
Sustainable Transportation Fuel & Vehicle Technologies: Low-Carbon Solutions (ENV-01)**COURSE OUTLINE****Part 1 – Introduction and Course Objectives**

- Course Objectives
- Interplay of Policy and Technology Development
- Key Take-away Concepts

Part 2 – Vehicle Technology and Fuel Systems

- Vehicle Systems: Power, Propulsion, and Drivetrain
- Engine Types, Adv. Engine Concepts, and Emission Control Systems
- Gasoline/Electric Hybrid Vehicle Architectures
- Battery and Fuel Cell Power Systems
- Electric Motors and Controllers and “EV Smart Charging”
- Biofuel and Bioenergy Systems
- Fuel Cells and Hydrogen

Part 3 – Federal and State Alt Fuel Vehicle and Technology Policies

- Federal Level Vehicle Policy (CAFE, biofuels, executive orders)
- California Policy - Clean Cars Program
 - ZEV program goals
 - Low carbon fuel standard
 - Transportation fuel providers (AB32)
 - SB 375 / land use

Part 4 – Energy and Fuel Production and Supply-Chain Pathways

- Production and Delivery of Gaseous and Liquid Fuels
- Electricity Production and Delivery
- LCA Analysis of “Well-to-Wheels” Impacts of Vehicle and Fuels Production

Part 5 – Summary / Conclusions

- Engineering Economic Analysis of Vehicle/Fuel Systems
- Future of Policies for Clean Vehicle Fuels in the U.S. and California
- Course Conclusions