BARSTOW COMMUNITY COLLEGE COURSE OUTLINE – ELCT 70C

Dept & Nbr: ELCT 70C **Abbrv Title:** Electrical Test Equipment NEC
Full Title: Electrical Test Equipment, NEC, Raceways, Boxes, Fittings, and Conductors
Old Number: BCTT 70C

Title 5 Category: Associate Degree Applicable
Certificate Applicable:

Units	Course Hrs per Week		Nbr of Weeks	Course Hrs Total	
Max: 2.0	Lecture	36	18	Lecture	36
Min: 2.0	Lab			Lab	
	Contact DHR	0.0		Contact DHR	0.0
	Contact Total			Contact Total	36.0
	Non-contact DHR	0.0		Non-contact DHR	0.0

Delivery methods: Lecture, online, hybrid
Selected Topic: No
Grading: Option (A-F) (P/NP)
Concurrent Course: None

Repeat Code: May be taken two times with a grade of less than "C".

Basic Skills 0: This is not a basic skills class

CATALOG DESCRIPTION:
This course is designed to operate and apply various types of electrical test equipment. National electrical Code (NEC), various types of raceways, boxes, fittings, and conductors including installation procedures and NEC requirements.

PREREQUISITES: ELCT 70B

COREQUISITES: None

RECOMMENDED PREPARATION: None

CONTENT:

I. Introduction to National Electrical Code (NEC)
II. Device boxes
III. Raceways and fittings
IV. Conductors and cables
V. Electrical testing equipment

COURSE OBJECTIVES:

Upon success completion of this course the student will be able to:

1. Explain the purpose and history of the NEC
2. Demonstrate and explain how to navigate and describe the layout of the NEC.
3. Contrast and compare the purpose of the National Electrical Manufacturers Association (NEMA) and the National Fire Protections Association (NFPA)
4. Explain the role of the nationally recognized testing laboratories.
5. Identify the different types of boxes and raceways, calculate fill and determine types and size requirements.

6. Select and demonstrate the appropriate method of mounting a given box.
7. Identify and select various types and sizes of raceways and fittings for a given application.
8. From the cable markings, describe the insulation and jacket material, conductor size and type, number of conductors, temperature ratings, voltage ratings and permitted use.
9. Trouble shoot using electrical test equipment, identify type, usage and safety requirements.

COURSE-LEVEL STUDENT LEARNING OUTCOMES:

1. **The student will understand the proper usage of various electrical test equipment.**

Assessment method(s): Multiple Choice, Trouble Shooting Problems

- Critical Thinking
- Personal/Professional Development

2. **The Student will understand the purpose and necessity of the NEC, NEMA and NFPA and how they relate to electrical safety.**

Assessment methods: Multiple choice, Research paper

- Critical Thinking
- Personal/Professional Development

3. **The student will understand the numbering system and insulation ratings of conductors used in the electrical industry.**

Assessment method(s): Multiple Choice, Essay paper

- Critical Thinking
- Personal/Professional Development

B. Critical Thinking Tasks/Assignments:
Critical thinking assignments include (but are not limited to) the following:

1. Using Test Equipment they will identify and trouble shoot problems such as: electrical shortage continuity test.
2. Objective exams.

Other outside class assignments include (but are not limited to) the following:

1. Essay paper that compares and contrast NEMA and NFPA.
2. Research assignments on conductors, cables etc.

C. Measurement of Student Learning Outcomes:
1. Substantial writing assignments, including:

- Written homework
- Term or other paper
- Reading reports

If this course is degree applicable, substantial writing assignments in course are inappropriate because:

* The course primarily involves skill demonstrations or problem solving.

2. Computational or non-computational problem-solving demonstration, including:

- Exam(s)
- Quizzes

3. Skill demonstration, including:
   - Class performance(s)
4. Objective examinations, including:
   - Multiple choice

5. Other
   - Group discussion

REQUIRED READING, WRITING AND OTHER OUTSIDE-OF-CLASS ASSIGNMENTS:
Over an 18-week presentation of the course three hours of study are required for each unit of credit. Two hours of independent work done out of class are required for each hour of lecture. Outside of the regular class time the students in this class will be doing the following:

- Study
- Required reading
- Problem solving activity or exercise
- Written work

BASIS FOR GRADES:

Writing Assignments	30%
Objective Examinations	45%
Attendance & Participation	25%
Total	100%

TEXTS/MATERIALS

NCCER, Electrical Level One, ed. Prentice-Hall 2014

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Area Department: B & W

==========**Instructional Office Use Only - Signatures and Codes**==========

Instructional Vice President Approval: Stephen Eaton, AAVP

Curriculum Committee Approval Date: 08 Apr. 16 **Revision Date: 08 Apr. 16**