**Barstow College Course Outline - Course - SLO, Objectives, Methods of Instruction**

**ELCT 70B**

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**Dept & Nbr:** ELCT 70B **Abbrv Title:** Fasteners & Electrical Theory

**Full Title:**
Fasteners & Electrical Theory

**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**

**Catalog Description**

Applications and installation procedures for various types of fasteners and anchors. Basic electric theory. Circuit calculations involving the application of Ohm's and Kirchoff's laws.

**Course Content**

I. Threaded Fasteners
II. Non-threaded Fasteners
III. Screws
IV. Other Types of Fasteners
V. Introduction to Electric Theory
VI. Conductors and Insulators
VII. Electric Current and Flow
VIII. Resistance
IX. Resistors
X. Schematic Representation of Circuit Elements
XI. Measuring Voltage, Current, and Resistance
XII. Electrical Power
XIII. Resistive Circuits
XIV. Applying Ohm's Law
XV. Kirchoff's Law

**Methods of Instruction**

1. Lecture presentations and class discussion.
   (Satisfies objectives 1, 2, 3, 4, 6)
2. Video viewing and class discussion.
   (Satisfies objectives 1, 2, 3, 4, 6)
3. Instructor demonstration followed by student demonstration and instructor critique.
   (Satisfies objectives 1, 2, 3, 4, 5, 6, 7, 8)
4. Homework, both reading and writing, assigned by instructor.
   (Satisfies objectives 1, 2, 3, 4, 5, 6, 7, 8, 9)

**Course Objectives**

**A. Define Course Objectives**

1. Identify and explain the use of threaded and non-threaded fasteners.
2. Define voltage and identify the ways in which it can be produced.
3. Explain the difference between conductors and insulators.
4. Explain how voltage, current, and resistance are related to each other.
5. Calculate an unknown value using Ohm's law.
6. Explain the different types of meters used to measure voltage, current, and resistance.
7. Calculate the amount of power used by a circuit using the power formula.
8. Calculate the voltage drop and total current in series, parallel, and series-parallel circuits using Kirchoff's voltage law.
9. Calculate the total amount of resistance in a series, parallel, and series-parallel circuit.

**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<br>Reading Reports |
| Computational or Non-Computational Problem Solving Demonstrations | Exam(s)<br>Quizzes<br>Homework Problems |
| Skill Demonstration | None |
| Objective Examinations | Industry standardized exams required |
| Other | Attendance/Participation |
| Additional assessment information (optional). | |

**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 Trainee Guide 2008 NEC*, ed. Prentice-Hall, 2008, ISBN: 9780136044598.
Optional

**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 be able to explain the proper application of fasteners relating to the electrical industry.
   - Core Competency: Communication and Personal/Professional Development
   - Assessment Methods: Online exam & discussion
   - Rubric:
2. The student will be able to explain the relationship between voltage, current, resistance and power and be able to calculate each type in a circuit.
   - Core Competency: Communication and Personal/Professional Development
   - Assessment Methods: Online exam & discussion
   - Rubric:
3. The student will be able to differentiate between series and parallel circuits and calculate resistance and capacitance in each type circuit.
   - Core Competency: Communication and Critical Thinking and Personal/Professional Development
   - Assessment Methods: Online exam & discussion
   - Rubric:

**Curriculum Committee Approval Date:** 10/20/2006 **Last Outline Revision Date:** 01/01/2013