

PALOMAR COLLEGE
COURSE OUTLINE OF RECORD FOR
DEGREE CREDIT COURSE

_____ Transfer Course X A.A. Degree applicable course
(check all that apply)

COURSE NUMBER AND TITLE: EMET 51 Mail Processing Equipment Mechanic Exam Preparation

UNIT VALUE: 3

MINIMUM NUMBER OF SEMESTER HOURS: 48

BASIC SKILLS REQUIREMENTS: Appropriate language and computational skills.

ENTRANCE REQUIREMENTS

PREREQUISITE: None

COREQUISITE: None

RECOMMENDED PREPARATION: Technical Mathematics – Ability to perform simple algebraic equations; Electricity – Understand DC and AC fundamentals; Electronics – Understand basic electronics principles; Mechanics – Understand basic mechanics fundamentals; Digital Electronics – Understand basic digital electronics principles.

SCOPE OF COURSE:

Designed to prepare students for the U.S. Postal Service Maintenance Mechanic, MPE-7 Entrance Examination. Highly recommended for students interested in a U.S. Postal Service Career focusing on equipment maintenance. Topics will cover all the aspects of mail processing equipment (MPE) maintenance, such as mechanics, electrical, and basic electronic systems.

SPECIFIC COURSE OBJECTIVES:

The student will be able to:

1. Demonstrate the use and function of basic hand tools.
2. Solve basic technical mathematics problems.
3. Demonstrate the use of different number systems.
4. Analyze basic DC and AC electrical circuit problems.
5. Explain the different assemblies of a basic conveyor.
6. Analyze basic motor control problems.
7. Apply basic mechanical principles.

8. Analyze basic digital electronics problems.
9. Demonstrate the basic principles of soldering.
10. Demonstrate the use of basic test equipment.
11. Discuss the Mail Processing Equipment MPE-7 Examination process.

CONTENT IN TERMS OF SPECIFIC BODY OF KNOWLEDGE:

- I. Introduction
 - A. Course overview
 - B. Equipment overview
- II. Basic Hand Tools
 - A. Names and use of hand tools
 - B. Care of hand tools
- III. Mathematics Review
 - A. Basic mathematics
 1. Fractions (Addition, Subtraction, Multiplication, Division)
 2. Decimals (Addition, Subtraction, Multiplication, Division)
 3. Scientific Notation
 4. Laws of Exponents
 5. Algebraic Equations
 - B. Number Systems
 1. Decimal
 2. Binary
 3. Octal
 4. Hexadecimal
 5. Converting values from one base to another
- IV. Basic Electricity
 - A. Fundamentals of DC Circuits
 1. Ohms Law
 2. Series Circuits
 3. Parallel Circuits
 4. Series-Parallel Circuits
 5. Kirchoff's Law
 - B. Fundamentals of AC Circuits
 1. Inductance
 2. Capacitance
 3. Inductive Reactance
 4. Capacitive Reactance
- V. Basic Conveyors
 - A. Drives
 1. Gear
 2. Chain
 - B. Rollers
 1. Head End

2. Tail End
 3. Load and Return
 4. Snub
 5. Bend and Take-Up
- C. Belts
1. Rubber
 2. Cotton Duct
 3. Synthetic

VI. Motor Control

- A. Basic Control Circuits
1. 2-Wire
 2. 3-Wire
- B. Analyzing and Troubleshooting
- C. Electrical Symbols

VII. Basic Mechanics

- A. Levers
1. 1st Class
 2. 2nd Class
 3. 3rd Class
- B. Inclined Plane
- C. Pulleys
1. Fixed
 2. Movable
 3. Combination
 4. Block and Tackle
- D. Mechanical Advantage

VIII. Basic Digital Electronics

- A. Basic Logic Circuits
1. Logic Gates
 2. Logic States
 3. Truth Tables
- B. Analyzing and Troubleshooting
- C. Digital Symbols

IX. Test Equipment

- A. Volt-Ohm-Meter (VOM)
- B. Oscilloscope
- C. Other Equipment

X. Soldering

- A. Soldering Tools
1. Guns
 2. Irons
- B. Soldering Aids
1. Types of Solder
 2. Paste
 3. Heat Sink
- C. Proper Soldering

- XI. Mail Processing Equipment MPE-7 Examination
- A. Pattern Identification
 - B. Listening Skills
 - C. Following Instructions
 - D. Test Taking Tips

REQUIRED READING:

National Learning Corporation, "Maintenance Mechanic (AMPE)." United States Postal Service ISBN 0-8373-1606-5.

SUGGESTED READING: None

REQUIRED WRITING:

Students are required to select any technical subject covered in class this semester and prepare a term paper.

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.

Students are expected to read and complete exercises in assigned textbook chapters.

INSTRUCTIONAL METHODOLOGY:

Check all that apply:

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

DISTANCE LEARNING:

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):

Quizzes	=	60%	A=100-90
Term Paper	=	10%	B= 89-80
Participation	=	10%	C= 79-70
Final	=	<u>20%</u>	D= 69-60
		100%	F= 59 and Below

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

Yes No Number of times course may be taken for credit: 1

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

CONTACT PERSON: Director, Vocational Programs, Ext. 2286

SIGNATURES:

SIGNATURES ON FILE