Day 1: Overview of Blending Operation

- **Morning**
  - Overview of Refining
  - Refinery Offsite Operations
  - Fuel Blending Operations in Refining
  - Blending Problems and Challenges
  - Blenders Configurations
  - Tank Farm and Automatic Tank Gauging System
  - Pumps, MOV's and Control Valves
  - Additives Control and Monitoring

- **Afternoon**
  - Quality Relationships and Measurements
  - Lab Analysis of Stock and Product Qualities
  - Online Analysis of Stock and Header Qualities
  - Model Based Tank Qualities Measurement
  - The Mysteries of Octane
  - Octane Measurement by Knock Engine
  - Integrated Analyzers Technology and Applications
  - Octane Measurement by Spectrum based technology
  - Comparison of Knock engine versus Spectrum based methods
  - NIR and NMR versus CFR analyzers - Selection and Cost Effectiveness

Day 2: Advanced Blend Control, Optimization and Planning

- **Morning**
  - Linear Blend Models
  - Non-linear Blend Models
  - Methods to Handle Blend Non-linearity
  - Control Matrix of Qualities
  - Spectrum based Blend Indexes
  - Advanced Blend Control Strategy
  - Blend Optimization
  - How to estimate and update Blending values
  - Fuels Specifications
  - Biofuels - A perspective Part-I Gasohol
  - Biofuels - A perspective Part-II Biodiesel
Afternoon

- Optimum Blend Control System Strategy
- Regulatory Blend Control Operations
- Blend Trim Control
- Refinery-wide Planning & Scheduling
- Ethanol Blending
- Offline Blend Planning and Optimization
- Demonstration of An Offline Blend Optimizer System
- Lab Exercise to solve an LP problem of a small refinery

Day 3: Blending Project Justification and Implementation

- **Morning**
  - Advanced Online Blend Control & Optimization
  - Control and Optimization of run-down blending system
  - Data Reconciliation and Feedback
  - Technology Set of Hardware and software
  - System Architecture - Integration and Interfaces
  - Where and how to start
  - Methodology to Assess the Current State of Blending
  - Identifications of Automation Areas
  - Data gathering and Analysis

- **Afternoon**
  - Session-3 Blending Project Implementation
  - Project Implementation Phases & Strategy
  - How to realize and sustain benefits
  - Required Enterprise Changes
  - Special Topic - Hydrocarbon Accounting
  - Putting it All Together
  - Discussion Forum - Individual Refinery Blending Operations