



PD784

Material Issues and Solutions for Mechanical Engineers

Day 1

- Material Issues in Mechanical Engineering Practice
 - Material Strength and Durability
 - Material Selection
 - Material selection for part repair

- Mechanical Properties of Engineering Materials
 - Fundamental Mechanical Properties
 - High-Temperature Materials Properties
 - Properties in Challenging Environment

- Material Specifications
 - Material Specification for Mechanical Engineer
 - Types of Material Specification

- Mechanical Metallurgy
 - Metallurgical Microstructure
 - Effect of Grain Size

Day 2

- Materials Feasibility in Repairs
 - Mechanical Part Repair
 - Welding Repair

- Materials for Manufacturing
 - Material Characteristics in Production
 - Materials for High-Temperature Process

- Materials Selection in Machine Design
 - Material Factors in Selection
 - Handbooks and Charts

- Materials Selection Case Study and Exercise
 - Materials for Automotive Industry
 - Materials for Aerospace Industry



Day 3

- **Materials for Reverse Engineering**
 - Material Verification
 - Material Identification
- **Materials Reliability and Mechanical Failure Prevention**
 - Part Failure and Fracture Mechanics
 - Mechanical Part Life Cycle Analysis
- **Material Environmental Susceptibility**
 - Part Degradation in Atmosphere
 - Corrosive Reaction at Elevated Temperature
- **Material Sustainability**
 - Material Supply and Demand
 - Market of sustainable material