# Hosted by the Connecticut State Police

# Energy Methods and Damage Analysis in Traffic Crash Reconstruction

(40 Hours)

For many traffic crash reconstructionists, the topic of energy can be intimidating, mysterious or down right scary. Because of this, reconstructionists shy away from utilizing energy methods in their analysis. This course will help de-mystify the concept of energy and present energy-based methods and techniques to use in analyzing traffic crashes.

During the course, you will learn to view and analyze crashes from an energy point of view. We will explore energy methods beginning with the basics and progressing to more advanced concepts. We will discuss the often-misunderstood topics of Equivalent Barrier Speed (EBS) and delta-V and you will learn different ways to analyze collisions, such as damage momentum, where a traditional conservation of linear momentum may not be the most appropriate analysis.

We will also explore the topic of crush. We will examine the basis of the three familiar energy equations that use crush measurements. Outside projects will provide you with "hands-on" experience in examining and measuring crash vehicles and then calculating damage energy and speeds.

This course will help you become more comfortable in utilizing energy-based methods in your analysis as we examine the underlying science that computer-based "crash" programs rely upon. It is an excellent complement to other training courses that teach you how to use "crash" software.

You should have a firm understanding of the topics of traffic crash reconstruction and conservation of linear momentum as well as strong basic math skills.

**Course Fee:** $895

**Prerequisite:** You must have completed IPTM's *Traffic Crash Reconstruction* course or its equivalent.

**Topics Include:**

- Standards, measurements and dimensional analysis
- Understanding and using conversion factors
- Vectors
- Damage momentum and crush analysis
- Crush measuring protocol and measuring techniques
- Outdoor project - interpreting damage and measuring crush
- Energy concepts and analysis
- Determining appropriate post-impact drag factors
- Understanding EBS and delta-V
- Conservations of linear momentum and delta-V vectors
- Introduction to crush and Hooke's Law
- Collision analysis using damage momentum
- Understanding and determining stiffness coefficients
- Damage (crush) analysis
- Pole impacts and fracture energy
- Using simultaneous equations to solve in-line collisions

**Notes:** You should bring a scientific calculator and work clothes for outside activities. We recommend that you bring a camera and a 2GB or higher flash drive.

**Audience:** Law enforcement and private traffic crash investigators, claims adjusters, engineers, attorneys, safety officers, military investigative personnel

## October 13-17, 2025

Connecticut Fire Academy
34 Perimeter Road
Windsor Locks, CT 06096

This course is eligible for 40 ACTAR CEUs. Please call us at (904) 620-4786 for details.

### REGISTRATION AND FEES

Full payment must accompany all registrations. You may register online at www.IPTM.org and pay with your Visa, MasterCard, Discover or American Express credit card, or you may download a registration form and mail it to IPTM with a check.

### CANCELLATION/REFUND POLICY

Complete the Cancellation Request Form and return it to IPTM. No telephone cancellations will be accepted.

- Cancellations made less than 14 days before the course start date will incur a 25% administrative fee.
- Cancellations made less than 1 business day before the course start date will incur a 50% administrative fee.
- No refunds will be given for no-shows.

### LODGING

Most locations are served by several major airlines. Ground transportation, food and lodging are the responsibility of the student. For more information, please visit our website at www.IPTM.org or call us at (904) 620-4786.

### COURSE CONFIRMATIONS

A minimum number of registrations must be received for a class to run as scheduled. When the minimum criterion has been met, you will receive confirmation by email.

**Please do not make airline reservations until you receive written notification confirming that the course will run as scheduled.**

**Register online at www.IPTM.org**