COURSE CONTENTS

1. Principle of Low Temperature (wet) Corrosion
2. Various forms of wet Corrosion and remedial measures
3. High temperature corrosion principles
4. (High Temperature Corrosion) : Oxidation, Sulphidation, Liquid Metal corrosion
5. Fuel ash Corrosion and HTHA (Nelson Curve) & Case study.
6. Corrosion Monitoring methods: direct and indirect, intrusive and non-intrusive methods, coupon method,
7. ER & LRP monitoring, NDT and analytical methods of monitoring
8. Mitigations: Materials Selection, Design for corrosion control, coatings, cathodic & anodic protections and modification of environment.
9. Classification of Engineering Material (metals, composites and non- metals)
10. Properties and Application of (Ferrous, Ni-Cr-Fe Alloys, Non- ferrous Alloys.
11. Properties and Application of Duplex and NACE-Material).
12. Material Selection Methodology, Specification, code & standards
13. Material Degradation& Mechanical Failures Material Degradation Carburization/Graphitization, Temper Embrittlement Sensitization / Sigma phase)
14. Mechanical Failures (Overloading, Creep, Fatigue, wrong material selection / Metallurgy mix-up, Material abuse and Thermal shock)
15. Crude oil characteristics, API gravity and corrosivity. Impact of crude oil impurities on process unit corrosion. Overhead Corrosion control
16. High TAN(Naphthenic Acid) and sour crude corrosion and mitigation and material selection.
17. Erosion – Corrosion, Stress Corrosion Cracking (Polythionic and Chloride
18. Stress Corrosion Cracking), material selection and MOC
19. Hydroprocess (Hydro Cracker, Hydrotreater and Desulfurizer)
20. Ammonium Bisulfide Corrosion and mitigation.
21. High temperature H_2/H_2S Corrosion, corrosion rate curves for alloys and copper-Gorman curve , corrosion mitigation, material selection and MOC, SS321 Vs SS347 application. Stress relaxation cracking (SRC) and stabilization heat treatment.
22. Lighter End and Auxiliary Units (LPG & Amine treating and SRU Units
23. Sour environment corrosion (Wet-H2S Corrosion). Amine Cracking, PWHT, Material Selection and MOC, NACE Material & NACE-RP 103
24. Caustic embrittlement , causting gauging and cracking, material and PWHT requirement.