

PALOMAR COLLEGE
COURSE OUTLINE OF RECORD FOR
DEGREE CREDIT COURSE

Transfer course A.A. degree applicable course
(check all that apply)

COURSE NUMBER AND TITLE: AP E 103 Inductance and Capacitance Theory and Codeology

UNIT VALUE: 4

MINIMUM NUMBER OF SEMESTER HOURS: 96

BASIC SKILLS REQUIREMENTS:

Appropriate language and computational skills.

ENTRANCE REQUIREMENTS

PREREQUISITE: Apprenticeship Electrician 102

COREQUISITE: None.

RECOMMENDED PREPARATION: None.

SCOPE OF COURSE:

Review of the International Brotherhood of Electrical Workers constitution and local union by-laws. Study of the effects of inductance and capacitance on current and voltage. Application of phase angle calculation and the National Electric Code. Overview of workplace problems due to drug abuse. CSU

SPECIFIC COURSE OBJECTIVES:

The student will be able to:

1. Identify various types of capacitors.
2. Explain capacitance and capacitance reactance.
3. Compare and contrast pure resistive circuits with circuits containing capacitance.
4. Evaluate the effect of capacitance in AC circuits by performing calculations for capacitance reactance.
5. Identify various types of inductors.
6. Explain inductance and inductive reactance.
7. Contrast pure resistive circuits with circuits containing inductance.

8. Evaluate the effects of inductance by performing calculations in AC circuits.
9. Evaluate characteristics of LR, LC and LCR in lab experiments and circuit calculations.
10. Analyze and explain the IBEW constitution and local union 569 by-laws.
11. Identify the negative effects of drug abuse in the workplace.

CONTENT IN TERMS OF SPECIFIC BODY OF KNOWLEDGE:

- I. Job Information
 - A. Drug Abuse
 - B. Comet
 - C. Blueprint for the 90's
 - D. IBEW Constitution
 - E. Local Union By-Laws
 - F. Parliamentary Procedure
- II. Electrical Theory (Inductance and Capacitance)
 - A. Alternating Current
 - B. Capacitance and Capacitors
 - C. Capacitive Reactance, Circuits
 - D. Test and Applications
 - E. Inductive Reactance Circuits
 - F. Circuit Analysis of LR, LC, RC and LCR in AC circuits and their effects on phase of current and voltage
- III. Codeology
 - A. Orientation to NEC
 - B. Getting Acquainted
 - C. Plan-Build-Use
 - D. Numbering and Outline
 - E. Clues
 - F. Using Exceptions

REQUIRED READING:

- Applied Codeology. Upper Marlboro, MD: National Joint Apprenticeship and Training Committee, 1996.
- Cadick, John and AVO Multi-Amp Institute. Cables and Wiring. Albany, New York: Delmar Publishers, Inc., 1993.
- Cooper/Bussman. SPD Electrical Protection Handbook. Quincy, MA: National Fire Protection Agency, 1992.
- Cox, Richard A. Electricians Guide to Conduit Bending. 2nd edition. Spokane, Washington: Pend Orielle, 1982.
- Hart, George V. Ugly's Electrical References. Houston: United Printing Arts, Inc., 1986.
- Herman, Stephen L. Delmar's Standard Textbook of Electricity. Albany, NY: Delmar Publishers, Inc., 1995.
- IBEW Constitution. Washington, D.C.: International Brotherhood of Electrical Workers, 1992.

Lloyd, Richard E. Electrical Raceways and Other Wiring Methods. Albany, New York: Delmar Publishers, Inc., 1993.

Mathematics Essential for NJATC Courses. Upper Marlboro, MD: National Joint Apprenticeship and Training Committee, 1994.

National Electrical Code. Quincy, MA: National Fire Protection Association, 1996.

NJATC Code Calculations. Upper Marlboro, MD: National Joint Apprenticeship and Training Committee, 1993.

Second Year Student Workbook. Upper Marlboro, MD: National Joint Apprenticeship and Training Committee, 1996.

Your Ideal Bender; How to Use It. Sycamore, Illinois: Ideal Industries, Inc., 1984.

SUGGESTED READING:

Croft T., and W. Summers. American Electrician Handbook. New York: McGraw-Hill, 1987.

National Electrical Code Handbook. Quincy, MA: National Fire Protection Association, 1992.

REQUIRED WRITING:

Completion of written assignments in student workbook which are at least one paragraph in length.

OUTSIDE ASSIGNMENTS:

Students are expected to spend a minimum of three hours per unit per week in class and on outside assignments, prorated for short term classes.

Completion of reading assignments, student workbook applications and attendance at union and JATC meetings as required.

INSTRUCTIONAL METHODOLOGY:

Check all that apply:

- lecture
- laboratory
- lecture-laboratory combination
- directed study

This course may be offered as a distance education course and meets Title 5 regulations 55370, 55372, 55374, 55376, 55378, and 55380.

Yes _____ No X

If yes, check all that apply. (See guidelines for preparation for definitions.)

- telecourse
- mediated instruction
- computer assisted instruction

GRADING POLICY AND STANDARDS (include methods of determining whether the stated objectives have been met by students):

5%	Workbook	A = 90-100
10%	Participation	B = 83-89
70%	Unit exams	C = 75-82
15%	Final exam	F = 74 and below

IS COURSE REPEATABLE FOR REASON(S) OTHER THAN DEFICIENT GRADE?

Yes X No Number of times course may be taken for credit: 2

If yes, identify specific provision of Title 5 Division 2 section(s) 55761-55763 and 58161 which qualifies course as repeatable:
58161 Part C IIA

CONTACT PERSON: Director, Vocational Programs, Ext. 2286