1. **Surface Cleaning**
   Classification and Selection of Cleaning Processes
   Alkaline Cleaning
   Solvent Cold Cleaning and Vapor Degreasing
   Emulsion Cleaning
   Molten Salt Bath Cleaning
   Ultrasonic Cleaning
   Acid Cleaning
   Mechanical Cleaning Systems
   Pickling and Descaling

2. **Finishing Methods**
   Classification and Selection of Finishing Processes
   Finishing Methods Using Defined Cutting Edges
   Finishing Methods Using Multipoint or Random Cutting Edges
   Nonabrasive Finishing Methods
   Mass Finishing
   Shot Peening
   Topography of Surfaces
   Microstructural Analysis of Finished Surfaces
   Residual Effects of Finishing Methods
   Thermal Aspects of Surface Finishing Processes
   Selection, Application, and Disposal of Finishing Fluids
   Influence of Work Material Properties on Finishing Methods

3. **Plating and Electroplating**
   Copper Plating
   Industrial (Hard) Chromium Plating
   Decorative Chromium Plating
   Nickel Plating
   Iron Plating
   Cadmium Plating
   Zinc Plating
   Indium Plating
   Tin Plating
   Lead Plating
Silver Plating
Gold Plating
Platinum-Group Metals Plating
Copper Alloy Plating
Tin Alloy Plating
Zinc Alloy Plating
Nickel Alloy Plating
Chromium Alloy Plating
Multiple-Layer Alloy Plating
Selective (Brush) Plating
Pulsed-Current Plating
Electroforming
Electroless Nickel Plating
Electroless Copper Plating
Electroless Gold Plating
Electroless Alloy Deposition
Mechanical Plating

4. Dip, Barrier, and Chemical Conversion Coatings
   Surface Preparation for Continuously Applied Coatings
   Continuous Hot Dip Coatings
   Continuous Electrodeposited Coatings for Steel Strip
   Batch Hot Dip Galvanized Coatings
   Babbitting
   Phosphate Coatings
   Chromate Conversion Coatings
   Rust-Preventive Compounds
   Painting
   Elastomeric Coatings for Automotive Plastics
   Porcelain Enameling
   Ceramic Coatings and Linings
   Anodizing

5. Vacuum and Controlled-Atmosphere Coating and Surface Modification Processes
   Thermal Spray Coatings
   Chemical Vapor Deposition of Non semiconductor Materials
   Chemical Vapor Deposition of Semiconductor Materials
   Plasma-Enhanced Chemical Vapor Deposition
Growth and Growth-Related Properties of Films Formed by Physical Vapor Deposition
Vacuum Deposition, Reactive Evaporation, and Gas Evaporation
Sputter Deposition
Ion Plating
Ion-Beam-Assisted Deposition
Arc Deposition
Ion Implantation
Diffusion Coatings
Pulsed-Laser Deposition

   Film Thickness Measurements Using Optical Techniques
   Corrosion Testing of Coatings
   Evaluation of Mechanical Properties of Thin Films
   Stress Determination for Coatings
   Testing of Stability and Thermal Properties of Thermal Barrier Coatings
   Microstructural Characterization of Coatings and Thin Films
   Surface and Interface Analysis of Coatings and Thin Films
   Overview of Wear and Erosion Testing of Coatings

7. Surface Engineering of Irons and Steels
   Surface Engineering of Cast Irons
   Surface Engineering of Carbon and Alloy Steels
   Surface Engineering of Stainless Steels
   Surface Engineering of Specialty Steels

8. Surface Engineering of Nonferrous Metals
   Surface Engineering of Heat-Resistant Alloys
   Surface Engineering of Aluminum and Aluminum Alloys
   Surface Engineering of Copper and Copper Alloys
   Surface Engineering of Magnesium Alloys
   Surface Engineering of Titanium and Titanium Alloys
   Surface Engineering of Zirconium and Hafnium
   Surface Engineering of Refractory Metals and Alloys
   Surface Engineering of Nickel and Nickel Alloys
   Surface Engineering of Zinc Alloys
9. **Surface Engineering of Selected Nonmetallic Materials**
   - Glazes and Enamel Coatings for Ceramics and Glasses
   - Surface Engineering for Chemical Activity
   - Protective Coatings for Carbon-Carbon Composites
   - Plasma Surface Engineering of Plastics
   - Surface Engineering of Carbide, Cermet, and Ceramic Cutting Tools

10. **Environmental Protection Issues**
    - Environmental Regulation of Surface Engineering
    - Cadmium Elimination in Surface Engineering
    - Chromium Elimination in Surface Engineering
    - Vapor Degreasing Alternatives
    - Compliant Organic Coatings
    - Compliant Wipe Solvent Cleaners