## Barstow College Course Outline - Course - SLO, Objectives, Methods of Instruction ELCT 70D

Dept & Nbr: ELCT 70D

Abbrv Title: Intro to Electrical Blueprints

Full Title:

Intro to Electrical Blueprints

## Title 5 Category:

Associate Degree Applicable

## **Certificate:**

Not Applicable

#### Units

Max: 1.00 Min: 1.00

**Course Hours Per Week** 

Lecture 1 Lab 0

## Number of Weeks

18.0

## **Course Hours Total**

Lecture 18.00 Lab 0

## **Methods of Delivery**

Distance Education - Fully Online Distance Education - Hybrid Live Instruction

# Selected Topic No

**Grading** Graded Option Only (ABCDEF)

## **Repeat Code**

Non Repeatable/Non Activity Course (May be repeated two times with a grade of less than "P" or "C")

## **Basic Skills**

Course is not a basic skills course.

## Prerequisites

#### Corequisites

## **Recommended Preparation**

## BCTT 70C

## **Catalog Description**

Electrical blueprint reading, including the interpretation of various types of scales, drawings, schedules, and specifications. Various types of switches and receptacles used in residential, commercial, and industrial wiring, along with their basic installation procedures and NEC requirements.

## **Course Content**

- I. Introduction to Blueprint Reading
- II. Blueprint Layout
- III. Drafting Lines
- IV. Scale Drawings
- V. Analyzing Electrical Drawings
- VI. Power Plans
- VII. Lighting Floor Plan
- VIII. Electrical Details and Diagrams
- IX. Written Specifications
- X. Switches
- XI. Types of Switches
- XII. NEMA Classifications
- XIII. Receptacles
- XIV. Wiring Techniques
- XV. Control Devices
- XVI. Power Distribution Equipment
- XVII. Sizing the Electrical Service
- XVIII. Sizing Residential Neutral Conductors
- XIX. Sizing the Load Center
- XX. Grounding Electric Services
- XXI. Installing the Service Entrance
- XXII. Panelboard Location
- XXIII. Wiring Methods
- XXIV. Equipment Grounding System
- XXV. Branch Circuit layout for Lighting
- XXVI. Outlet Boxes
- XXVII. Wiring Devices
- XVIII. Lighting Control
- XXIX. Electric Heating
- XXX. Residential Swimming Pools, Spas, and Hot Tubs

## **Methods of Instruction**

- 1. Instructor lecture and class discussion
- (Satisfies objectives 2, 3, 4, 5, 7, 10, 11, 12)
- 2. Homework, both reading and writing, and student demonstations, assigned by
- instructor followed by feedback.
  - (Satisfies objectives 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12)
- 3. For Distance Education Instructor guided discussion board and publisher materials

including PowerPoint

(Satisfies objectives 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12)

#### **Course Objectives A. Define Course Objectives**

1. Interpret electrical drawings, including site plans, floor plans, and detail drawings.

2. Identify and state the functions and ratings of single-pole, double-pole, three-way, four-way, dimmer, special, and safety switches.

- 3. Explain the NEC requirements concerning wiring devices.
- 4. Explain the box mounting requirements in the NEC.
- 5. Explain the grounding requirements of a residential electric service.
- 6. Calculate and select service-entrance equipment.
- 7. Explain the role of the NEC in residential wiring.
- 8. Compute branch circuit loads and explain their installations requirements.
- 9. Size outlet boxes and select the proper type for different wiring methods.
- 10. Describe rules for installing electric space heating and HVAC equipment.
- 11. Describe the installation rules for electrical systems around swimming pools, spas, and hot tubs.
- 12. Explain how wiring devices are selected and installed.

## **B.** Critical Thinking Tasks/Assignments

Critical thinking assignments include(but are not limited to) the following:

Substantial Writing Assignments Including: Written Homework Reading Reports

Computational or Non-Computational Problem Solving Demonstrations Including: Exam(s) Quizzes Homework Problems

Skill Demonstration Including

Objective Examinations Including

## C. Methods of Evaluation

Substantial Writing Assignments	Written Homework Reading Reports
Computational or Non-Computational Problem Solving Demonstrations	Exam(s) Quizzes Homework Problems
Skill Demonstration	None
Objective Examinations	Industry standardized exams required
Other Additional assessment information (optional).	Attendance/Participation

#### **Basis for Grades**

Writing Assignments	20.0%
Problem-Solving	20.0%
Objective Examinations	40.0%
Attendance	20.0%

#### Required Reading, Writing and Other Outside of Class Assignments

#### **Required Reading:**

#### **Required Writing:**

#### **Other Out of Class Assignments:**

#### **Texts/Materials**

#### Textbooks

1. -. NCCER, Electrical Level One, ed. Prentice-Hall, 2005

#### Manuals

You have no manuals defined.

#### Periodicals

You have no periodicals defined.

## Software

You have no software defined.

#### Other

You have no other defined.

#### Student Learning Outcomes

- 1. The student will understand the various formats, views and usage of electrical blueprints.
  - Core Competency: Personal/Professional Development
  - Assessment Methods: Multiple Choice, Demonstration
  - Rubric:
- 2. The student will understand grounding and bonding requirements for safety in electrical installations.
  - Core Competency: Personal/Professional Development
  - Assessment Methods: Multiple Choice, Demonstration
  - Rubric:
- 3. The student will understand the proper wiring methods for residential and commerical installations.
  - Core Competency: Personal/Professional Development
  - Assessment Methods: Multiple Choice, Demonstration
  - Rubric:

Curriculum Committee Approval Date: 10/20/2006

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