ME 824 - FIRE WATER PIPELINES METALLURGY AND CORROSION STUDIES

UNIT I: Pipelines Construction

Sizes, types and specifications - Clearing and Grading - Pipe Bedding Material - Welding - Pipe Coating - Hydrostatic Testing - Final Grading and Reclamation

UNIT II: Factors Influencing Pipeline Design

General Pipeline Design Considerations – Safety - Industry Codes and Standards - Pipeline Coating, sizing and pressure - Leak Detection - Overpressure Protection - Valve Spacing and Rapid Shutdown - Pumps and Pumping Stations - Risk of Natural Hazards and Human Threats

UNIT III: Corrosion in Pipelines

Understanding the Process - Uniform vs. Localized Corrosion - External Corrosion- Internal Corrosion - Environmentally Assisted Cracking

UNIT IV: Protective Coatings

Coatings and Coating Processes - Supplementary Protection Systems - Surface Preparation

UNIT V: Corrosion Inhibitors

Classification of Inhibitors - Corrosion Inhibition Mechanism - Selection of an Inhibitor System

References:

1. Henry Liu; "Pipeline Engineering". Lewis publication (2003)
2. Speller, F.N., Corrosion – Causes & Prevention, 3rd Edition, McGraw Hill Book Company, Inc. New York, 1951.
3. A.W. PEABODY"PEABODY'S CONTROL OF PIPELINE CORROSION". (NACE International -The Corrosion Society (2001)