

# BIT 324A: CALIFORNIA ENERGY CODES INTRODUCTION

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## New Course Proposal

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### Originator

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### Co-Contributor(s)

#### Name(s)

Bitanga, Bert

### Justification / Rationale

This course is Module 1 of 3 of a non-credit overlay version of BIT 24 California Energy Codes. The non-credit version provides vocational skills training opportunities to the incumbent workforce and those currently underemployed or unemployed. This module presents the history and development of the code, the need for regulation, navigating the California Code manual and the fundamentals of compliance.

### Effective Term

Fall 2020

### Credit Status

Noncredit

### Subject

BIT - Building Inspection Technology

### Course Number

324A

### Full Course Title

California Energy Codes Introduction

### Short Title

CA ENERGY CODES INTRO

### Discipline

#### Disciplines List

Building Codes and Regulations (Inspecting of construction, building codes, contractor training)

### Modality

Face-to-Face

100% Online

### Catalog Description

This course introduces California's Building Energy Efficiency Standards for Residential and Nonresidential Buildings (Title 24, Part 6). It presents the history and development of the code, the need for regulation, navigation of the code manuals, and the fundamentals of meeting compliance.

### Schedule Description

This course introduces California's Building Energy Efficiency Standards for Residential and Nonresidential Buildings (Title 24, Part 6). It is Module 1 of 3 modules in the California Energy Codes Certificate of Completion.

### Non-credit Hours

36

### Lecture Units

0

**Lab Units**

0

**In-class Hours**

12

**Out-of-class Hours**

24

**Total Course Units**

0

**Total Semester Hours**

36

**Override Description**

Noncredit courses do not have lecture and lab. The out of class hours were adjusted to provide the same total as the equivalent credit course.

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

Book

**Author**

California Energy Commission (CEC)

**Title**

[California] Building Energy Efficiency Standards for Residential and Nonresidential Buildings (latest version)

**Edition**

Latest Edition

**Publisher**

California Energy Commission (CEC)

**Year**

2019

**College Level**

Yes

**Flesch-Kincaid Level**

N/A

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**Class Size Maximum**

28

**Course Content**

1. Introduction to the Building Energy Efficiency Standards.
  - a. General history of the California Energy Efficiency Standards.
  - b. Why California Needs Building Energy Efficiency Standards.
  - c. Global Warming and Environmental Impacts - AB32, AB758, AB1103.
  - d. Peak Demands and Electricity Reliability.
  - e. California's Long Term Energy Efficiency Strategic Plan.
  - f. All California New Residential Construction Zero Net Energy (ZNE) by 2020.
  - g. All California New Nonresidential Construction ZNE by 2030.
  - h. Energy Efficiency for Existing Buildings.
  - i. Energy Economics.

- j. Navigational Skills for Study and Research.
- k. Impacts Of California Energy Code On Construction Projects.
  - l. Career Paths for Energy Administration.
- 2. Navigating the Energy Codes.
  - a. Description of Codes In General.
  - b. Code Application to the Trades: Architect, Designer, Contractor, Building Dept. , Plan Check, Energy Consultant, Engineer, HERS Rater, Support Staff, Attorney, Property Mgmt, Building Owner.
  - c. Identifying Compliance Needs for Various Scenarios.
  - d. Meeting Compliance.
  - e. Document Preparation.
  - f. Methods of Compliance - Mandatory, Performance vs. Prescriptive.
  - g. Forms Management.
  - h. Project Submittal.
    - i. Project Management to Meet T24 Compliance.
    - j. Closing out a T24 Project.
  - k. Basics of Energy Auditing and the Standards.
    - l. Intro to Renewables and the Standards.
- 3. Identifying Energy Code Requirements.
  - a. Residential vs. Non-Residential.
  - b. Building Types - Low-Rise Res, High-Rise Res, Non-Res, Hotels/Motels, Live-Work Spaces, Unconditioned & Newly Conditioned Spaces, Refrigerated Warehouses, Process, Historic.
  - c. Types of construction.
  - d. New Construction / Additions, Alterations and Repairs / Existing.
  - e. Time Dependent Valuation (TDV).
  - f. Building Orientation.
  - g. CA Climate Zones / Reference Weather- Reference Appendices JA-2.
  - h. Mandatory Requirements.
    - i. Prescriptive Compliance.
    - j. Performance Compliance.
  - k. Historical Buildings.
    - l. Exempt Buildings.
- 4. Compliance and Enforcement.
  - a. Phases - Design, Permit Application, Plan Check, Bldg Permit, Construction, Enforcement Agency Field Inspection, Field Verification and/or Diagnostic Testing, Approval for Occupancy, Occupancy.
  - b. Compliance Documentation.
  - c. Roles and Responsibilities - Designer, Documentation Author, Builder or General Contractor, Specialty Subcontractors, Enforcement Agency, HERS Provider, HERS Rater, Third Party Quality Control, Owner.
  - d. HERS Field Verification and Diagnostic Testing Measures - HERS Measures Identified.
  - e. HERS Group Sampling - Closed and Open Groups.
  - f. HERS Resampling.
  - g. HERS - Installer Requirements.
  - h. Data Registry Requirements - Reference Joint Appendices JA-7.
    - i. Building Commissioning - OPR, BOD, Design Review, Cx.
    - j. Non-residential Accepting Testing.

### Course Objectives

	Objectives
Objective 1	Provide an overview of the need for California Energy Codes.
Objective 2	Determine needed compliance documents for various project scenarios.
Objective 3	Demonstrate beginning skills for employment in private or public construction fields, or become inspector or plans examiners

### Student Learning Outcomes

**Upon satisfactory completion of this course, students will be able to:**

Outcome 1	Explain the history of the Building Energy Efficiency regulation in California and related codes.
Outcome 2	Identify the components of the Building Energy Efficiency Standards (Title 24, Section 6) and supporting documents.

### Methods of Instruction

Method	Please provide a description or examples of how each instructional method will be used in this course.
Lecture	Presentation of topic in context.
Individualized Study	Evaluate energy situations and cite appropriate codes.
Demonstration, Repetition/Practice	Classroom and group discussions of code violations.
Discussion	Discussion of applicable code examples.
Other (Specify)	Presentation of construction materials related to energy efficiency.

### Methods of Evaluation

Method	Please provide a description or examples of how each evaluation method will be used in this course.	Type of Assignment
Self-paced testing, Student preparation	Research appropriate energy codes for a residential construction project and create a 10-minute presentation on the solution and research methods used in identifying the recommendation.	Out of Class Only
Student participation/contribution	Active participation in class and group discussions.	In Class Only
Mid-term and final evaluations	Comprehensive exams covering the content of the course. Exams may be project based out-of-class assignments or in-class multiple choice and true/false questions.	In and Out of Class
Tests/Quizzes/Examinations	Timed quizzes out-of-class with discussion of correct answers in class.	In and Out of Class
Computational/problem-solving evaluations	Present 10-minute energy code research project.	In Class Only
Other	Out-of-class hours will be accounted for electronically through the learning management system.	Out of Class Only

### Assignments

#### Other In-class Assignments

1. Presentation of course subjects and materials.
2. Review code sections.
3. Evaluate residential energy code examples.

#### Other Out-of-class Assignments

1. Reading assignments of codes and handouts.
2. Visit construction sites (real or virtual).
3. Review code sections presented in class.

#### Grade Methods

Pass/No Pass Only

### Distance Education Checklist

#### 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.

**If used, explain how specific materials and resources outside the LMS will be used to enhance student learning.**

The resources below are needed for energy code assignments and they are all professional and exclusive websites that focus on the subject matter.

1. energy.ca.gov
2. (AHRI) Air conditioning HeatingRefrigeration Institute
3. (CEC) California Energy Commission
4. Building Standards Commission bsc.ca.gov
5. NFRC National Fenestration Rating Council

**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  
Private messages  
Online quizzes and examinations  
Weekly announcements

**External to Course Management System:**

Direct e-mail  
Synchronous audio/video  
Telephone contact/voicemail

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

Through group discussions, email correspondence, voicemail

**If interacting with students outside the LMS, explain how additional interactions with students outside the LMS will enhance student learning.**

None

**Other Information****Provide any other relevant information that will help the Curriculum Committee assess the viability of offering this course in an online or hybrid modality.**

Background information: Title 24 is a state legislative mandate instated in the mid to late 1970's to reduce California's energy consumption. It is mandatory for any residential and commercial, new or remodel project that requires a permit approval. Viability: Because a Title 24 energy analysis report is such a prevalent factor in the process of attaining a building permit, and due to the fact that these Energy Codes are the newest in the series of BIT codes, the demand will be high. Individuals in the professional industry (contractors, building inspectors, plans examiners, architects, engineers, and city agency employees) will need to enroll in this course to remain current with updated standards. 3. By 2020, all new residential construction will be required to be ZNE ready and by 2030, all new commercial construction will be required to be ZNE ready. One requirement to be ZNE ready is to have a valid and proper Title 24 energy analysis report available for submittal. This course covers all the necessary information explained in the California Energy Commission (CEC) and this course in a distance education modality will be a model for other community colleges in California.

**MIS Course Data****CIP Code**

46.0403 - Building/Home/Construction Inspection/Inspector.

**TOP Code**

095720 - Construction Inspection

**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**

Other Non-credit Enhanced Funding

**Approved Special Class**

Not special class

**Noncredit Category**

Short-Term Vocational

**Funding Agency Category**

Not Applicable

**Program Status**

Program Applicable

**Transfer Status**

Not transferable

**Allow Audit**

No

**Repeatability**

Yes

**Repeatability Limit**

NC

**Repeat Type**

Noncredit

**Justification**

Noncredit courses are repeatable until the student achieves the skills and competency required to meet the objectives and outcomes of the course.

**Materials Fee**

No

**Additional Fees?**

No

**Approvals****Curriculum Committee Approval Date**

10/17/2019

**Academic Senate Approval Date**

10/24/2019

**Board of Trustees Approval Date**

11/13/2019

**Chancellor's Office Approval Date**

01/10/2020

**Course Control Number**

CCC000611548

**Programs referencing this course**

California Energy Codes Certificate of Completion (<http://catalog.collegeofthedesert.eduundefined?key=242/>)

Construction Technology Career Preparation Certificate of Completion (<http://catalog.collegeofthedesert.eduundefined?key=292/>)