

# ELECTRONIC FUEL TUNING SYSTEM



This seminar serves as a comprehensive overview of modern Electronic Fuel Injection systems. During this course we explain the basic operation the various sensors (TPS, MAP, MAT, Temperature, CPS, O2...) and their signals. The various actuators (Ignition, fuel injector, Idle Speed Control Valve, O2 Heater...) are covered in depth as well. The basic control strategies (N-alpha, Speed-Density and Mass Air Flow) are explained in detail, enumerating calculation of the fuel injection duration to achieve the required air/fuel ratio. Emissions are explained based on combustion chemistry along with how to control emissions with ignition timing, injection and catalyst effects taken into consideration. Finally we will conclude with a number of compensations made based on altitude, temperature acceleration/deceleration and for cold starting.

## **Covered Topics Include:**

- Sensors and their signals
- Actuators and their control
- Optimizing Injector Spray
- EFI Control: N-Alpha, Speed-Density, MAF
- EFI system mapping
- Emissions Controls
- Acceleration / Deceleration
- Temperature Effects
- Ignition timing, torque and emissions
- Cold Starting
- Altitude Effects

