

Course Outline

COURSE: JLE 153 **DIVISION:** 50 **ALSO LISTED AS:**

TERM EFFECTIVE: Spring 2019 **CURRICULUM APPROVAL DATE:** 10/9/2018

SHORT TITLE: TRAFFIC INTERMEDIATE

LONG TITLE: Traffic Collision Investigations Intermediate

Units	Number of Weeks		Contact Hours/Week		Total Contact Hours
2	18	Lecture:	1.33	Lecture:	23.94
		Lab:	3.1	Lab:	55.8
		Other:	0	Other:	0
		Total:	4.43	Total:	79.74

COURSE DESCRIPTION:

This course teaches the proper techniques for scene assessment, vehicle assessment, physical evidence, photography, definitions and terminology, and field and practical exercises in traffic collision investigations. This is a pass/no pass course. **PREREQUISITE:** POST Basic Certificate or Equivalent.

PREREQUISITES:

COREQUISITES:

CREDIT STATUS: D - Credit - Degree Applicable

GRADING MODES

P - Pass/No Pass

REPEATABILITY: N - Course may not be repeated

SCHEDULE TYPES:

02 - Lecture and/or discussion

03 - Lecture/Laboratory

04 - Laboratory/Studio/Activity

STUDENT LEARNING OUTCOMES:

1. Identify the four standard types of signage.

Measure of assessment: written exam

Institution Outcome Map

1. Communication:

1.1 Students will communicate effectively in many different situations, involving diverse people and viewpoints.

1.2 Speaking: Students will speak in an understandable and organized fashion to explain their ideas, express their feelings, or support a conclusion.

1.3 Listening: Students will listen actively and respectfully to analyze the substance of others' comments.

1.4 Reading: Students will read effectively and analytically and will comprehend at the college level.

1.5 Writing: Students will write in an understandable and organized fashion to explain their ideas, express their feelings, or support a conclusion.

3. Information Competency:

3.1 Students will use printed materials, personal communication, observation, and electronic resources to find and evaluate information.

3.2 Research: Students will do research at a level that is necessary to achieve personal, professional, and educational success.

3.3 Technological Competency: Students will use technological applications to find, organize, and present information effectively.

7. Content Specific:

2. Identify road scars at a mock collision scene.

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2. Cognition:

2.1 Students will think logically and critically in solving problems; explaining their conclusions; and evaluating, supporting, or critiquing the thinking of others.

2.2 Analysis and Synthesis: Students will understand and build upon complex issues and discover the connections and correlations among ideas to advance toward a valid independent conclusion.

2.3 Problem Solving: Students will identify and analyze real or potential problems and develop, evaluate, and test possible solutions, using the scientific method where appropriate.

2.4 Creative Thinking: Students will formulate ideas and concepts in addition to using those of others.

2.5 Quantitative Reasoning: Students will use college-level mathematical concepts and methods to understand, analyze, and explain issues in quantitative terms.

2.6 Transfer of Knowledge and Skills to a New Context: Students will apply their knowledge and skills to new and varied situations.

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7. Content Specific:

3. Demonstrate identifying proper location, damage match points, imprints, and recovery damage on scene of collision.

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CONTENT, STUDENT PERFORMANCE OBJECTIVES, OUT-OF-CLASS ASSIGNMENTS

Curriculum Approval Date: 10/9/2018

1. Registration and Introduction of Class Instructors
 - a. Expectation of the students
2. Introduction to the Nine-Cell Matrix
 - a. Humans, vehicles, environment
 - b. Pre-collision, At-collision, Post-collision
 - c. Importance of a methodical approach to the investigation
3. Highway Engineering (introduction)
 - a. The highway environment
 - b. Standard terminology
 - c. As-Built plans
 - d. Signage and roadway markings
 - i. Four standard types of signs
 - e. Visibility and line-of-sight
 - f. Involving your city / county / State highway engineers
4. Definitions and Terminology

- a. Definitions and characteristics
 - i. Tire friction mark
 - ii. Marking characteristics
 - b. Basic causes of tire friction marks
 - i. Extreme deceleration
 - ii. Extreme acceleration
 - iii. Extreme change of direction
 - c. Types of tire friction marks (SLIC)
 - i. Impending
 - ii. Locked
 - iii. Side
 - iv. Yaw (critical speed scuffs)
 - v. Skip
 - vi. Gap
 - vii. Acceleration
 - viii. Collision scrub
 - ix. Deflated tire mark
 - x. Vehicle specific
 - d. Course specific terminology and definitions
5. Identification of Physical Evidence
- a. Skid mark Identification
 - i. Marking found at the collision scene
 - ii. Marking seen in photograph
 - b. Basic marking mechanism
 - i. Smear
 - ii. Tire Abrasion
 - iii. Tire Abrasion with Smear
 - iv. Pavement grinding
 - v. Erasing
 - vi. Tire Smear
 - vii. Tire Printing
 - viii. Squeegee marks
 - ix. Stains
 - c. Road Scars
 - i. Scratches and scrapes
 - ii. Gouges and grooves
 - iii. Chops
 - iv. Chips
 - d. Debris
 - i. Types of debris
 - ii. Significance of debris
 - iii. Debris pattern
 - e. Vehicle / Body fluids
 - i. Spatter
 - ii. Dribble (fluid trail)
 - iii. Puddle (pool)
 - iv. Run-off
 - v. Soak-in

- vi. Tracking
- 6. Photography
 - a. Collision scene photography
 - i. Number of photographs
 - ii. Overview to close-ups
 - iii. From different directions
 - iv. From each driver's perspective
 - v. Environment (weather)
 - b. Daytime vs. Nighttime photography
 - i. Oblique lighting
 - ii. Flash equipment
 - iii. Glare
 - c. Vehicle
 - i. At the crash scene (position of rest)
 - ii. At the tow yard
 - iii. Orientation to the vehicle
 - d. Video
 - i. With and without narration
 - ii. Sound capture
 - e. People
 - i. At the collision scene
 - ii. Injury and autopsy photos
- 7. Scene Assessment
 - a. Scene management responsibilities
 - b. Keeping the roadway open vs. closing a roadway to all traffic
 - c. Officer safety
 - d. Duration of incident
 - i. Traffic control
 - ii. Warning signs and cones
- 8. Vehicle Damage Assessment
 - a. Location and severity
 - b. Contact vs. Induced damage
 - c. Primary vs. Secondary contact
 - d. Intrusion
 - e. Paint / material transfers
 - f. Imprints
 - g. Damage match points
 - h. Photography
 - i. Marking of vehicle's POR before removal
 - j. Tow out / recovery damage
- 9. Math Review
 - a. Calculator orientation and logic
 - i. Functions
 - ii. Operations
 - c. Basic mathematics (review)
 - i. Order of operation
 - ii. Addition, subtraction
 - iii. Multiplication, division

- iv. Fractions, decimals
 - v. Square and square roots
 - d. Algebra
 - i. Variables
 - ii. Solving for unknowns
 - e. Physics (basic overview)
 - i. Newton's Laws
 - f. Overview of basic speed equation derivations
 - i. Speed from locked wheel tire friction marks
 - ii. Speed from yaw equation
- 10. Drag Factor
 - a. Coefficient of friction
 - i. Definition
 - ii. Static vs. dynamic
 - b. Methods to determine
 - i. Estimation
 - a. Experience
 - b. Published values
 - ii. Drag sled
 - iii. Slide a patrol car
 - iv. Slide/pull the actual collision vehicle
 - c. Factors affecting Coefficient of Friction
 - i. Roadway surface
 - ii. Grade / super elevation
 - iii. Weather
 - iv. Other factors
 - a. Higher speeds
 - b. Vehicle
 - c. Tire size
 - d. Drag Sled
 - i. Weight of sled
 - ii. Force required to move sled
 - iii. Formula
 - e. Braking Efficiency
 - i. Worn Brakes
 - ii. Low brake fluid
 - iii. Brakes out of adjustment
 - iv. Overloaded vehicles
 - v. Loss of hydraulic pressure
 - vi. Brake fade
 - f. Resultant Drag Factor
 - i. Weigh transfer
 - ii. Locked vs. rolling wheel
 - iii. Other
 - 1. Pedestrian
 - 2. Downsiding motorcycle
 - 3. Sheet metal

11. Speed Computation

- a. Introduction to the Basic Speed Equation
- b. Application
 - i. Basic Speed Equation
 - ii. Blackboard examples problems
 - iii. Classroom exercises
- c. Introduction to the Combined Speed Equation
 - i. Equation forms
 - ii. Application of combined speed equations
 - iii. Special cases
 - iv. Classroom problems
- d. Introduction to the Critical Speed Equation
 - i. Critical Speed Equation
 - ii. Radius Equation
 - iii. Skid mark Identification and Interpretation
- v. Application of Critical Speed Scuffmark Equation
- vi. Determining the critical speed of a curve
- 12. Measuring and Diagramming
 - a. Importance of measuring
 - b. Measuring equipment
 - i. Estimates
 - ii. Odometer
 - iii. Pacing / footing
 - iv. Rolatape
 - v. Measuring tape
 - vi. Surveying equipment
 - c. Marking equipment
 - i. Lumber crayons
 - ii. Spray paints
 - iii. Nail/stakes
 - iv. 3x5 cards and other marking devices
 - d. Marking types / methods
 - i. Brackets vs. dots
 - ii. Vehicle POR's
 - iii. Tire friction marks
 - iv. Other types of ground evidence
 - v. Bodies
 - vi. Fluids
 - e. Pre-measuring techniques
 - i. Officer safety
 - ii. Pre-planning what and how to measure
 - iii. Sketches
 - iv. Note taking
 - f. Measuring methodologies
 - i. Spot-coordinate system (most common)
 - ii. Triangulation
 - iii. Stationing
 - g. Spot-Coordination System
 - i. Definition

- ii. Establishing the grid
 - h. Triangulation
 - i. Definition
 - ii. Establishing reference points
 - iii. Required accuracy
 - i. Stationing – Straight Roadway
 - i. Definition and terminology
 - ii. Establishing the Station Line
 - iii. Numbering the station line
 - iv. Taking off-set measurements from the station line
 - v. Note taking and recording measurements
 - vi. Using the station line to complete form 555
 - vii. Combining triangulation with a station line
 - j. Minimum number of spots required to document physical evidence
 - i. Tire friction marks
 - ii. Vehicle locations (POR)
 - iii. Bodies
 - iv. Short marks, gouges and other small elements of evidence
 - v. Large areas of evidence (debris, fluid pools, stains, etc.)
 - j. Diagramming the collision scene
 - i. Scale diagram vs. Proportional diagram
 - ii. Equipment / drawing aids
 - iii. Plotting the scene evidence
 - iv. Labeling
 - v. Symbols
13. Field / Practical Exercises
- a. Tire mark Demonstration and Analysis
 - i. Low speed
 - ii. High speed
 - iii. Critical speed scuff
 - iv. Motorcycles
 - v. Commercial vehicles (as available)
 - b. Student exercises
 - i. Test skids
 - 1. Instructor supervised
 - 2. Data gathering
 - ii. Document / Diagram
 - 1. Narrative reports
 - 2. Diagrams

METHODS OF INSTRUCTION:

Skills Demonstration, Lecture, Scenario Training

OUT OF CLASS ASSIGNMENTS

Required Outside Hours:

Assignment Description: review - Basic Mathematics and Algebra review handouts

METHODS OF EVALUATION:

Writing assignments

Percent of total grade: 25.00 %

Percent range of total grade: 10 % to 15 % completing written collision Reports. If this is a degree applicable course, but substantial writing assignments are NOT appropriate, indicate reason Course primarily involves skill demonstration or problem solving

Problem-solving assignments

Percent of total grade: 25.00 %

Percent range of total grade: 30 % to 40 % Field Work; Other: Skills Exam

Skill demonstrations

Percent of total grade: 50.00 %

REPRESENTATIVE TEXTBOOKS:

n/a

ARTICULATION and CERTIFICATE INFORMATION

Associate Degree:

CSU GE:

IGETC:

CSU TRANSFER:

Transferable CSU, effective 201430

UC TRANSFER:

Not Transferable

SUPPLEMENTAL DATA:

Basic Skills: N

Classification: Y

Noncredit Category: Y

Cooperative Education:

Program Status: 2 Stand-alone

Special Class Status: N

CAN:

CAN Sequence:

CSU Crosswalk Course Department: JLE

CSU Crosswalk Course Number: 153

Prior to College Level: Y

Non Credit Enhanced Funding: N

Funding Agency Code: Y

In-Service: N

Occupational Course: C

Maximum Hours: 2

Minimum Hours: 2

Course Control Number: CCC000551745

Sports/Physical Education Course: N

Taxonomy of Program: 210550