FORM VERSION: 5/95
DATE REVISED: 9/98

PALOMAR COLLEGE
COURSE OUTLINE OF RECORD FOR
DEGREE CREDIT COURSE

__X__ Transfer course __X__ A.A. degree applicable course

(check all that apply)

COURSE NUMBER AND TITLE: AP SC 102 Electrical Theory and Practices DC

UNIT VALUE: 4

MINIMUM NUMBER OF SEMESTER HOURS: 96

BASIC SKILLS REQUIREMENTS:

Appropriate language and computational skills.

ENTRANCE REQUIREMENTS:

PREREQUISITE: Apprenticeship Sound and Communication Systems Installer 101

COREQUISITE: None.

RECOMMENDED PREPARATION: None.

SCOPE OF COURSE:

Study of floor and plot plans, basic blueprint reading and circuit drawing, theory of magnetism, DC and AC generators, motors and transformers, on-the-job safety, first aid, electrical code, telephony and data communications.

SPECIFIC COURSE OBJECTIVES:

The student will be able to:

1. Analyze simple direct current (DC) circuits and calculate voltage drops.
2. Apply National Electrical Code (NEC) principles and select wire sizes for low line loss.
3. Explain the theory of magnetism.
4. Accurately draw and explain circuits consisting of 3-way and 4-way switches and return call-bell circuits.
5. Identify electrical shock hazards and how to deduce proper power tool grounding.
6. Analyze floor and plot plans for electrical layout.

7. Compare various types of fastening devices and make selection of appropriate devices for specific applications.

8. Identify blueprint symbols and abbreviations.

9. Identify major components and cable layouts for telephone systems.

10. Identify major Local Area Network (LAN) components and make various connections per industry standards.

CONTENT IN TERMS OF SPECIFIC BODY OF KNOWLEDGE:

I. Electricity
   - A. Direct current
   - B. Electro-magnetism (DC)
   - C. Parallel DC circuits
   - D. Series-parallel DC circuits
   - E. Series-parallel analog

II. National Electrical Code
   - A. Introduction to NEC
   - B. Code articles
   - C. Code definitions

III. Job Information
   - A. Fastening devices
   - B. Conductor terminations
   - C. Safety and electrical shock
   - D. Ropes for rigging
   - E. Boxes and fittings

IV. Blueprint
   - A. Symbols and abbreviations
   - B. Working drawings
   - C. Floor plans
   - D. Elevation views
   - E. Sectional views
   - F. Detail views
   - G. Trade information
   - H. Residential plans
   - I. Electrical layout

V. Telephony
   - A. Cable types
   - B. Proper grounding
   - C. Line protection
   - D. Drop locations
   - E. Tool selection
   - F. Telephone jack installation
   - G. Use of lineperson's test set
   - H. Basic telephone concepts of central office, home and work environments

VI. Data
   - A. Common protocols
   - B. Tool selection

C. Data transmission including serial outputs and baud rates
D. Basic multiplexing
E. Common terminal computers, modems and amplifiers

REQUIRED READING:

Cook, Nigel. Introductory DC/AC Electronics. 2nd edition. Englewood Cliffs, NJ: Prentice Hall, 1992.

Derfler, Frank J. Get a Grip on Network Cabling. Emeryville, CA: Ziff-Davis Press, 1993.

Fike & Friend. Understanding Telephone Electronics. Indianapolis, IN: Howard Sams, 1988.

Fike, Friend, Baker, Bellamy. Understanding Data Communications. Indianapolis, IN: Howard Sams, 1989.

Hart, George V. Ugly's Electrical References. Houston, TX: United Printing Arts, 1990.

IBEW History and Structure of. Washington, DC: International Brotherhood of Electrical Workers, 1990.

Klein Tool Handbook. Chicago, IL: Klein Tools, Inc., 1990.

Lee, Frank. ABC of the Telephone/Station Installation and Maintenance. Geneva, IL: ABC Teletraining Inc., 1986.

Lee, Frank. Telephone Theory/Principles and Practice Vol. 1. Geneva, IL: ABC Teletraining Inc., 1988.

National Electrical Code. Quincy, MA: National Fire Protection Association, 1993.

NJATC First Year Student Workbook. Upper Marlboro, MD: National Joint Apprenticeship and Training Committee, 1991.

Proctor, T.E. and E.W. Sundberg. Building Trades Printreading Part 1. Homewood, IL: American Technical Publishers, 1989.

This is the NECA. Bethesda, MD: National Electrical Contractors Association, 1990.

SUGGESTED READING:

Croft, Terrell. American Electrician Handbook. New York: McGraw Hill, 1987.

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:
_X__ lecture
_X__ 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):

Homework/Participation	5%	100 - 90 = A
Quizzes/Workbook	30%	89 - 80 = B
Unit Exams/Final Exam	65%	79 - 75 = C
	100%	74 and below = F

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: 58161-1-C

CONTACT PERSON: Director, Vocational Programs, Ext. 2286