARCH 126 or ID 125. Audit available.

ARCH 137 AutoCAD Architecture 3.00 Introduction to AutoCAD Architecture which offers a variety of tools not available in the base AutoCAD software, including 3D objects representing the most common architectural components such as walls, doors, windows, stairs and roofs. Prerequisite: ARCH 136 or DRF 136. Audit available.

ARCH 140 Intro to CHIEF ARCHITECT 3.00 Introduces CHIEF ARCHITECT software as a design and drafting tool, its applications to architecture, and covers creation, retrieval and modification of drawings using basic commands. Course is also worth 60 LU credits to AIA members. Audit available.

ARCH 161 Blueprint Reading Part 1 2.00 Introduces methods to identify, communicate and apply information found on typical residential construction drawings. Audit available.

ARCH 162 Blueprint Reading-Part 2 2.00 Introduces methods to identify, communicate and apply information found on typical commercial construction drawings. Recommended: ARCH 161. Audit available.

ARCH 200 Principles of Architectural Design 4.00 Introduces concepts, theories, and practices of the discipline of architecture. Includes study of perceptual, environmental, technical and organizational concepts through lectures and individual projects in observing architectural spaces and forms. Audit available.

ARCH 201 Residential Studio 6.00 Covers design development and construction documents for a new single family residence. Prerequisites: ARCH 101, 111, 113, 122, 124, 132, 136, and ART 215. Audit available.

ARCH 202 Commercial Studio 6.00 Covers design development and construction documents for a light frame commercial building. Prerequisites: ARCH 102, 112, 122, 124, 133, 136, 256. Audit available.

ARCH 203 Residential Renovation Studio 6.00 Covers "as built" drawings, design and construction documents for a residential remodel/addition. Prerequisites: ARCH 101, 111, 113, 122, 124, 132, 136, and ART 215. Audit available.

ARCH 204 Green Residential Studio 4.00 Advanced study of sustainable building design and systems, and applied to residential buildings. Includes site analysis passive technologies, and use of sustainable building materials. Concepts will be applied to an actual house design in a studio format. Prerequisite: ARCH 101 or department approval for similar experience. Prerequisite or concurrent registration: ARCH 131 and 224, and ID 121 and BCT 206; or instructor permission. Audit available.

ARCH 224 Active and Passive Building Systems 4.00 Advanced study of structural systems, mechanical systems, specifications, and building codes in residential and small commercial buildings. Prerequisite: ARCH 121, 124. Audit available.

ARCH 237 Introduction to Revit Architecture 3.00 Introduces Revit Architecture and its applications to architectural design and drafting. Audit available.

ARCH 246 AutoCAD 3D and Solid Modeling 3.00 Provides thorough coverage of 3-dimensional drafting and design procedures. Concepts examined will include 3D primitives, User Coordinate Systems, 3D V points, complex extrusions, regions, shading and rendering, 3D models and supportive AutoCAD 3D databases. This course is 30 total contact hours and is also worth 60 LU credits to AIA members. Prerequisite: ARCH 136. Audit available.

ARCH 247 Intermediate Revit Architecture 3.00 Explores Revit Architecture intermediate commands and features and its application to architecture. Prerequisite: ARCH 237 Audit available.

ARCH 256 Detail Drawing with AutoCAD 3.00 Develops skills in creating construction detail and section drawings using appropriate scale, line weights, symbols and annotations. Prerequisite: ARCH 136. Audit available.

ARCH 280 Cooperative Education: Architectural Design and Drafting Work or observe on approved job sites. Student receives as varied and complete an experience as possible under job conditions. Credits are variable and based on the number of clock hours student spends on job site. Must be coordinated with the supervisor, instructor, and cooperative education specialist. Department permission required.