

MME 305: Corrosion Engineering

Principles of corrosion and oxidation, Basic concepts, classification, Thermodynamics and kinetics of electro chemical corrosion, Electrode Potential, Pourbaix diagram, corrosion rates, types of Corrosion Bimetallic Corrosion, localized attack passivity and passivation, structure of metals and alloys, Effects of Mechanical factors on corrosion, theory of stress corrosion, corrosion fatigue, corrosion control, Design and corrosion cathodic protection, Protection by metallic coating and other coating Environmental control. Description of metallurgical factors, effect of applied stress (stress corrosion cracking and corrosion fatigue and passivity). Discussion of methods of corrosion control and prevention including alloy selection, environmental control (inhibitors), design rules anodic and cathodic protection and protective coatings. Principles of electroplating and surface finishing. alloys, Effects of Mechanical factors on corrosion, theory of stress corrosion, corrosion fatigue, corrosion control, Design and corrosion cathodic protection, Protection by metallic coating and other coating Environmental control. Description of metallurgical factors, effect of applied stress (stress corrosion cracking and corrosion fatigue and passivity). Discussion of methods of corrosion control and prevention including alloy selection, environmental control (inhibitors), design rules anodic and cathodic protection and protective coatings.