

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 EL 108 – Electrical Lineperson VIII

UNIT VALUE: 4

MINIMUM NUMBER OF SEMESTER HOURS: 72

BASIC SKILLS REQUIREMENTS: Appropriate language and computational skills.

ENTRANCE REQUIREMENTS

PREREQUISITE: AP EL 107.

COREQUISITE: None.

RECOMMENDED PREPARATION: None.

SCOPE OF COURSE:

Advanced theory in the use of “hot sticks,” specialized equipment, repair and maintenance of poles and lines (energized and de-energized), safety practices, local and state requirements, and lineman mathematics.

SPECIFIC COURSE OBJECTIVES:

The student will be able to:

1. Practice standard safety procedures appropriate to the power utility industry.
2. Recognize and deal appropriately with hazardous materials in the power utility industry.
3. Explain and demonstrate knowledge of overhead line construction and safety by applying the appropriate general orders and codes.
4. Analyze the feed and load characteristics of a circuit by using circuit mapping (maps).
5. Identify and calculate power distribution by using voltage and capacitor applications.

CONTENT IN TERMS OF SPECIFIC BODY OF KNOWLEDGE:

- I. Rules and Regulations
 - A. Safety procedures as mandated by local and state agencies for power utility companies
 - B. Updating of hazardous waste disposal

- II. Review of Practical Electrical Wiring
 - A. Breaker and control wiring
 - B. Commercial and residential requirements
 - C. National Electric Code

- III. Construction Line Safety
 - A. Groundings
 - 1. Methods
 - 2. Reasons
 - B. Clearances
 - C. Right-of-ways
 - D. Hazards
 - E. Induced voltages
 - F. Electrical shock
 - 1. Effects
 - 2. Procedures and treatment
 - G. Rules for overhead line construction
 - 1. General orders
 - 2. Scope and purpose
 - 3. Definition and terms
 - 4. Mapping

- IV. Circuit Maps
 - A. Purpose
 - B. How to determine the feed
 - C. How to determine the load

- V. Distribution Problems
 - A. Voltage complaints
 - B. Capacitor application
 - C. Regulator application
 - D. Unbalanced loading
 - E. Problem solving

- VI. Advanced Lineman Mathematics
 - A. Algebra for complex electric circuits
 - B. Combination circuits
 - C. Kirchhoff's Laws
 - D. Applications of series and parallel circuits

REQUIRED READING:

Electrical Lineman Training Committee. Imperial Irrigation District's Lineman Apprenticeship Training Handbook. Imperial, CA: Imperial Irrigation District, 1990.

Singer, Bertrand B., and Harry Forster. Basic Mathematics for Electricity and Electronics. 6th edition. New York: Macmillan/McGraw-Hill, 1992.

SUGGESTED READING:

Kurtz, Edwin D., and Thomas M. Shoemaker. The Lineman and Cableman's Handbook. 8th edition. New York: McGraw-Hill, 1992.

REQUIRED WRITING:

Written homework assignments consisting of nine to ten pages in length, which involve problem-solving analyzation in construction measurements.

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.

Outside class assignments will include reading assigned textbooks, handouts, completion of exercises, periodic research, and critiquing and analyzing problems.

INSTRUCTIONAL METHODOLOGY:

Check all that apply:

- lecture
 laboratory
 lecture-laboratory combination
 directed study

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

Yes No

If yes, check all that apply.

- Television Course (Video one-way, e.g. ITV, video cassette, etc.)
 Online Course (Text one-way, e.g. newspaper, correspondence, electronic file, etc.)
 Two-Way Video Conferencing (Two-way interactive video and audio)
 One-Way Video Conferencing (One-way interactive video and two-way interactive audio)
 Computer Assisted Instruction (A specialized form of mediated instruction relying primarily on student access to information and prepared lessons or teaching materials through a computer terminal, but not under immediate supervision of a qualified instructor.)

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

Augmented with a performance review to determine if all course objectives have been met -

Class Participation	20%	A = 100-90
Homework	20%	B = 89-80
Laboratory	20%	C = 79-70
Quizzes	20%	F = Below 70
Pre-test/Final exam	<u>20%</u>	
	100%	

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

Yes 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 2A

CONTACT PERSON: Director, Vocational Programs, Ext. 2286

SIGNATURES:

SIGNATURES ON FILE