

**MONTEREY PENINSULA UNIFIED SCHOOL DISTRICT
MISSION TRAILS REGIONAL OCCUPATIONAL PROGRAM**

COURSE OUTLINE

- I. COURSE TITLE: Forensic Science/Crime Scene Investigation
- II. CBEDS TITLE: Law Enforcement/Security Services Course
- III. CBEDS NUMBER: 5859
- IV. JOB TITLES: Crime Scene Investigator
 Forensic Specialist I
 Fingerprint Technician I & II
 Evidence Technician
 Firearms Examiner
 Lateral Forensic Specialist
 Fingerprint Expert
 Forensic Pathologist
 Police Chemist
 Forensic Artist

COURSE DESCRIPTION: This course is designed to give the students both theory and hands-on experience with the skills and knowledge required of a forensic crime scene investigator. Included will be an introduction to crime scene investigation, crime scene photography, and diagrams as they are used in a criminal investigation. Also included are the importance of physical evidence in solving crimes, dusting and lifting fingerprints, rolling a 10-print fingerprint card, how to perform a gunshot residue test, what methods can be used to process different types of evidence, how to collect evidence, and the use of forensic light source technology in crime scene investigation work. Emphasized throughout the course is the importance of effective communication and interpersonal skills, professional development, strong academics, problem-solving, safety, and the use of technology.

VI.	<u>HOURS:</u>	Classroom Theory/Applied	150
		General Workplace Skills	<u>30</u>
		Total	180

- VII. PREREQUISITES: 16 years of age or junior standing in high school. Successful completion of high school biology and chemistry.

VIII. REVISION DATE: February 2006

IX. COURSE OUTLINE:

a. CONTENT AREA SKILLS:

- i. EXPECTED STUDENT OUTCOMES
- ii. HOURS OF INSTRUCTION

COURSE OUTLINE

CONTENT AREA SKILLS	EXPECTED STUDENT OUTCOME	HOURS		
		CL	CC	CP
Instruction will include:	Students will be able to:	CL	CC	CP
		CL = Classroom CC= Comm. Class CP = Co-op Ed.		
I. Introduction/Orientation to Forensic Science	1. Review Scientific Method B 2. Review proper laboratory procedures 3. Discuss crime lab organization 4. Talk about ethical, legal, and social issues 5. Explain confidentiality 6. Generalize about all aspects of industry 7. Perform student assessments <ul style="list-style-type: none"> a. pre-test #1: Science Process Skills Analysis b. pre-test #2: Learning Skills Inventory 	20		
II. Communication and Decision Making in Forensics	1. Memorize technical vocabulary 2. Follow protocol 3. Maintain laboratory notebook 4. Write or update protocols, standard operating procedures (SOP) 5. Establish electronic portfolio	20		
III. Forensics Procedures	1. Science process skills (thinking and planning) <ul style="list-style-type: none"> a. practice observing b. roll-play communicating c. practice classifying d. perform measurements (metrically) e. make inferences f. predict outcomes 2. Crime Scene Management <ul style="list-style-type: none"> a. log implementation b. complete crime scene documentation c. perform physical evidence collection d. complete physical evidence documentation e. practice establishing chain of custody f. perform a debriefing 	40		
IV. Physical Evidence Processing	1. Obtain and read protocol, test procedure, SOP 2. Perform mathematical calculations and conversions <ul style="list-style-type: none"> a. statistics 	40		

	<ul style="list-style-type: none"> b. graphing <ol style="list-style-type: none"> 3. Operate centrifuges 4. Use pipetting techniques 5. Prepare and dispense stock reagents, buffers, media and solutions <ul style="list-style-type: none"> a. maintain reagent integrity b. identify concentrations c. stock solutions from dry chemicals d. stock solutions form liquid chemicals e. buffers 6. Discuss quality controls 7. Maintain and store manufactured products inventory 8. Apply the Analysis Procedure <ul style="list-style-type: none"> a. glass analysis b. soil analysis c. hair & fibers d. blood & blood stains e. fingerprinting f. impressions & track g. toolmarks & casting h. chromatography analysis i. DNA fingerprinting 			
V. Safety and Health Maintenance	<ol style="list-style-type: none"> 1. Identify resources <ul style="list-style-type: none"> a. first aid supplies b. personnel c. emergency protection areas d. evacuation plan 2. Demonstrate ability to follow appropriate safety procedures, guidelines, and chemical hygiene plan 3. Practice following universal precautions for biological pathogens 4. Demonstrate use of laminar flow, fume hoods and biological safety cabinets 5. Use protective equipment 6. Maintain, understand, and follow materials safety data sheets (MSDS) and worker protection standards (WPS) 7. Recognize common lab hazards 8. Observe procedures for the safe use of instruments and gas cylinders 9. Perform a laboratory safety test 	15		
VI. Microbiology	<ol style="list-style-type: none"> 1. Maintain workshop and equipment hygiene 2. Prepare, sterilize, and dispense media, buffers, solutions 3. Identify and qualify microorganisms and cells 4. Decontaminate and dispose of equipment, glassware and biologicals 	15		

IX. COURSE OUTLINE:

b) CAREER PERFORMANCE STANDARDS

- i) EXPECTED STUDENT OUTCOMES
- ii) HOURS OF INSTRUCTION

COURSE OUTLINE

CAREER PERFORMANCE STANDARDS	EXPECTED STUDENT OUTCOMES	HOURS
Instruction will include:	Student will be able to:	30
<p>1. Personal Skills</p> <ul style="list-style-type: none"> ▪ Classroom policies & procedures ▪ Ethics <ul style="list-style-type: none"> ➢ Work ➢ Business ▪ Sexual harassment laws ▪ Personal skills, including positive attitude, self-confidence, honesty, perseverance & self-discipline ▪ Professional appearance ▪ Time management ▪ Lifelong learning 	<p>1. Understand how personal skill development, including positive attitude, honesty, self-confidence, time management, & other positive traits affect employability.</p> <ul style="list-style-type: none"> ▪ Demonstrate and understand classroom policies & procedures ▪ Define work and business ethics & demonstrate the importance of ethical standards & social responsibilities in the business environment. ▪ Discuss the laws applicable to sexual harassment & discuss tactics for handling harassment situations. ▪ Demonstrate personal skills in class and/or business environment: <ul style="list-style-type: none"> ➢ Positive attitude ➢ Self-confidence ➢ Honesty ➢ Perseverance ➢ Self-discipline ▪ Demonstrate and model personal hygiene and acceptable professional attire ▪ Prioritize tasks and meet deadlines ▪ Explain the importance of lifelong learning 	Integrated in content area skills
<p>2. Interpersonal Skills</p> <ul style="list-style-type: none"> ▪ Group dynamics ▪ Conflict resolution and negotiations ▪ Team Work ▪ Etiquette across gender and cultural groups 	<p>2. Understand principles of effective interpersonal skills, including group dynamics, conflict resolution, and negotiation.</p> <ul style="list-style-type: none"> ▪ Identify and explain the key concepts of group dynamics ▪ Discuss and demonstrate the dynamics of conflict resolution and negotiation, and their importance within the business environment ▪ Demonstrate effective teamwork, share responsibilities, accept supervision and assume leadership roles ▪ Demonstrate cooperative working relationships and proper etiquette across gender and cultural groups 	Integrated in content area skills

CAREER PERFORMANCE STANDARDS	EXPECTED STUDENT OUTCOMES	HOURS
Instruction will include:	Students will be able to:	
3. Thinking and Problem-Solving Skills <ul style="list-style-type: none"> ▪ Critical and creative thinking skills ▪ Logical reasoning and problem-solving skills ▪ Numerical estimation, measurement, and calculation ▪ Identify, locate, and organize needed information and propose, evaluate, and select alternative solutions 	3. Understand the importance of critical thinking and problem-solving skill in the workplace. <ul style="list-style-type: none"> ▪ Apply critical and creative thinking skills in a work environment and implement a plan of improvement as needed ▪ Demonstrate logical reasoning and problem solving skills in a work environment ▪ Apply numerical estimation, measurement and calculation skills to business applications including the following: <ul style="list-style-type: none"> ➢ Whole number math ➢ Decimals & fractions ➢ Counting & monetary functions ➢ Use of tables & graphs ▪ Recognize problem situations; identify, locate and organize needed information, and propose, evaluate and select from alternate solutions 	Integrated in content area skills
4. Communication Skills <ul style="list-style-type: none"> ▪ Written communication ▪ Verbal and Nonverbal communication ▪ Active and effective listening ▪ Proper etiquette in business communications ▪ Writing and editing skills ▪ Use of reference material and handbooks ▪ Oral presentations 	4. Understand principles of effective communication. <ul style="list-style-type: none"> ▪ Read and implement written instructions, technical manuals, written communication, and reference books ▪ Present a positive image of verbal and nonverbal communication through use of appropriate methods ▪ Demonstrate active and effective listening skills through verbal, nonverbal and written feedback ▪ Demonstrate proper etiquette in business communications, including an awareness of and a requisite for international communications (languages, customs, and time zones) ▪ Demonstrate the following writing and editing skills: <ul style="list-style-type: none"> ➢ Use correct grammar, punctuation, capitalization, vocabulary and spelling ➢ Write, proofread and edit ➢ Select and use appropriate forms of communication ▪ Exhibit a proficiency in the use of reference materials such as dictionary, thesaurus, telephone directory, almanac, zip code directory, and office handbooks 	Integrated in content areas skills

CAREER PERFORMANCE STANDARDS	EXPECTED STUDENT OUTCOMES	HOURS
Instruction will include:	Students will be able to:	
5. Occupational Safety <ul style="list-style-type: none"> ▪ Good safety practice 	5. Understand occupational safety issues, including avoidance of physical hazards <ul style="list-style-type: none"> ▪ Model and implement good safety practices including: <ul style="list-style-type: none"> ➢ Avoidance and reporting of physical hazards in the work environment ➢ Safe operation of equipment ➢ Proper handling of hazardous materials 	Integrated in content area skills
6. Employment Literacy <ul style="list-style-type: none"> ▪ Expand awareness of career opportunities ▪ Set employment goals and objectives ▪ Aptitudes, personal characteristics and interests ▪ Develop portfolio ▪ Develop interviewing techniques 	6. Understand career paths and strategies for obtaining employment <ul style="list-style-type: none"> ▪ Explore career opportunities and develop a career plan ▪ Identify steps for setting goals and writing personal goals and objectives ▪ Examine aptitudes related to career options; relate personal characteristics and interest to educational and occupational opportunities ▪ Develop a portfolio to include the following: <ul style="list-style-type: none"> ➢ Letter of Introduction ➢ Cover letter ➢ Resume ➢ Thank you letter ➢ Job application ➢ Licenses, Certificates and Awards ➢ Transcripts ➢ Letters on Recommendation ➢ Work Samples 	Integrated in content area skills
7. Technology Literacy <ul style="list-style-type: none"> ▪ Apply Industry specific technology ▪ Use Industry specific software ▪ Demonstrate Keyboarding ▪ Accessing information ▪ Lifelong enhancement of technology skills 	7. Understand and adapt to changing technology. <ul style="list-style-type: none"> ▪ Identify and demonstrate use of appropriate technology ▪ Identify and use industry specific software ▪ Demonstrate proficiency in alphanumeric keyboarding ▪ Input and retrieve information ▪ Understand the importance of lifelong learning in adapting to changing technology 	Integrated in content area skills

ADDITIONAL RECOMMENDED/OPTIONAL ITEMS:

- a. ARTICULATION:
- b. VOCATIONAL CREDIT: Variable 10 high school credits per 180 hour semester
- c. ACADEMIC CREDITS: None
- d. INSTRUCTIONAL STRATEGIES:
 - 1. Lecture on Course Material
 - 2. Demonstration
 - 3. Group Discussion
 - 4. Team Learning
 - 5. Projects
 - 6. Role Playing
 - 7. Reading Assignments
 - 8. Simulations
 - 9. Oral Questioning
 - 10. Fieldtrips
 - 11. Multimedia
 - 12. Internships
 - 13. Hand-on Practice
- e. INSTRUCTIONAL MATERIALS:
 - 1. Facilities
 - 2. Support Services
 - 3. Light & sound equipment

XI IDENTIFICATION DATA:

Board Approval Date:	April 17, 2006
Prepared By:	Elmer Canady
Date:	February, 2006
New Course <input checked="" type="checkbox"/>	Revision _____