



# ***Making Oil Analysis Work For You***

## **Module 1: The Fundamentals of Lubrication and Wear**

- 1) Component Failure  
*What makes components fail.*
- 2) Lubricant Functions  
*The role lubricants play.*
- 3) Lubricant Types  
*The common types of lubricants we use.*
- 4) Modes of Lubrication  
*How lubricants reduce friction in different situations.*
- 5) Lubricating Systems  
*How lubricants get to the friction point.*
- 6) Wear Mechanisms  
*How wear and material loss occurs in a machine.*
- 7) Particle Generation and Loss  
*How particles enter and leave a machine.*

## **Module 2: Oil Analysis Basics**

- 1) The Purpose behind Performing Oil Analysis  
*An overview of the parameters of lubrication and wear that oil analysis can effectively monitor.*
- 2) Oil Analysis Tests  
*How each of these tests are performed, and what they mean.*
  - a. *Viscosity testing*
  - b. *ICP Spectroscopy*
  - c. *Testing for Water*
  - d. *Demulsibility*
  - e. *FT-IR*
  - f. *Acid Number / Base Number*
  - g. *Particle Counting*
  - h. *Wear Particle Concentration*

### **Module 3: Wear Particle Analysis**

- 1) Principle  
*What Wear Particle Analysis (WPA) is and how it is useful.*
- 2) Methodology  
*How WPA is performed.*
- 3) Analytical Ferrography  
*An in depth look at analyzing a ferrogram.*
- 4) Example Analysis  
*Putting it all together in an example.*

### **Module 4: Starting, Managing, and Administering an Oil Analysis Program**

- 1) Setting Goals  
*As with any program, it is important to set goals for oil analysis.*
- 2) Selecting Equipment  
*How to decide which equipment should be included in a program.*
- 3) Sample Frequency  
*How often to sample.*
- 4) Sampling Techniques  
*How best to obtain a sample for analysis.*
- 5) Test Packages  
*Selecting tests to be performed on your samples.*
- 6) The Oil Analysis Process  
*How it all happens, from ordering supplies to reading a report.*
- 7) Report Interpretation  
*What to make of the numbers on the report.*