

ARCH 210: INTRODUCTION TO SUSTAINABLE ARCHITECTURAL DESIGN

Originator

zbecker

Co-Contributor(s)**Name(s)**

Bitanga, Bert

Justification / Rationale

New Curriculum for the College of the Desert/Cal Poly 2+3 Architecture partnership that will bring a full Architecture Professional degree to the College of the Desert West Valley campus.

Effective Term

Spring 2022

Credit Status

Credit - Degree Applicable

Subject

ARCH - Architecture

Course Number

210

Full Course Title

Introduction to Sustainable Architectural Design

Short Title

INTRO TO SUSTAINABLE ARCH

Discipline**Disciplines List**

Architecture

ModalityFace-to-Face
100% Online
Hybrid**Catalog Description**

Basic principles for the design of sustainable, low carbon environments at the urban, site and building scale. Emphasis on site design and the design of sustainable buildings and their connection to the environment such as energy, materials, water and waste management.

Schedule Description

Basic principles for the design of sustainable, low carbon environments at the urban, site and building scale. Emphasis on site design and the design of sustainable buildings and their connection to the environment such as energy, materials, water and waste management.

Lecture Units

3

Lecture Semester Hours

54

Lab Units

0

In-class Hours

54

Out-of-class Hours

108

Total Course Units

3

Total Semester Hours

162

Required Text and Other Instructional Materials**Resource Type**

Web/Other

Open Educational Resource

Yes

Description<https://www.wickedproblems.com/read.php>

Resource Type

Book

Author

La Roche, Pablo

Title

Carbon Neutral Architectural Design

Edition

2nd

City

Boca Raton, FL

Publisher

CRC Press

Year

2017

College Level

Yes

ISBN #

978-1498714297

Resource Type

Book

Author

Stein, Reynolds, Kwok and Gronzik

Title

Mechanical and Electrical Equipment for Buildings

Edition

13th

Publisher

Wiley

Year

2019

ISBN #

978-1119463085

Resource Type

Book (Recommended)

Author

Lechner, N.

Title

Heating, Cooling, Lighting: Design Methods for Architects

Edition

3rd

Publisher

John Wiley Sons

Year

2010

Resource Type

Book (Recommended)

Author

Egan, D and Olgvay, V.

Title

Architectural Lighting

Edition

2nd

Publisher

McGraw-Hill

Year

2002

For Text greater than five years old, list rationale:

This course covers historical perspective and materials from older texts and articles are appropriate.

Class Size Maximum

30

Course Content

This course will introduce basic principles for the design of sustainable, low carbon environments. This includes a vocabulary of sustainable principles at the urban, site and building scale.

- Buildings and Climate Change
- Built Environment and Sustainability
- Water Issues

- Impact of Materials and Construction
- Occupant Behavioral Issues
- Daylight

Course Objectives

	Objectives
Objective 1	Demonstrate understanding of the need for sustainable design.
Objective 2	Demonstrate understanding the effect of the built environment on climate change.
Objective 3	Demonstrate understanding of building related sustainability issues.
Objective 4	Demonstrate understanding of climate analysis and determine sustainable design priorities.
Objective 5	Demonstrate understanding of site, passive and envelope strategies to reduce energy consumption and increase thermal comfort.
Objective 6	Demonstrate understanding of basic principles of energy and water conservation, IAQ, materials, and implementation of daylight strategies.

Student Learning Outcomes

	Upon satisfactory completion of this course, students will be able to:
Outcome 1	Exhibit the principles of environmental systems' design, including active and passive heating and cooling, indoor air quality, solar orientation, daylighting and artificial illumination, acoustics, and performance assessment tools.
Outcome 2	Develop the basic principles involved in the selection and application of building envelope systems and associated assemblies relative to fundamental performance, aesthetics, moisture transfer, durability, and energy and material resources.
Outcome 3	Evaluate site-specific environmental and socio-cultural opportunities; site-specific environmental constraints; optimal use of onsite resources incorporating sustainability principles; mechanical, electrical and plumbing systems; and the building configuration in the project design.

Methods of Instruction

Method	Please provide a description or examples of how each instructional method will be used in this course.
Lecture	The subject matter and presentation techniques have been selected to fulfill the Course Objectives.
Discussion	Student feedback on in class and online presentations.
Participation	Presentation of projects of various scales, contexts and cultures.
Collaborative/Team	Small group activities to critique student activities.
Demonstration, Repetition/Practice	Demonstrate activities, techniques, or behaviors that promote intellectual or cultural growth.

Methods of Evaluation

Method	Please provide a description or examples of how each evaluation method will be used in this course.	Type of Assignment
College level or pre-collegiate essays	5 - 8 Short analytical papers.	Out of Class Only
Student participation/contribution	Group term project including a written report and a presentation.	In and Out of Class
Tests/Quizzes/Examinations	Quizzes on each design topic and a comprehensive examination covering all material presented during the course.	In Class Only
Written homework	After participating in each of the five design exercises, each student will write a paper resolving a design problem.	Out of Class Only
Other	Students will be evaluated based upon the quality of their assignments from the text and hand-outs, weekly quizzes, and participation in classroom discussions. Mid-term and final examinations complete the evaluation process	In and Out of Class

Assignments

Other In-class Assignments

1. Group projects on each design topic.
2. Group term project including a 10-15 page paper and presentation.
3. Design exercises on each of the design topics.
4. Presentation on each of the design topics.

Other Out-of-class Assignments

1. Reading assignments from required text and/or instructor "handouts".
2. Writing assignments based on lectures, reading and visual presentation.
3. Prepare for classroom discussions on green technologies.
4. Prepare for student presentations and discussions of assigned topics.
5. Short analytical papers after each of the design exercises.
6. Group term project including 10-15 page paper and presentation.

Grade Methods

Letter Grade Only

Distance Education Checklist

Include the percentage of online and on-campus instruction you anticipate.

Online %

50

On-campus %

50

Instructional Materials and Resources

If you use any other technologies in addition to the college LMS, what other technologies will you use and how are you ensuring student data security?

The college LMS will be the only technology used to hold student data.

Effective Student/Faculty Contact

Which of the following methods of regular, timely, and effective student/faculty contact will be used in this course?

Within Course Management System:

Timely feedback and return of student work as specified in the syllabus
Discussion forums with substantive instructor participation
Regular virtual office hours
Online quizzes and examinations
Weekly announcements

External to Course Management System:

Direct e-mail
E-portfolios/blogs/wikis

Briefly discuss how the selected strategies above will be used to maintain Regular Effective Contact in the course.

Timely feedback and return of student work as specified in the syllabus
Discussion forums with substantive instructor participation
Online quizzes and examinations
Weekly announcements

Other Information

Comparable Transfer Course Information

University System

CSU

Campus

California State Polytechnic University, Pomona

Course Number

ARC 2010

Course Title

Introduction to Sustainable Architectural Design

Catalog Year

2015

Rationale

This new COD course is part of a partnership between College of the Desert and Cal Poly, designed to provide students with a full 2+3 Architecture professional degree at the College of the Desert West Valley Campus.

MIS Course Data**CIP Code**

04.0901 - Architectural Technology/Technician.

TOP Code

020100 - Architecture and Architectural Technology

SAM Code

C - Clearly Occupational

Basic Skills Status

Not Basic Skills

Prior College Level

Not applicable

Cooperative Work Experience

Not a Coop Course

Course Classification Status

Credit Course

Approved Special Class

Not special class

Noncredit Category

Not Applicable, Credit Course

Funding Agency Category

Not Applicable

Program Status

Stand-alone

Transfer Status

Transferable to CSU only

General Education Status

Y = Not applicable

Support Course Status

N = Course is not a support course

Allow Audit

No

Repeatability

No

Materials Fee

No

Additional Fees?

No

Files Uploaded**Attach relevant documents (example: Advisory Committee or Department Minutes)**

ARCH 210-CO Approval Ltr 0528.pdf

Approvals**Curriculum Committee Approval Date**

4/15/2021

Academic Senate Approval Date

4/22/2021

Board of Trustees Approval Date

5/21/2021

Chancellor's Office Approval Date

5/28/2021

Course Control Number

CCC000625149